

Betsy Ng *Editor*

Self-Determination Theory and Socioemotional Learning

 Springer


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 Betsy Ng

Part I
Socioemotional Learning in Schools

Chapter 1

Understanding the Socioemotional Learning in Schools: A Perspective of Self-determination Theory



Betsy Ng

Abstract This is a conceptual chapter that aims to postulate the framework of self-determination theory (SDT) on promoting socioemotional learning (SEL) in schools. As SDT promotes self-determination in which individuals act according to their own volition toward their goals or desires, it could be the avenue to understand how individuals relate to each other, promoting individual self-efficacy, socioemotional skills, and mental well-being. Hence, the key purpose of the chapter is to identify the strategies of SDT to promote SEL in schools. The main research question is: what are the SDT-based research and strategies that can promote SEL in students? There is a strong relevance of this research in the current educational context. Specifically, SDT-based practices in relation to SEL are not widely investigated, and there is no existing SDT-SEL approach to support teachers, educational leaders, and schools to adopt relevant strategies of SEL. This chapter suggests that SDT-based practices could promote SEL in schools, thereby supporting teachers and students toward better physical and mental well-being. Practical implications and recommendations for this field of research will be discussed. Furthermore, insights into the strategies in SDT to promote SEL in schools will be included.

Introduction

Socioemotional learning (SEL) is a critical part of students' learning, preparing them to live and work as adults in the twenty-first century (MOE, 2019). When students do not have the emotional and social abilities, they may face difficulties in coping with anxiety or stress. Students experience a variety of problems related to school maladjustment or violence and behavioral issues, as well as social relationships and emotion regulation in their everyday lives (Oh & Song, 2021). Without adequate social-emotional competencies (SECs), they may experience a variety of problems related to school violence and school maladjustment, in addition to problems with

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interpersonal relationships and behavioral regulation in their everyday lives. As such, SEL has become increasingly of interest to educational research, policy, and practice.

Studies reported that SECs promote the development of positive attitudes, as well as enhance cognitive skills, coping strategies, and academic performance (e.g., Ahmed et al., 2020; Weissberg et al., 2015). SECs are effective in preventing school maladjustment and behavioral problems by positively influencing the school life of students, in terms of their emotion regulation, motivation, and engagement with learning. Therefore, schools play an important role in the teaching of socioemotional skills to students, equipping them to cope with anxiety and stress effectively.

The key contribution of this chapter is to highlight the importance of SEL that is likely to prevent students' behavioral problems at both intra- and inter-levels. The focus of SEL is not only on students' academic performance and well-being; it is also a universal prevention of stress and promotion of self-management. However, it is a concerted effort that involves school leaders, teachers, students, and their peers, together with researchers to create a caring school community that connects research and practice.

Literature Review

Self-determination Theory

Self-determination is important in the development of individuals to become more effective and refined in their reflection of ongoing experiences (Ryan & Deci, 2008). Individuals act because of motives, needs, and incentives. In this manner, they will experience self-determination when their three basic psychological needs are satisfied. Based on the self-determination theory (SDT), the three basic needs that are essential for optimal functioning and well-being are namely autonomy, competence, and relatedness. Autonomy refers to being the source of one's behavior with the volition for choice-making, competence is experiencing optimal self-proficiency and capability, while relatedness refers to a sense of belongingness with individuals and community (Deci & Ryan, 1985). To facilitate students' psychological needs, teachers could create an autonomy-supportive environment that fosters students' need satisfaction which in turn nurture their intrinsic motivation toward learning. Previous studies showed that autonomy-supportive environment increased motivation and improved academic performance (e.g., Ng et al., 2015; Reeve & Jang, 2006).

Autonomy-supportive environment refers to a learning climate that is characterized by social, relational tone or instructional acts to nurture students' intrinsic motivation (Reeve & Jang, 2006). As such, autonomy support promotes need satisfaction and facilitates self-determined forms of motivation (Cheon et al., 2012). For instance, the following principles could create an autonomy-supportive environment, namely:

- (1) identifying and fostering students' intrinsic motivation by offering options;
- (2) fostering interest with respect to learning;
- (3) providing rationale and informational feedback;
- (4) encouraging self-regulated learning (Ng et al., 2015).

Extensive studies in the SDT literature have provided the benefits associated with autonomy support and need satisfaction of learners (e.g., Hsu et al., 2019; Jang et al., 2012). As SDT has been recognized as a macro-human theory and is widely applied in education research, it has potential to address students' SEL in schools and support their mental well-being. Within the context of SDT, one of the most important socioemotional skills that children could develop in a need-supportive environment is their empathy (Kurdi et al., 2021). For instance, need for relatedness is likely to support students' prosocial behaviors that display greater empathy.

An example of creating autonomy-supportive discussions with students could enhance positive emotions in them which in turn bring in positive perceptions of the teacher, resulting in less negative emotions and violence in class (Guay, 2022). The greater the student's satisfaction is, the more his or her positive emotion at school is. Hence, teachers who apply autonomy support could enhance student's psychological needs that in turn foster socioemotional outcomes.

A Theory of Social and Emotional Learning

Social and emotional learning or socioemotional (SEL) is defined as the individual capacity to recognize and manage emotions, solve problems effectively, and establish and maintain positive relationships with others (Ragozzino et al., 2003). SEL involves the process by which individuals acquire and effectively apply the knowledge, attitudes, and skills to understand and manage their emotions, to feel and show empathy for others, to establish and achieve positive goals, as well as to make responsible decisions (Schonert-Reichl, 2017). In this chapter, SEL is viewed as an essential process by which young children should learn at an early age so that they practice socioemotional skills to build healthy connections, regulate own emotions, and display emphatic behaviors.

In simpler terms, SEL relates to competencies in combination of cognitions and emotions and behaviors that are essential for all students' success in schools and throughout their lives (Zins et al., 2007). Likewise, socioemotional skills play an important role in driving lifetime success, as they are involved in achieving goals, working with others and managing emotions (OECD, 2018). Based on extensive research, the Collaborative for Academic, Social, and Emotional Learning (CASEL, 2022) has identified five interrelated competencies that are central to SEL: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. These five social-emotional competencies (SECs) are elaborated in the following:

- (1) knowing oneself and other people (self-awareness skill to recognize and label one's own feelings);
- (2) knowing how to behave (self-management skills in effectively managing stress and emotions);
- (3) caring for other people (social awareness skills in which empathy is a key factor);
- (4) maintaining healthy relationships with diverse individuals and groups (relationship skills such verbal and non-verbal communication, management of interpersonal relationships, and negotiating);
- (5) taking responsible decisions (with appropriate emotional regulation).

Given a clear theoretical perspective, the next section discusses the relevant literature and empirical findings.

Positive Outcomes Related to SEL

The need for the abovementioned SEL covers a wide range of tasks such as academic and social tasks. During SEL, emotions such as curiosity and interest play the role of making social and rational decisions. SEL also contributes to effectiveness in social interaction (Payton et al., 2000; Rose-Krasnor, 1997), as significant learning involves making connections between meaningful individual experiences and academic skills (Strahan & Poteat, 2020).

Other studies have shown SEL directly and indirectly predicted students' academic readiness (e.g., Denham et al., 2014), academic performance (McKown et al., 2009), and positive student outcomes such as health and mental well-being (Aldridge et al., 2016; Mowat, 2019). Other positive student outcomes include higher sense of self-efficacy, improved attitudes toward learning, greater academic motivation, better conflict resolution skills, and reduced interpersonal violence (Yang, 2021; Zins et al., 2007). Many of the positive outcomes were found to be associated with SEL interventions, but not anchored on SDT's principles.

Alignment Between SDT and SEL

Both SDT and SEL are considered universal. SDT is a macro-theory that recognizes the satisfaction of three basic psychological needs, whereas SEL is a necessity for all humans to develop socioemotional skills (Kurdi et al., 2021). Through SDT-SEL practices, our students could thrive in both school and life. Both theoretical frameworks are important as they highlight the need satisfaction and SECs of all humans for positive outcomes and socioemotional well-being. Both theories focus on the importance of social environments. For instance, SDT emphasizes the need-supportive environment (need for relatedness), whereas SEL underlies the emphatic emotional and social interactions (relationship skills). By aligning SDT and SEL,

there are many areas of research that can explore such as person-centered and context-sensitive for positive outcomes, as well as intervention studies tailored for culture and context.

According to SDT (Ryan & Deci, 2017), a need-supportive context or motivational climate will facilitate the development of the five SECs. Hence, it is important to target SDT-based interventions by improving students' social context to develop their SECs. While SDT complements the SEL programs, SEL contributes to SDT by developing SECs within need-supportive contexts. These two frameworks potentially contribute to research and practice, highlighting the factors of need-supportive environment that facilitate the development of socioemotional skills.

Empirical Studies on SDT and SEL

Knopik and Oszwa (2020) investigated whether the teachers' ($N = 28$) daily practices of the SDT's principles support students' basic psychological needs (autonomy, competence, and relatedness), which in turn enhance their SECs. Their study focused on the satisfaction of basic psychological needs, development of SECs, and school achievements in 10- to 11-year-old Polish students ($N = 94$). The five areas of SECs analyzed were dealing with difficulties; social relations; self-esteem; agency; and affect control. Results provided some evidence that the SDT's implementation satisfied the students' three basic needs which contribute to the SECS and, in turn, translated into better school achievements.

Oh and Song (2021) examined the relationship between psychological needs, SECs, and relatedness support from peers and teachers in physical education classes. They conducted this study on 379 middle-school students. Their findings showed that relatedness support from peers and teachers had positive effect on the students' psychological needs, which in turn contribute positively to SECs. This suggests that the relatedness with peers and teachers positively influenced students' class participation and their emotion regulation. Finally, the authors tested whether psychological needs satisfaction is a mediator between the learning environment and SECs of students. It was found that needs satisfaction is a mediator between the support of relatedness (from peers and teachers) and students' SECs. This suggests that it is important to build positive relationships with peers and teachers through experiencing trust and relatedness support, thereby supporting students' self-regulation of behavior, attitude, and academic performance. Likewise, both peers and teachers play a significant role in impacting students' adjustment in schools and socioemotional well-being.

Pitzer and Skinner (2017) investigated the relationships among students' personal resources (perceived relatedness, competence, and autonomy), interpersonal resources (perceived teacher warmth, structure, and autonomy support), and emotional reactivity and if they predicted changes in motivational resilience and achievement over the school year. In their study, 1020 students from grades 3 to 6 of the same school participated. Their findings revealed significant relationships among students' resources, emotional reactivity, motivational resilience, and achievement.

This study also showed that teacher support played a role in promoting motivational resilience and achievement, by comparing motivationally at-risk students with less at-risk students. Students who were motivationally at-risk with high levels of teacher support bounced back such that they ended with greater motivational resilience than those students who were less at-risk but with low levels of teacher support.

Saeki and Quirk (2015) examined the relations among students' social-emotional and behavioral functioning, engagement, and basic psychological needs satisfaction. Their study was based on the sample size of 83 sixth-grade students. They tested the mediation model to investigate the role of needs satisfaction on the relations among engagement, social-emotional, and behavioral functioning. It was found that engaged students with lower social-emotional and behavioral risk had underlying satisfaction of basic psychological needs, indicating that they experience autonomy, competence, and relatedness. Findings of this study highlight that by improving social-emotional and behavioral outcomes, students would feel autonomous, competent, and connected with their school. Saeki and Quirk (2015) also suggested that schools could consider supporting students' basic psychological needs that most effectively improve their social-emotional and behavioral functioning which in turn enhance their well-being.

Wu and colleagues (2021) used a 2×2 factorial design to study the effectiveness of teacher autonomy support (TAS) to improve students' SEL knowledge. Their study was conducted on 299 eighth-grade students and delivered in two different approaches (TAS-SEL versus SEL) by two types of teachers (psychology versus regular schoolteachers). They examined the impact of TAS-SEL intervention on rural junior high school students' learning anxiety and dropout intention in a boarding school from China. The TAS-SEL intervention was carried out using the TAS behavioral guidelines to deliver the SEL lessons to students. TAS-SEL intervention was effective in increasing students' acquisition of SEL-related knowledge, but not reducing their learning anxiety. TAS-SEL also improves students' educational and developmental outcomes such as engagement, learning quality, and intrinsic motivation. On the other hand, SEL intervention helped in reducing students' learning anxiety. Overall, the TAS-SEL intervention by the psychology teacher was found to be more effective than regular teachers in reducing students' dropout intention.

In general, the abovementioned studies highlight the importance of SEL, and SECs positively affect students' school achievement, their motivation, and even attitude in the classroom. By nurturing students with SEL skills or SECs, they are equipped with the ability to regulate emotions and engage with learning. One of the studies also indicated the important role that teachers play in class as their support could change the dynamics of students' learning and motivation (Pitzer & Skinner, 2017). Furthermore, research findings also emphasized the importance of students' basic psychological needs satisfaction on SEL, promoting their self-determination and mental well-being.

Research Gaps

Much SDT-based research has focused solely on academic outcomes of students. Little empirical research has examined the impact of TAS on students' psychological needs satisfaction that could influence their socioemotional well-being and outcomes. This chapter aims to fill these gaps, highlighting the potential of SDT's principles and autonomy-supportive environment to inform researchers and practitioners to nurture SEL in students.

Purpose of Research

Based on the existing knowledge, there is no research on the SDT-based practices and strategies to promote SEL in schools. As there is limited empirical research in SDT and SEL, the objective of the present research is to identify the SDT-based strategies to nurture SEL in schools. The research question is "What are the SDT-based strategies that can promote SEL in students?"

SDT-Based Strategies for SEL

The rationale of the present chapter is to promote SDT-based strategies for SEL. SECs play an important role in enacting socially and emotionally competent behaviors and well-being in students (Collie, 2022). Specifically, SEL is associated with SDT because it brings about human thriving. Grounded in SDT, the six proposed strategies to nurture students' SEL are:

1. Take student's perspective
2. Vitalize students' inner motivational resources
3. Use non-pressuring, informational language
4. Provide explanatory rationales
5. Display patience
6. Acknowledge and accept negative affect.

The following sections entail the six SDT-based strategies to nurture SEL (i.e., SDT-SEL) in schools. For each strategy, it is further exemplified with the "what" and "how", to guide teachers in their implementation. The "how" aspect is to nurture students' SECs which are described in the parentheses.

Take Student's Perspective

As educators, we should learn to regulate our own emotions while being aware of our students' feeling in class (Ng, 2022). In relating to this, taking the student's perspective enables us to understand how students feel and think. By practicing this first strategy, we are getting mindful of our students' needs and emotions. This strategy may be familiar to most teachers, but at the same time, they may find it challenging to implement in their class. Moreover, it is challenging to take every student's perspective as there are so many students in a class. Therefore, it takes time and effort to know every child's needs. Eventually, the teacher will understand the meaningful intent of it by understanding their students' needs and planning their lesson with the elements of SEL. This in turn translates to meaningful learning and teaching.

What It Is

- Standing in “the shoes of the student”.
- Being mindful of student's needs.

How to Do It

- The teacher understands the student's perspective (social awareness).
- The teacher prepares a lesson plan with elements of SEL (five SECs).
- The teacher encourages student's input into lesson plan (responsible decision-making).
- The teacher listens mindfully (attentively) to student's needs (relationship management).

Vitalize Students' Inner Motivational Resources

Students' inner motivational resources refer to students' interests and preferences. Vitalizing inner motivational resources fundamentally refers to stimulating the psychological needs for autonomy, competence, and relatedness, which in turn ignite students' intrinsic motivation, interest, enjoyment, and curiosity (Reeve & Jang, 2006). Teachers can make use of those by planning activities that could ignite students' intrinsic desire to learn. An example to vitalize inner motivational resources is a topic on insect life cycle, by bringing caterpillars into the classroom and observing the changing stages of a butterfly. Alternatively, we could use a video clip to get them excited about the topic by inquiry learning and get them to learn about how the life of an insect begins.

What It Is

- Provision of opportunities to involve students' sense of autonomy, competence, and relatedness.
- Explaining the lesson by: (a) providing content and (b) nurturing psychological needs.

How to Involve Autonomy

- The teacher integrates options into the instruction to promote students' value and internalization (self-awareness and self-management).
- The teacher vitalizes the students' interest and preferences—why the activity has personal benefit to the student (self-awareness and self-management).

How to Involve Competence

- The teacher challenges students with guidance and strategies through scaffolding (responsible decision-making).

How to Involve Relatedness

- The teacher engages students in social interactions such as group work and sharing their work or answers (social awareness and relationship management).

Use Non-pressuring, Informational Language

Besides taking the student's perspective, it is also challenging for teachers to be mindful of their actions and words. Besides having the sense of both social and self-awareness, it takes effort and time to practice the right language and right tone to students. Most of the time, teachers are likely not aware of what they say in the classrooms given all the tasks that need to be completed in a few short classroom periods. The use of non-pressuring and informational language refers to modals such as "may", which allow students to vitalize their inner motivational resources and thereby nurture their motivation. Hence, teachers should avoid using "strongly emphasized" modals such as "must" or "should".

What It Is

- Use of verbal and non-verbal communications.
- Minimizing the use of pressuring words such as "must" or "should".

- Conveying flexibility to nurture students' inner motivational resources.

How to Do It

- The teacher uses invitational language: Help students start on a task: “You may want to try...” (self-awareness and relationship management).
- The teacher uses informational language by helping students to diagnose and solve their own problems. An example of a question: *Do you know what you might do differently to make better progress?* (social awareness and self-management).

Provide Explanatory Rationales

The provision of explanatory rationale is to let students know the objective of learning for the lesson. Due to time pressure and demands from the school syllabus, teachers have the tendency to start their lessons right away when they enter class, without explaining to the students the intent and objective of the lesson for the day. It is recommendable that teachers share the objective of the lesson or task and provide explanatory rationales to students within the day's class.

What It Is

- Use of verbal explanations to nurture students' social and self-awareness and emotional regulation to understand why an activity has personal benefit or value.
- Helping students to transform (i.e., internalize) their learning in terms of why doing the activity.

How to Do It

- The teacher communicates that the activity is *useful* for students (self-awareness).
- The teacher explains *why* it is useful—why it has personal benefit to the student (social awareness and responsible decision-making).

Display Patience

Due to the demands of syllabus and time constraint, it is not easy for teachers to allow time for students to take their pace of learning in class. As such, teachers may find it difficult to display patience, especially the period for exam preparation that can be considered stressful. Displaying patience toward students is thus considered a challenging feat by some teachers (Ng et al., 2015) as they give students the

time to learn at their own pace. One recommendation is that teachers may allow students to work at their own pace to build up their SECs such as self-awareness and self-management skills during the usual lessons (non-exam period).

What Is It

- Waiting for students' inputs and initiatives.
- Giving time and space students need during learning.
- Allowing students to work at their own pace.

How to Do It

- The teacher gives students time and space to work (social awareness).
- The teacher provides opportunities for students to learn at their own pace (responsible decision-making).
- The teacher watches, listens, and stays responsive, so that he or she will provide help to students when needed (self-awareness and relationship management).

Acknowledge and Accept Negative Affect

Negative affect refers to any experience of unpleasant feeling or negative emotion. It is often a challenging task to acknowledge and accept one's negative affect (Ng, 2022). However, by doing so, this strategy demonstrates the empathy teachers have for their students and their own emotional regulation. For instance, when our students are feeling restless or getting less enthusiastic in class, we could ask them if there is something that they would like to do the next time. Hence, welcoming suggestions is an approach to get students play an active role in their learning process. The students may even help teachers in crafting a project's topic or designing a task that ignites students' interest and curiosity in the subject.

What Is It

- Teacher's acknowledgment on students' negative feelings.
- Teacher's acceptance of students' negative affect as valid.
- Teacher's invitation of students' suggestions on what can be done to remove their negative affect.

How to Do It

- The teacher acknowledges negative feelings: *I see that you are less enthusiastic about today's lesson* (self-awareness and self-management).
- The teacher accepts students' negative feelings as potentially valid: *I understand that you are tired...* (social awareness).
- The teacher welcomes suggestions to solve a motivational problem: *Any suggestions ...?* (relationship management).

Discussion

To create an autonomy-supportive environment in nurturing SEL, it is important for teachers to understand the six key instructional acts and apply them in facilitating the five SECs to students. For autonomy support to be successful, teachers need to be receptive and undertake the practice of SDT willingly (i.e., “buy-in” of SDT’s practice). In employing these relevant strategies, teachers could inculcate students with key socioemotional skills that support their learning and well-being. First, teachers need ample support in the form of protocol to become familiar with the self-determined acts and how to carry them out effectively.

Second, teachers’ beliefs may impact the success implementation of the autonomy-supportive instructional acts in class. There is a possible gap in expectations between teachers and students. It is likely that the way the teacher conducts the class might influence the students’ learning experience, thwarting or supporting their need satisfaction. When the teacher has social and self-awareness, he or she is competent to communicate effectively and clearly to the students. Otherwise, misunderstandings with students may happen, in turn causing frustration that may thwart the need for relatedness. As such, the teacher will find it more challenging to reach out to the students and build the rapport. Hence, SECs are important to bridge the relationships between teachers and students.

Third, teachers with a sense of relatedness to students develop positive teacher–student relationship, which in turn will help to nurture SEL. It is important to note that a positive teacher–student relationship is built on trust, mutual respect, confidence, and effective communication (Ng et al., 2015). The more social support students perceived from their peers and teachers, the more they experience school belongingness or relatedness. When students experienced a higher sense of relatedness, they displayed less disruptive or maladaptive behaviors (Martinot et al., 2022).

Furthermore, the school climate should allow the teachers to have some workload off or reduce a few hours of their workload per week when teachers are willing to take up the SDT-SEL approach. In this manner, teachers are more supported to apply SDT-SEL approach on their students as they could reinforce SECs in appropriate contexts. Teachers need time to plan and know their students well, enabling SEL

instructional behaviors to be responsive and thereby reaching the desired socioemotional outcomes. Specifically, teachers need to plan their lessons that are aligned to SDT-SEL's principles while allowing for flexibility.

For the successful implementation of the abovementioned strategies, teachers need to be mindful of their students' needs. Teachers have to be good listeners and observers to understand students' learning difficulties and interest level on the tasks. In addition, it is important to be aware of one's own body language where it is a potential "weapon" that could undermine or support students' learning. For instance, teachers may unwittingly exhibit a lack of patience that dampens students' feelings and discourages them from voicing out in class.

Using SDT to nurture SEL may provide evidence, previously lacking, to enhance students' motivation and socioemotional outcomes in schools. By adopting SDT-SEL, this instructional approach hopes to improve students' SECs and allow them to bring their own levels of competencies to the classroom so that they are not passive learners. Instead, students should actively contribute to the dynamic learning processes that encompass building relationships with peers and adults, making responsible decision, as well as self-managing own emotions. It is thus important to take the first step to develop the SECs in students, promoting their level of self-awareness as well as being reflective thinkers and doers.

Practical Implications and Recommendations

In general, the application of SDT to an educational context may develop students' socioemotional skills in schools. SDT-SEL research underscores the critical role of motivation and emotion in bringing previously acquired knowledge to inform the educators, thereby transferring such knowledge in schools and real-life situations. Through SDT-based practices, teachers could support students by implementing classroom-wide interventions that address SEL of their students. School teachers serve an important role to propose and adapt existing SDT intervention programs to their schools. However, it should be noted that such role may add additional task for teachers which may result in stress. It is important to cultivate intrinsic motivation of teachers who are willing to test out such SDT-SEL interventions in the classroom. Teachers are encouraged to create autonomy-supportive learning environment that is authentic and allow meaningful tasks for students to do. This is achievable if teachers are willing to know their students' interests and preferences, on top of their mundane tasks. The reality of the classroom may be challenging and deter the teachers' role to nurture SEL in their students.

The SDT-SEL approach presented in this chapter can be used by teachers and practitioners when designing their lesson plans. At present, SEL-related lesson is not conducted as part of the core and academic curriculum in schools. It would be considered effective to nurture students' SEL by implementing the elements of SECs into the core curriculum, developing their socioemotional skills, and enhancing their well-being.

Future Directions

The present chapter presents a key issue in how to implement SDT-based strategies in class to nurture students' SEL. To have a successful implementation, it requires a concerted effort of schools and national agenda to further SDT-SEL at all levels of research, practice, and policy. For instance, a national policy that places SEL alongside academic performance, integrated with existing educational policies and allocated adequate resources for SECs development and sustainability. In addition, an assessment tool is recommended to evaluate SEL and the progress of its development. Besides establishing a tool for SEL assessment, other measures that evaluate student competencies and behaviors should be included to inform instructional practice and policy. In addition, a teacher's well-being should not be neglected, and building adult SEL is thus essential. Providing SEL training and capacity building for teachers and school staff will support the culture and climate of care and empathy.

Conclusion

The present chapter highlights the benefits of SDT-based practices and how they may be used to promote SEL in schools. The findings in this chapter suggest that SDT-SEL approach could support teachers and students toward better physical and mental well-being. Future SDT-SEL intervention studies could consider shaping students' learning, thought, and behavior.

References

- Ahmed, I., Hamzah, A. B., & Abdullah, M. N. L. Y. B. (2020). Effect of social and emotional learning approach on students' social-emotional competence. *International Journal of Instruction*, 13(4), 663–676.
- Aldridge, J. M., Fraser, B. J., Fozdar, F., Ala'i, K., Earnest, J., & Afari, E. (2016). Students' perceptions of school climate as determinants of wellbeing, resilience and identity. *Improving Schools*, 19(1), 5–26. <https://doi.org/10.1177/1365480215612616>
- Collaborative for Academic, Social and Emotional Learning (CASEL) (2022). Social and emotional learning (SEL). <https://casel.org/>
- Collie, R. J. (2022). Perceived social-emotional competence: A multidimensional examination and links with socialemotional motivation and behaviors. *Learning and Instruction*, 82, 101656.
- Cheon, S. H., Reeve, J., & Moon, I. S. (2012). Experimentally based, longitudinally designed, teacher-focused intervention to help physical education teachers be more autonomy supportive toward their students. *Journal of Sport and Exercise Psychology*, 34(3), 365–396.
- Deci, E. L., Ryan, R. M., Deci, E. L., & Ryan, R. M. (1985). Conceptualizations of intrinsic motivation and selfdetermination. *Intrinsic Motivation and Self-determination in Human Behavior*, 11–40.
- Denham, S. A., Bassett, H. H., Zinsser, K., & Wyatt, T. M. (2014). How preschoolers' social-emotional learning predicts their early school success: Developing theory-promoting,

- competency-based assessments. *Infant and Child Development*, 23(4), 426–454. <https://doi.org/10.1002/icd.1840>
- Guay, F. (2022). Applying self-determination theory to education: Regulations types, psychological needs, and autonomy supporting behaviors. *Canadian Journal of School Psychology*, 37(1), 75–92. <https://doi.org/10.1177/08295735211055355>
- Hsu, H. C. K., Wang, C. V., & Levesque-Bristol, C. (2019). Reexamining the impact of self-determination theory on learning outcomes in the online learning environment. *Education and Information Technologies*, 24, 2159–2174.
- Jang, H., Kim, E. J., & Reeve, J. (2012). Longitudinal test of self-determination theory's motivation mediation model in a naturally occurring classroom context. *Journal of Educational Psychology*, 104(4), 1175–1188. <https://doi.org/10.1037/a0028089>
- Knopik, T., & Oszwa, U. (2020). Self-determination and development of emotional-social competences and the level of school achievements in 10–11-year-old Polish students. *Education* 3–13, 48(8), 972–987. <https://doi.org/10.1080/03004279.2019.1686048>
- Kurdi, V., Joussemet, M., & Mageau, G. A. (2021). A self-determination theory perspective on social and emotional learning. In *Motivating the self forward through equity*. Emerald Publishing Limited.
- Martinot, D., Sicard, A., Gul, B., Yakimova, S., Taillandier-Schmitt, A., & Maintenant, C. (2022). Peers and teachers as the best source of social support for school engagement for both advantaged and priority education area students. *Frontiers in Psychology*, 5841.
- McKown, C., Gumbiner, L. M., Russo, N. M., & Lipton, M. (2009). Social-emotional learning skill, self-regulation, and social competence in typically developing and clinic-referred children. *Journal of Clinical Child & Adolescent Psychology*, 38(6), 858–871. <https://doi.org/10.1080/15374410903258934>
- Ministry of Education (MOE). (2019). *Social and emotional learning*. <https://www.moe.gov.sg/education/programmes/social-and-emotional-learning>
- Mowat, J. G. (2019). Supporting the transition from primary to secondary school for pupils with social, emotional and behavioral needs: A focus on the socio-emotional aspects of transfer for an adolescent boy. *Emotional and Behavioral Difficulties*, 24(1), 50–69. <https://doi.org/10.1080/13632752.2018.1564498>
- Ng, B. (2022, June). *Building social and emotional learning in schools*. SingTeach, Issue 81. <https://singteach.nie.edu.sg/2022/07/27/st81-building-social-and-emotional-learning-in-schools/>
- Ng, B., Liu, W. C., & Wang, C. K. (2015). A preliminary examination of teachers' and students' perspectives on autonomy-supportive instructional behaviors. *Qualitative Research in Education*, 4(2), 192–221.
- Oh, J., & Song, J. H. (2021). The relationship between students' psychological needs, social emotional competencies, and relatedness support from peers and teachers in physical education classes. *Review of International Geographical Education Online*, 11(8).
- Organization for Economic Co-Operation and Development (OECD). (2018). *Trends shaping education spotlight 14—Good vibrations: Students' well-being*. Author.
- Payton, J. W., Wardlaw, D. M., Graczyk, P. A., Bloodworth, M. R., Tompsett, C. J., & Weissberg, R. P. (2000). Social and emotional learning: A framework for promoting mental health and reducing risk behavior in children and youth. *Journal of School Health*, 70(5), 179–185. <https://doi.org/10.1111/j.1746-1561.2000.tb06468.x>
- Pitzer, J., & Skinner, E. (2017). Predictors of changes in students' motivational resilience over the school year: The roles of teacher support, self-appraisals, and emotional reactivity. *International Journal of Behavioral Development*, 41(1), 15–29. <https://doi.org/10.1177/0165025416642051>
- Ragozzino, K., Resnik, H., Utne-O'Brien, M., & Weissberg, R. P. (2003). Promoting academic achievement through social and emotional learning. *Educational Horizons*, 81(4), 169–171.
- Reeve, J., & Jang, H. (2006). What teachers say and do to support students' autonomy during a learning activity. *Journal of Educational Psychology*, 98(1), 209–218.
- Rose-Krasnor, L. (1997). The nature of social competence: A theoretical review. *Social Development*, 6(1), 111–135. <https://doi.org/10.1111/j.1467-9507.1997.tb00097.x>

- Ryan, R. M., & Deci, E. L. (2008). A self-determination theory approach to psychotherapy: The motivational basis for effective change. *Canadian Psychology, 49*(3), 186–193. <https://doi.org/10.1037/a0012753>
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Publications.
- Schonert-Reichl, K. A. (2017). Social and emotional learning and teachers. *The Future of Children, 137*–155. <https://www.jstor.org/stable/44219025>
- Saeki, E., & Quirk, M. (2015). Getting students engaged might not be enough: The importance of psychological needs satisfaction on social-emotional and behavioral functioning among early adolescents. *Social Psychology of Education, 18*, 355–371. <https://doi.org/10.1007/s11218-014-9283-5>
- Strahan, D. B., & Poteat, B. (2020). Middle level students' perceptions of their social and emotional learning: An exploratory study. *RMLE Online, 43*(5), 1–15. <https://doi.org/10.1080/19404476.2020.1747139>
- Weissberg, R. P., Durlak, J. A., Domitrovich, C. E., & Gullotta, T. P. (2015). Social and emotional learning: Past, present, and future. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook of social and emotional learning: Research and practice* (pp. 3–19). Guilford.
- Wu, D., Kaur, A., & Hashim, R. A. (2021). Who delivers it and how it is delivered: Effects of social-emotional learning interventions on learning anxiety and dropout intention. *Malaysian Journal of Learning and Instruction, 18*(1), 1–27. <https://doi.org/10.32890/mjli2021.18.1.1>
- Yang, C. (2021). Online teaching self-efficacy, social-emotional learning (SEL) competencies, and compassion fatigue among educators during the COVID-19 pandemic. *School Psychology Review, 50*(4), 505–518. <https://doi.org/10.1080/2372966X.2021.1903815>
- Zins, J. E., Elias, M. J., & Greenberg, M. T. (2007). School practices to build social-emotional competence as the foundation of academic and life success. *Educating people to be emotionally intelligent, 79*–94.

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Chapter 2

Need Satisfaction and Links with Social-Emotional Motivation and Outcomes Among Students



Kate Caldecott-Davis, Rebecca J. Collie, and Andrew J. Martin

Abstract Ample research has provided support for core tenets of self-determination theory (SDT) across a range of cultures and contexts. Recently, this has extended to considering the social-emotional domains of life (e.g., interpersonal interactions, emotion regulation). In this chapter, we define and discuss social-emotional need satisfaction and the role it plays among school students. As per SDT, we focus on social-emotional need satisfaction in terms of autonomy, competence, and relatedness with respect to individuals' social and emotional interactions and experiences. We refer to the Social and Emotional Competence School Model and review recent research examining social-emotional need satisfaction to summarize the current state of the literature. Following that, we turn our attention to consideration of the adaptive social-emotional motivation, behavior, and well-being outcomes that stem from social-emotional need satisfaction. The chapter concludes with implications for teachers and schools for promoting social-emotional need satisfaction and directions for future research.

Introduction

Within the self-determination theory literature, abundant research has provided support for the basic psychological needs of autonomy, competence, and relatedness across a range of cultures and contexts (Jang et al., 2009; Oga-Baldwin et al., 2017). Within school settings, the bulk of research has examined academic need satisfaction, that is, a sense of autonomy, competence, and relatedness in relation to school or academic tasks (e.g., Jang et al., 2016). Recently, researchers have extended this focus to begin considering the basic psychological needs in relation to social-emotional domains of life, such as social-emotional motivation, behaviors, and well-being (Bigman et al., 2016; Caprara et al., 2008). Considering social-emotional

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domains is important given they form a core part of healthy human development and are central to human thriving (Jones et al., 2015).

The aim of the present chapter, therefore, is to explore the role of need satisfaction in relation to the social-emotional domains. To do this, we harness the Social and Emotional Competence (SEC) School Model (Collie, 2020), which draws together knowledge from self-determination theory (SDT; Ryan & Deci, 2017) and theorizing within the SEC literature (e.g., Rose-Krasnor & Denham, 2009). To begin, we briefly introduce the basic psychological needs as per SDT. Following this, we introduce the SEC School Model, including key constructs and processes within the model. In particular, we focus on how social-emotional need satisfaction plays a role in supporting autonomous social-emotional motivation and, in turn, adaptive behavioral and well-being outcomes. Then, recent research examining need satisfaction in relation to social-emotional motivation and outcomes is briefly reviewed to illustrate the current state of the literature. The chapter concludes with a focus on implications for practice and research within educational settings. In particular, we discuss strategies for teachers and schools to promote social-emotional need satisfaction among students. Given that research into social-emotional need satisfaction is relatively nascent, our implications for research focus on key areas that need to be addressed to further advance the field.

Basic Psychological Need Satisfaction

A fundamental component of SDT (Ryan & Deci, 2017) is the proposition that humans' innate propensity for optimal functioning requires the fulfillment of three basic psychological needs. Basic psychological need satisfaction refers to the individual's sense of autonomy, competence, and relatedness within a specified context (e.g., classroom, workplace, home environment). Autonomy satisfaction, or perceived autonomy, reflects an individual's sense of personal choice and freedom in their expression and behavior within a particular environment (de Charms, 1968). Competence satisfaction, or perceived competence, refers to an individual's perception of their own capabilities to successfully function or adapt to a given activity, environment, or situation (White, 1959). Relatedness satisfaction, or perceived relatedness, occurs when an individual enjoys positive interpersonal relations, which provide a sense of being supported, cared for, valued by important others, as well as being supportive of, caring for, and valuing those others (Baumeister & Leary, 1995).

There is a plethora of research spanning diverse populations and contexts demonstrating that basic psychological need satisfaction is linked with positive academic, occupational, and well-being outcomes (e.g., Mouratidis et al., 2011; Tian et al., 2014; Tilga et al., 2019; Vansteenkiste & Ryan, 2013). Although cultural differences have been noted as varying the degree to which basic psychological need satisfaction is valued (e.g., Markus et al., 1996), empirical evidence consistently demonstrates positive associations between need satisfaction and a range of positive outcomes

across cultures (e.g., Jang et al., 2009; Oga-Baldwin et al., 2017; Ryan & Deci, 2020). Building on this extensive body of literature in the academic and occupational domains, an emerging body of research is now considering the role of basic psychological need satisfaction as applied to the social-emotional domains. To introduce this research, it is important to first discuss conceptual work in that area.

The Social-Emotional Competence School Model

Although there has been limited consensus regarding the definition of SEC within the literature, it is generally considered to reflect an overarching construct that encompasses a range of social or emotional competencies and behaviors (e.g., Saarni et al., 2006; Semrud-Clikeman, 2007). Indeed, within educational contexts, SEC is commonly examined by way of behaviors and competencies. For example, the Collaborative for Academic, Social, and Emotional Learning (CASEL, 2020) describes five social-emotional competencies (self-awareness, self-regulation, social awareness, relationship skills, and responsible decision-making), which inform social and emotional learning curriculum across a wide range of educational contexts.

Although approaches focused on behaviors and competencies, that is, top-down approaches have been crucial for extending knowledge of SEC, theorists have also called for bottom-up perspectives that consider underlying mechanisms in order to provide a more complete understanding of SEC (Stump et al., 2009). The SEC School Model (Collie, 2020), shown in Fig. 2.1, was developed to address this gap and incorporates both top-down and bottom-up approaches. More precisely, the SEC School Model integrates motivational processes derived from SDT (Ryan & Deci, 2017), with established conceptual foundations from the SEC literature (e.g., Denham, 2006; Rose-Krasnor, 1997). In doing so, the SEC School Model features the mechanisms (bottom-up) and manifestations (top-down) integral to students' overarching SEC.

As described in detail below, two key mechanisms are considered in this model: social-emotional basic psychological need satisfaction and motivation. Manifestations of students' SEC are represented by the resulting outcomes, including adaptive social-emotional behaviors and well-being. The SEC School Model, then, does not emphasize students' social-emotional competencies or abilities like many other approaches (e.g., CASEL, 2020), but rather focuses on the mechanisms underlying these competencies (i.e., need satisfaction and motivation), as well as the manifestations of these competencies (by way of behaviors and well-being). In the SEC School Model, child and adolescent development of SEC within the school environment is represented as an iterative process shown in the center of Fig. 2.1. In this iterative process, social-emotional basic psychological need satisfaction promotes a continuum of autonomous social-emotional motivation and, in turn, adaptive social-emotional outcomes. This cycle then continues. Thus, rather than considering SEC as a single construct or looking at different competencies, SEC is identified as a process involving mechanisms and manifestations (Collie, 2022b). The consequence of this iterative process reflects students' overarching SEC.

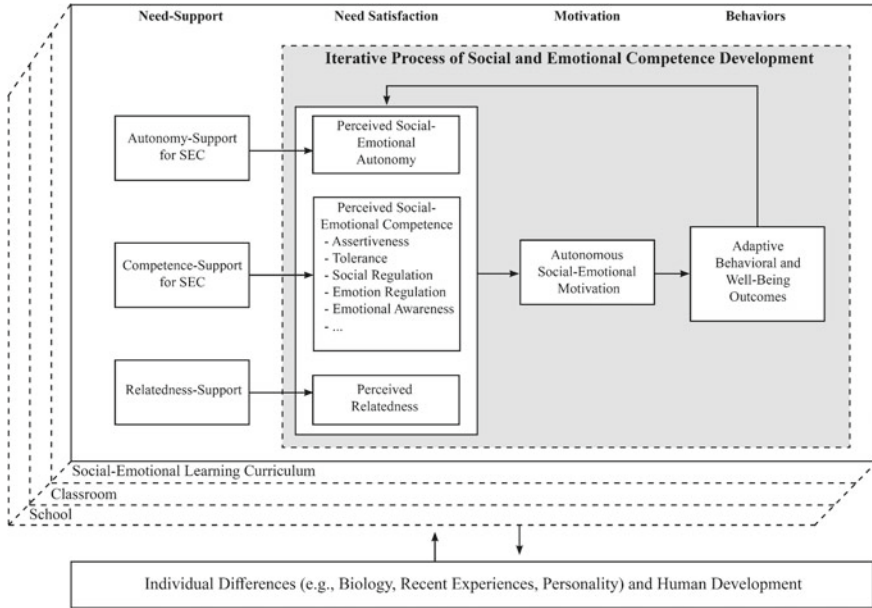


Fig. 2.1 Social and Emotional Competence School Model. *Note* The shaded areas in the figure form the focus of the current chapter. Under perceived social-emotional competence, we refer to the five factors described in Collie (2022b); however, we note there are other approaches for considering this construct, including potentially other factors not listed here as shown by the ellipsis in the Figure. © Rebecca Collie 2019

As indicated above, the SEC School Model integrates knowledge from both SDT and the SEC literature. For example, within the SEC literature, three factors namely social-emotional abilities, motivations, and behaviors are established as fundamental for SEC (Rose-Krasnor & Denham, 2009). Two of these factors, motivation and behaviors, show alignment with SDT (Ryan & Deci, 2017), in which motivation is posited to predict subsequent behavior. For example, autonomous academic motivation is associated with greater academic engagement (Mouratidis et al., 2018). The inclusion of motivation and behavior in the SEC School Model, then, integrates both SDT and SEC literature.

In contrast, the abilities that form a focus in the SEC literature are transformed to reflect perceived competence in the SEC School Model which aligns with SDT and its focus on perceived competence as a basic psychological need. This switch from actual competence (i.e., competencies or abilities) to perceived competence occurs within the SEC School Model because motivation theory (Ryan & Deci, 2017; see also Bandura, 1997) highlights that it is perceived competence (more than true competence) that drives individual development and behaviors. Perceived competence has been established as a crucial motivational catalyst underlying an individual’s agency toward their personal development and performance (Ryan & Moller, 2017).

Finally, researchers in the area of SEC highlight the salience of relationships with important others and agentic and individual development, in impacting the development of social-emotional abilities (Rose-Krasnor & Denham, 2009). Together these two factors align well with the basic psychological needs of relatedness and autonomy in SDT.

In sum, the SEC School Model unites conceptual understanding of students' social-emotional behaviors with SDT to provide a comprehensive understanding of SEC within school settings. By integrating the motivational processes outlined within SDT and established conceptualizations of SEC, the SEC School Model stipulates a conceptual framework for understanding the mechanisms underlying behavioral and well-being manifestations in the social-emotional domains. In the next sections, the central factors in the iterative process of the SEC School Model are introduced.

Social-Emotional Basic Psychological Need Satisfaction

Need satisfaction has been studied extensively across a range of academic, occupational, and health contexts (e.g., Ntoumanis et al., 2021; Rigby & Ryan, 2018; Ryan & Deci, 2020). Within educational contexts, SDT research has typically examined basic psychological need satisfaction with reference to academic and related achievement outcomes (e.g., Guay et al., 2010). The SEC School Model (Collie, 2020) extends understanding of these motivational processes to the domain of social-emotional development. Perceived autonomy, competence, and relatedness are now defined with reference to the social-emotional domains (Collie, 2020).

Perceived Social-Emotional Autonomy

Extending from SDT (Ryan & Deci, 2017) and consistent with conceptualizations of domain-specific autonomy in educational research (e.g., Haerens et al., 2015), the SEC School Model positions perceived autonomy as domain-specific to SEC. Specifically, *perceived social-emotional autonomy* reflects individuals' perceptions that their emotions and socially focused thoughts and behaviors are authentic/consistent with their sense of self (Collie, 2020). Perceived social-emotional autonomy also reflects individuals' sense that their social and emotional actions are internally motivated without coercion (Collie, 2020).

Perceived Social-Emotional Competence

Perceived social-emotional competence (perceived SEC) refers to an individual's sense of aptitude and effectiveness during intrapersonal and interpersonal social-emotional interactions, as well as their perceptions of being able to employ social-emotional capabilities appropriately for a given context (Collie, 2020). As noted

above, perceived SEC differs from actual competence, which has been the dominant focus in the SEC literature to date (e.g., CASEL, 2020; OECD, 2021). For example, actual competence (i.e., abilities) for emotion regulation is typically manifested as a behavior: “I regulate my emotions to feel better.” In contrast, perceived competence for emotion regulation reflects the individual’s appraisals of their competence: “I feel capable to regulate my emotions to feel better.” As previously explained, perceived competence is an important focus as it acts as a motivating force for individual development and action-taking (Ryan & Moller, 2017).

Researchers have recently turned their attention toward perceived SEC and the role it plays in students’ motivation, behaviors, and well-being. A small, but growing body of research is examining perceived SEC factors by way of specific types of perceived SEC. For example, several studies have analyzed perceived competence for emotion regulation, which reflects a student’s belief that they are capable of altering their thoughts in order to feel greater positive or less negative emotions (Bigman et al., 2016; Caprara et al., 2008). Other researchers have examined an overarching factor of perceived SEC, which reflects a general sense of competence across the social-emotional domains. For example, Collie (2022c) examined a broad factor of perceived social competence that captured students’ general sense of competence in communicating, listening, cooperating, and resolving disagreements.

More recently and given the multidimensional nature of social-emotional behaviors and capacities, researchers have begun directing their attention toward examining different types of perceived SEC simultaneously. For example, Collie (2022b) identified five specific factors reflecting distinct components of perceived SEC: perceived competence for (a) *assertiveness*, which refers to feeling skilled in advocating for oneself and acting as a leader; (b) *tolerance*, which involves feeling able to be open-minded toward people with diverse backgrounds and opinions; (c) *social regulation*, which refers to feeling able to manage one’s behaviors as appropriate in different contexts; (d) *emotion regulation*, which as noted above refers to feeling able to adjust emotions; and (e) *emotional awareness*, which refers to feeling able to identify and articulate one’s emotions. According to Collie (2022b), these five dimensions map onto well-recognized social-emotional competencies as captured in other research (CASEL, 2020; Chernyshenko et al., 2018; OECD, 2021), but have been transformed into perceived (rather than actual) competence. When examined together, Collie’s (2022b) study showed that these five dimensions reflect both an overarching factor, as well as specific factors, of perceived SEC. The overarching factor, general perceived SEC, captures an individual’s broad sense of personal competence regarding social-emotional phenomena. In contrast, the specific factors capture unique aspects of perceived SEC that are distinct from general perceived SEC. Taken together, research is revealing different approaches to capturing perceived SEC. Importantly, and as described in more detail below, results are showing that perceived SEC measured in these different ways appears to be consistently associated with outcomes among students.

Perceived Relatedness Within the Social-Emotional Domains

The final basic psychological need is relatedness. As noted above, perceived relatedness occurs when an individual experiences a sense of being supported, cared for, valued by important others, as well as being supportive of, caring for, and valuing those others (Baumeister & Leary, 1995). The basic psychological need for relatedness is not considered domain-specific within the SEC School Model because this construct is inherently social-emotional in nature. More specifically, when students' need for relatedness is satisfied, it fundamentally encompasses social-emotional domains.

Social-Emotion Motivation

In SDT (Ryan & Deci, 2017), basic psychological need satisfaction is associated with more adaptive forms of motivation. The same is true in the SEC School Model with a specific focus on the social-emotional domains. Prior to introducing the role of motivation in the SEC School Model, we briefly review motivation as per SDT.

Motivation is pertinent across all aspects of life. SDT (Ryan & Deci, 2017) offers a continuum of motivation comprising several types that differ to the degree to which they are self-determined. Across the continuum, qualitative categories are ordered sequentially based on the regulation source. Sources of regulation can be classified broadly as being autonomous (i.e., highly self-determined) or controlled (i.e., regulated by external influences; Ryan & Deci, 2017; Sheldon et al., 2017). At a more granular level, autonomous motivation is considered to comprise intrinsic motivation and identified regulation (Ryan & Deci, 2017). *Intrinsic motivation* involves being motivated to enact a behavior due to pure joy or inherent pleasure. *Identified regulation* involves being motivated to engage in a behavior due to internal endorsement or valuing of the consequences of the behavior (Ryan & Deci, 2017). Notably, both intrinsic motivation and identified regulation are characterized by volition and choice, and internal endorsement and valuing of behaviors linked with the sense of self (Deci & Ryan, 2008).

In contrast to autonomous motivation, controlled motivation refers to engagement in behaviors in response to external pressure or demands that may result in prescribed incentives or unwanted consequences (e.g., sanctions; Deci & Ryan, 2008). Controlled motivation encompasses introjected regulation and external regulation. *Introjected regulation* involves being motivated to undertake a behavior to feel good about oneself (i.e., feeling proud) and/or to avoid feeling bad about oneself (e.g., avoiding shame). *External regulation* refers to being motivated to undertake a behavior to avoid getting in trouble or to obtain a reward. Finally, and beyond autonomous and controlled motivation, SDT also encompasses *amotivation*, which involves a state of experiencing no motivation, that is, not being motivated to engage in a behavior at all because the individual sees no point in putting in effort (Ryan & Deci, 2017). Within the school environment, ample research has demonstrated

that autonomous forms of motivation are associated with more positive academic outcomes than controlled motivation or amotivation (Guay, 2021; Guay & Bureau, 2018).

Building on that prior research in the academic domains, researchers have recently begun to consider social-emotional motivation. In the SEC School Model (see Fig. 2.1; Collie, 2020), autonomous social-emotional motivation is positioned as a core component and one that is promoted by social-emotional need satisfaction. Consistent with SDT (Ryan & Deci, 2017), autonomous motivation within the social-emotional domains includes both intrinsic motivation and identified motivation. *Intrinsic social-emotional motivation* refers to behaviors that are undertaken for personal interest and joy (Collie, 2022b; Ryan & Deci, 2017), such as offering to help a good friend due to the personal satisfaction in doing so (Weinstein & Ryan, 2010). *Identified social-emotional regulation* reflects behaviors that lead to personally valued consequences (Collie, 2022b; Ryan & Deci, 2017), such as sharing resources with a peer because one would appreciate the reciprocation of similar kindness in the future.

Controlled social-emotional motivation is not directly featured in the SEC School Model, which focuses on the adaptive process of need satisfaction promoting autonomous motivation, which in turn promotes positive outcomes. Nonetheless, it is important to mention this less self-determined form of motivation as emerging research is demonstrating that social-emotional need satisfaction is relevant for controlled social-emotional motivation. Controlled social-emotional motivation comprises introjected and external regulation. *Introjected social-emotional regulation* involves behaviors undertaken in order to establish or maintain an individual's sense of self-worth in social-emotional matters, such as helping a teacher or peer to avoid unpleasant feelings (e.g., guilt or shame) or to be praised for the behavior (Collie, 2022b; Ryan & Deci, 2017). *External social-emotional regulation* involves behaviors undertaken in order to achieve behavioral compliance, such as engaging in socially desirable behaviors to obtain tangible rewards (e.g., merit certificates) or to avoid punishment (e.g., receiving detention; Collie, 2022b; Ryan & Deci, 2017). Finally, *social-emotional amotivation* involves not being motivated to enact social-emotional behaviors because the individual does not see any reason for doing so, such as not helping a student who dropped their belongings in the hallway because they do not value doing so. Like controlled social-emotional motivation, social-emotional amotivation is not directly mentioned in the SEC School Model, but is nonetheless important to consider.

Social-Emotional Behaviors and Well-Being

The SEC School Model (see Fig. 2.1) posits that social-emotional need satisfaction boosts autonomous social-emotional motivation and, in turn, adaptive outcomes including behaviors and well-being. Behaviors have historically been the focus of researchers and educators in conceptualizing and measuring students' SEC

(e.g., Anderson & Messick, 1974). Social-emotional behaviors can take many forms. One well-examined adaptive social-emotional behavior is prosocial behavior, which refers to actions that are undertaken for the expected benefit of others (Schroeder & Graziano, 2015). In contrast, a well-recognized maladaptive social-emotional behavior is conduct problems, which refer to a continuum of antisocial behaviors that may involve oppositional behavior, disregarding school rules, verbal or physical aggression, and theft (Bevilacqua et al., 2018). Turning to well-being, there are numerous potential operationalizations of this construct. A couple that have received attention among students are positive affect and negative affect. These two factors represent emotional well-being. Whereas positive affect refers to students' experiences of positive emotions, such as feeling inspired and joyful, negative affect refers to students' experiences of negative emotions, such as feeling fearful or saddened (Diener & Emmons, 1984). In the implications for research below, we suggest additional operationalizations that should form a focus in the future research.

Summary

This section has described the SEC School Model (see Fig. 2.1) and the key factors it comprises. As noted, the SEC School Model involves integrating understanding from SDT (Ryan & Deci, 2017) and the SEC literature (Denham, 2006; Rose-Krasnor & Denham, 2009). A central process in the model depicts the important role of social-emotional need satisfaction, that is, perceived social-emotional autonomy, perceived SEC, and perceived relatedness in promoting autonomous social-emotional motivation (rather than controlled motivation or amotivation). In turn, autonomous social-emotional motivation is positioned as laying a foundation for adaptive behavioral and well-being outcomes among students. In the next section, empirical research demonstrating associations among these factors is reviewed.

Empirical Research Linking Need Satisfaction with Motivation and Outcomes

A growing body of research is demonstrating links between need satisfaction, motivation, and social-emotional outcomes. Looking first at the connection between need satisfaction and motivation, Collie (2022c) conducted a study involving secondary school students and examined prosocial motivation, which is a specific type of social-emotional motivation related to undertaking actions to aid others. The results demonstrated that a broad factor of perceived social competence was positively linked with autonomous prosocial motivation and negatively associated with external prosocial motivation. Students' perceived relatedness with their teachers was also linked with higher prosocial motivation. In the Collie (2022b) study introduced earlier,

general perceived SEC (i.e., an overarching factor representing students' general sense of perceived competence) and five specific factors of perceived SEC were examined among secondary students (i.e., perceived competence for assertiveness, tolerance, social regulation, emotion regulation, and emotional awareness). Results demonstrated that general perceived SEC was linked with greater autonomous social-emotional motivation and greater introjected social-emotional motivation. Here, social-emotional motivation captured students' motivations for relating with others, self-regulating their behaviors, and self-regulating their emotions. Over and above the influence of general perceived SEC, the specific factor of perceived tolerance was linked with greater autonomous motivation, and perceived social regulation was linked with lower external motivation.

Moving onto the link between social-emotional motivation and outcomes, most studies have considered prosocial motivation. Researchers have shown that among adolescents, autonomous prosocial motivation is associated with the enactment of fewer disruptive behaviors (Aelterman et al., 2019), more defending behaviors (e.g., standing up for students who are being bullied; Longobardi et al., 2020), fewer bullying behaviors (Roth et al., 2011), and more prosocial behaviors (Collie, 2022c; Wentzel et al., 2007). In contrast, external prosocial regulation is associated with lower prosocial behavior (Collie, 2022c). Social-emotional motivation more broadly (not limited to prosocial motivation; see definition above) has also been examined. Collie (2022b) found that autonomous social-emotional motivation is associated with greater prosocial behavior among adolescents, whereas external social-emotional motivation is associated with greater conduct problems.

Although the SEC School Model (Collie, 2020) does not explicitly include the direct relation between social-emotional need satisfaction and the outcomes, research suggests such associations do occur and so it is worth discussing these links. Indeed, there is research examining both general need satisfaction (i.e., in relation to school or life broadly) and social-emotional need satisfaction in relation to social-emotional outcomes. For example, general need satisfaction is linked with greater volunteering among adults (Gagné, 2003) and reduced anger and bullying among children (Hein et al., 2015). General need satisfaction is also associated with enactment of prosocial behaviors (Cheon et al., 2018) and greater positive affect (Rodríguez-Meirinhos et al., 2020) among adolescents. With respect to social-emotional need satisfaction more specifically, perceived social-emotional autonomy is linked with reduced negative affect among adolescents (Collie, 2022c). Perceived competence for emotion regulation is linked with increased prosocial behavior and emotional well-being among university students (Bigman et al., 2016; Caprara et al., 2008), greater emotional awareness among adolescents (Qualter et al., 2015), and fewer internalizing and externalizing behaviors among adolescents (Parise et al., 2019). Perceived social competence is associated with enhanced positive affect, reduced negative affect (Collie, 2022c), and lower psychological distress (Kristensen et al., 2021). Perceived relatedness with peers is linked with greater interpersonal abilities, insight of others' emotional states, and leadership capacities in the subsequent school year among children (Hoglund & Leadbeater, 2004). Further, students' perceived

relatedness with their teachers is linked with increased prosocial behavior among children (Longobardi et al., 2020).

Taken together, there is mounting evidence showing the salient links between social-emotional need satisfaction, social-emotional motivation, and important social-emotional outcomes. This research thus provides empirical support relevant for guiding practice, which is discussed in the next section. Specifically, we focus on the role of need-supportive teaching for promoting these factors among students.

Implication for Practice

Within SDT, need-supportive practices reflect teachers' actions that promote students' perceived autonomy, competence, and relatedness in relation to school-work (Ryan & Deci, 2017). *Autonomy-supportive practices* involve teachers' efforts to provide students with opportunities to initiate their own learning, experience self-determination in learning, and understand the purpose of their academic tasks. *Competence-supportive practices* involve teachers' efforts to provide students with structure, clarity, and direction for their learning to help them succeed at school. Finally, *relatedness-supportive practices* involve caring behavior directed toward students so that they feel welcomed and have a sense of belonging in the classroom and school.

Need-supportive practices have consistently been associated with general need satisfaction at school, as well as positive student outcomes such as motivation and well-being (e.g., Jang et al., 2016; Yoder et al., 2021). As shown in Fig. 2.1, social-emotional variants of need-supportive instructional practices can also be considered to boost students' need satisfaction within the social-emotional domain. An emerging body of research is providing empirical support for the role of such need-support in promoting social-emotional need satisfaction, motivation, and outcomes (Collie, 2022a). Below, we provide strategies that teachers can apply to promote need-support for SEC among students.

Autonomy-Support for SEC

Autonomy-support for SEC refers to efforts by teachers to promote students' empowerment and self-initiation in relation to social-emotional behaviors (Collie, 2020; see also Ryan & Deci, 2017). Autonomy-supportive practices include actions such as recognizing and showing interest in students' viewpoint about how they are feeling, providing options to students in relation to how they manage social-emotional interactions, explaining why it is important to be a considerate member within the classroom and school community, and encouraging student collaboration in establishing classroom rules and norms (Cheon et al., 2018; Collie, 2022a; Roth et al., 2011). Where possible, teachers could also offer students choices for how they manage their

social-emotional interactions (e.g., seeing what works best for a student when they feel overwhelmed or frustrated in class; Cheon et al., 2018; Collie, 2022a; Roth et al., 2011).

Competence-Support for SEC

Competence-support for SEC refers to teachers' efforts to promote and scaffold social-emotional abilities and behaviors and for students to experience success in implementing these effectively (Collie, 2020; see also Ryan & Deci, 2017). Such practices might include providing students with explicit expectations, goals, and rules for social-emotional interactions, establishing structures and behavioral goals for group discussions or collaborative learning tasks, and offering task-focused feedback on how students can be considerate in their responses to others during collaborative work and discussions (Collie, 2020, 2022a). Curriculum designed to teach social-emotional abilities is also relevant. Effective instruction toward, for example, social regulation abilities helps to support students be successful in their interpersonal interactions, while also building their perceived SEC (Collie, 2020). For instance, teachers could ask students to: reflect on a recent situation where they might have employed an alternative approach to regulate their actions or emotions; devise ideas for how they could interpret the situation and respond more effectively in the future; implement those ideas next time; and evaluate the impact of these different strategies and refine them as needed (e.g., Boekaerts & Pekrun, 2016). Another example involves enhancing students' abilities to identify and understand others' perspectives and social-emotional lexicon through narrative activities, such as by role-playing various behavioral and emotional responses in different situations, and reflecting on different characters' perspectives, motives, and emotions (Brewer & Phillippe, 2022). As is evident, some of our recommendations for competence-support include social elements and thus are also relevant for boosting relatedness-support.

Relatedness-Support

Relatedness-support refers to teachers' efforts to demonstrate to students they are cared for and valued members of the school community (Ryan & Deci, 2017; Skinner & Belmont, 1993). Relatedness-supportive practices include teachers' efforts to demonstrate interest in students and their learning, such as by being honest and fair to all students. Relatedness-supportive practices may also involve teachers acknowledging important dates and events in the student's life (e.g., birthdays, sporting, or creative accomplishments outside of school) or by modeling how to engage in considerate and supportive interactions with others. It is particularly important that all students feel they are valued members of the classroom. Teachers can aid this by being perceptive and responsive to students' needs and then providing resources to

assist all students with their learning (Skinner & Belmont, 1993). Teachers may also want to take time to talk with students about their learning strengths and preferences for support, and then teachers can assign learning activities that are appropriately matched to these needs. Research also suggests that designing tasks to be personally meaningful to students (e.g., by making links with their interests and experiences outside of school) can boost relatedness between the teacher and students (Hidi & Renninger, 2006). Professional learning programs that focus on helping teachers to develop strategies for establishing and maintaining positive teacher–student relationships can also be helpful (Spilt et al., 2012).

Implications for Research

Although the field of social-emotional need satisfaction is a growing area of research, it is still a nascent field compared with the well-established need satisfaction literature within academic and occupational contexts. Accordingly, there is broad scope for future research to expand the knowledge base. In this section, we highlight some key avenues we believe are essential to consider for advancing knowledge about social-emotional need satisfaction in particular, as well as social-emotional motivation.

The first area for future research is to expand understanding of social-emotional need satisfaction, determine the most appropriate structure of this construct, and demonstrate links with a wider array of outcomes. For example, approaches examining both overarching (i.e., general perceived SEC) and specific factors appear to offer nuanced insight into perceived SEC. Additional research is needed to determine whether such specifications are supported among other student samples and populations. In addition, researchers have linked social-emotional need satisfaction with a range of behaviors (e.g., prosocial behavior, less externalizing behavior; Bigman et al., 2016; Parise et al., 2019), as well as emotional well-being (e.g., lower psychological distress; Kristensen et al., 2021). Now, research is needed to ascertain the extent to which social-emotional need satisfaction is relevant for other social-emotional behaviors, such as students' cognitive reappraisal, which involves shifting one's thinking in order to change one's emotional experiences (Gross & John, 2003). Research examining social-emotional need satisfaction with respect to other well-being constructs would also be helpful to better understand its role for students, such as life or school satisfaction, sense of meaning and purpose, subjective vitality, or school-related anxiety. Examining different types of social-emotional need satisfaction, including various dimensions of perceived SEC (such as those proposed by Collie, 2022b), will also have practice implications including identifying the most salient dimensions to target for particular outcomes.

A second important area for research is to examine these issues among a broader range of student samples and populations and using multilevel approaches. The research summarized in the present chapter largely focused on secondary school students, with some research among university students. Moreover, prior research in this area appears focused on the students, rather than also considering the classroom

or school. Future research is needed to investigate the social-emotional processes proposed by the SEC School Model (Collie, 2020) within early childhood education and primary (elementary) school contexts. Notably, directing attention to these earlier settings has the potential to yield salient information about students' SEC at a critical developmental stage prior to the onset of adolescence. The primary school years represent an important opportunity for early interventions aimed at curtailing the downward trajectory of students' SEC noted to occur during adolescence (Chernyshenko et al., 2018). Furthermore, the typical classroom structure with primary classrooms means that students have one main teacher. This presents a different context to secondary schools (where students have several teachers across different subjects), and thus, research is needed to ascertain the role of need-support for SEC within this different setting. Beyond considering students' age and education level, future research that investigates other individual differences is also essential, such as potential differences by gender, language background, socio-economic status, and neurodevelopmental diversity (e.g., for students with ADHD or autism spectrum disorder). In terms of multilevel research, such approaches are necessary for determining the extent to which differences in social-emotional need satisfaction (or social-emotional motivation) are mostly evident between students, or whether these also occur between classrooms and schools. Multilevel modeling involves disentangling associations among factors at the student-level from those at the classroom- or school-level. In doing so, findings hold relevance for directing intervention, in particular, yielding knowledge about whether efforts should be focused on the student level and/or more broadly at classrooms and schools.

Another area for future research is person-centered analyses. In order to comprehensively understand motivation and related phenomena, person-centered approaches are being increasingly employed to complement variable-centered research. Whereas variable-centered research yields important understanding about associations between variables for a whole population (e.g., the link between social-emotional need satisfaction and social-emotional motivation across a sample), person-centered research involves identifying homogenous subpopulations that report similar patterns of experiences. These profiles may vary on how they experience need satisfaction. For example, one profile may experience high perceived social-emotional autonomy and perceived relatedness, but low perceived SEC such as in the case of a student who feels self-determined in their social-emotional interactions and a sense of belonging at school, but who lacks confidence for their social-emotional abilities. Another profile might display high perceived autonomy and perceived SEC, but low perceived relatedness such as in the case of a student who feels self-determined and confident in their social-emotional interactions, but who does not feel a sense of belonging at school. Person-centered analyses may also be relevant for examining social-emotional motivation. Indeed, recent research in academic motivation has revealed different motivation profiles among students that vary in terms of the types of motivation as per SDT (e.g., Bureau et al., 2022; Litalien et al., 2019). The extent to which the same is true for social-emotional motivation remains unknown. By examining social-emotional need satisfaction (and motivation) profiles, research findings have the potential to offer a more nuanced understanding of

social-emotional processes and may also help to inform practice such that strategies can be better targeted to specific types of students.

Conclusion

Extending from the well-established SDT (Ryan & Deci, 2017) literature and related research and practice within educational contexts, this chapter has considered associations between need satisfaction and autonomous motivation within the social-emotional domain and how these factors promote adaptive behavioral and well-being outcomes among students. Uniting SDT (Ryan & Deci, 2017) with conceptual understanding of students' social-emotional behaviors, the SEC School Model (see Fig. 2.1; Collie, 2020) provides a comprehensive framework from which emerging empirical research is revealing greater specification of social-emotional need satisfaction as a construct and demonstrating links with students' motivation and social-emotional outcomes. Emerging research within school settings demonstrates that students' social-emotional need satisfaction is linked with more adaptive forms of social-emotional motivation, which, in turn, is associated with enhanced well-being and greater prosocial behavior. As a nascent research area, we draw from this emerging literature to highlight key priorities for future research to advance the field. In the present chapter, we have discussed strategies for teachers to promote social-emotional need satisfaction by way of autonomy-, competence-, and relatedness-support for SEC. In summary, social-emotional motivation represents an important mechanism underpinning the development of students' SEC. Given that social-emotional functioning is critical for success and thriving during the school years and into adulthood (Goodman et al., 2015; Jones et al., 2015), continued research into social-emotional need satisfaction is important to inform effective social-emotional learning curriculum and need-supportive instructional practices for optimal outcomes among students.

References

- Aelterman, N., Vansteenkiste, M., & Haerens, L. (2019). Correlates of students' internalization and defiance of classroom rules: A self-determination theory perspective. *British Journal of Educational Psychology*, 89, 22–40. <https://doi.org/10.1111/bjep.12213>
- Anderson, S., & Messick, S. (1974). Social competency in young children. *Developmental Psychology*, 10(2), 282–293.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W.H. Freeman.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human emotion. *Psychological Bulletin*, 117(3), 497–529.
- Bevilacqua, L., Hale, D., Barker, E. D., & Viner, R. (2018). Conduct problems trajectories and psychosocial outcomes: A systematic review and meta-analysis. *European Child & Adolescent Psychiatry*, 27(10), 1239–1260. <https://doi.org/10.1007/s00787-017-1053-4>

- Bigman, Y. E., Mauss, I. B., Gross, J. J., & Tamir, M. (2016). Yes I can: Expected success promotes actual success in emotion regulation. *Cognition & Emotion*, *30*(7), 1380–1387. <https://doi.org/10.1080/02699931.2015.1067188>
- Boekaerts, M., & Pekrun, R. (2016). Emotions and emotion regulation in academic settings. In L. Corno, & E. M. Anderman (Eds.), *Handbook of educational psychology* (3rd ed., pp. 76–90). Routledge.
- Brewer, B. M., & Phillippe, A. (2022). Comprehending character: Unlocking the potential of perspective-taking. *Teaching and Learning Guide*. <https://doi.org/10.1002/trtr.2085>
- Bureau, J. S., Guay, F., Plamondon, A., Ratelle, C. F., Howard, J. L., & Gilbert, W. (2022). Empirical testing of an alternative modeling of the self-determination continuum. *Motivation and Emotion*. <https://doi.org/10.1007/s11031-022-09976-9>
- Caprara, G. V., Di Giunta, L., Eisenberg, N., Gerbino, M., Pastorelli, C., & Tramontano, C. (2008). Assessing regulatory emotional self-efficacy in three countries. *Psychological Assessment*, *20*(3), 227–237. <https://doi.org/10.1037/1040-3590.20.3.227>
- Cheon, S. H., Reeve, J., & Ntoumanis, N. (2018). A needs-supportive intervention to help PE teachers enhance students' prosocial behavior and diminish antisocial behavior. *Psychology of Sport and Exercise*, *35*, 74–88. <https://doi.org/10.1016/j.psychsport.2017.11.010>
- CASEL. (2020). *CASEL's SEL framework: What are the core competence areas and where are they promoted?* <https://casel.org/what-is-SEL/>
- Chernyshenko, O. S., Kankara's, M., & Drasgow, F. (2018). *Social and emotional skills for student success and well-being: Conceptual framework for the OECD study on social and emotional abilities*. OECD. <https://doi.org/10.1787/db1d8e59-en>
- Collie, R. J. (2020). The development of social and emotional competence at school: An integrated model. *International Journal of Behavioral Development*, *44*(1), 76–87. <https://doi.org/10.1177/0165025419851864>
- Collie, R. J. (2022a). Instructional support, perceived social and emotional competence, and students' behavioral and emotional well-being outcomes. *Educational Psychology*, *42*(1), 4–22. <https://doi.org/10.1080/01443410.2021.1994127>
- Collie, R. J. (2022b). Perceived social-emotional competence: A multidimensional examination and links with social-emotional motivation and behaviors. *Learning and Instruction*, *82*. <https://doi.org/10.1016/j.learninstruc.2022.101656>
- Collie, R. J. (2022c). Social-emotional need satisfaction, prosocial motivation, and students' positive behavioral and well-being outcomes. *Social Psychology of Education*, *25*, 399–424. <https://doi.org/10.1007/s11218-022-09691-w>
- De Charms (1968). *Personal causation: The internal affective determinants of behavior*. Academic Press.
- Deci, E. L., & Ryan, R. M. (2008). Facilitating optimal motivation and psychological well-being across life's domains. *Canadian Psychology/psychologie Canadienne*, *49*, 14–23. <https://doi.org/10.1037/0708-5591.49.1.14>
- Denham. (2006). Social-emotional competence as support for school readiness: What is it and how do we assess it? *Early Education and Development*, *17*, 57–89. https://doi.org/10.1207/s15566935eed1701_4
- Diener & Emmons, (1984). The independence of positive and negative affect. *Journal of Personality and Social Psychology*, *47*(5), 1105–1117.
- Gagné, M. (2003). The role of autonomy support and autonomy orientation in prosocial behavior engagement. *Motivation and Emotion*, *27*(3), 199–223. <https://doi.org/10.1023/A:1025007614869>
- Guay, F. (2021). Applying self-determination theory to education: Regulations types, psychological needs, and autonomy supporting behaviors. *Canadian Journal of School Psychology*, 1–18. <https://doi.org/10.1177/08295735211055355>
- Guay, F., & Bureau, J. S. (2018). Motivation at school: Differentiation between and within school subject matters in the prediction of academic achievement. *Contemporary Educational Psychology*, *54*, 42–54. <https://doi.org/10.1016/j.cedpsych.2018.05.004>

- Guay, F., Ratelle, C. F., Roy, A., & Litalien, D. (2010). Academic self-concept, autonomous academic motivation, and academic achievement: Mediating and additive effects. *Learning and Individual Differences*, 20, 644–653. <https://doi.org/10.1016/j.lindif.2010.08.001>
- Goodman, A., Joshi, H., Nasim, B., & Tyler, C. (2015). *Social and emotional abilities in childhood and their long-term effects on adult life*. Early Intervention Foundation. <http://www.eif.org.uk/wp-content/uploads/2015/03/EIFStrand-1-Report-FINAL1.pdf>
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85(2), 348–362. <https://doi.org/10.1037/0022-3514.85.2.348>
- Haerens, L., Aelterman, N., Vansteenkiste, M., Soenens, B., & Van Petegem, S. (2015). Do perceived autonomy-supportive and controlling teaching relate to physical education students' motivational experiences through unique pathways? Distinguishing between the bright and dark side of motivation. *Psychology of Sport and Exercise*, 16, 26–36. <https://doi.org/10.1016/j.psychsport.2014.08.013>
- Hein, V., Koka, A., & Hagger, M. S. (2015). Relationships between perceived teachers' controlling behavior, psychological need thwarting, anger and bullying behavior in high-school students. *Journal of Adolescence*, 42, 103–114. <https://doi.org/10.1016/j.adolescence.2015.04.003>
- Hidi, S., & Renninger, K. A. (2006). The four-phase model of interest development. *Educational Psychologist*, 41(2), 111–127. https://doi.org/10.1207/s15326985ep4102_4
- Hoglund, W. L., & Leadbetter, B. J. (2004). The effects of family, school, and classroom ecologies on changes in children's social competence and emotional and behavioral problems in first grade. *Developmental Psychology*, 40, 533–544. <https://doi.org/10.1037/0012-1649.40.4.533>
- Jang, H., Reeve, J., Ryan, R. M., & Kim, A. (2009). Can self-determination theory explain what underlies the productive, satisfying learning experiences of collectivistically oriented Korean students? *Journal of Educational Psychology*, 101(3), 644–661. <https://doi.org/10.1037/a0014241>
- Jang, H., Reeve, J., & Halusic, M. (2016). A new autonomy-supportive way of teaching that increases conceptual learning: Teaching in students' preferred ways. *The Journal of Experimental Education*, 84(4), 686–701. <https://doi.org/10.1080/00220973.2015.1083522>
- Jones, D. E., Greenberg, M. T., & Crowley, M. (2015). Early social-emotional functioning and public health: The relationship between kindergarten social competence and future wellness. *American Journal of Public Health*, 105(11), 2283–2290. <https://doi.org/10.2105/AJPH.2015.302630>
- Kristensen, S. M., Danielsen, A. G., Jenø, L. M., Larsen, T. M. B., & Urke, H. B. (2021). The within-person effect of psychological distress on social self-efficacy: A random intercept cross-lagged panel model. *Journal of Research on Adolescence*. <https://doi.org/10.1111/jora.1270>
- Litalien, D., Gillet, N., Gagné, M., Ratelle, C. F., & Morin, A. J. S. (2019). Self-determined motivation profiles among undergraduate students: A robust test of profile similarity as a function of gender and age. *Learning and Individual Differences*, 70, 39–52. <https://doi.org/10.1016/j.lindif.2019.01.005>
- Longobardi, C., Borello, L., Thornberg, R., & Settanni, M. (2020). Empathy and defending behaviors in school bullying: The mediating role of motivation to defend victims. *British Journal of Educational Psychology*, 90(2), 473–486. <https://doi.org/10.1111/bjep.12289>
- Markus, H. R., Kitayama, S., & Heiman, R. J. (1996). Culture and “basic” psychological principles. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 857–913). The Guilford Press.
- Mouratidis, A., & Michou, A. (2011). Self-determined motivation and social achievement goals in children's emotions. *Educational Psychology*, 31(1), 67–86. <https://doi.org/10.1080/01443410.2010.518595>
- Mouratidis, A., Michou, A., Aelterman, N., Haerens, L., & Vansteenkiste, M. (2018). Begin-of-school-year autonomy satisfaction-support and structure as predictors of end-of-school-year study efforts and procrastination: The mediating role of autonomous and controlled motivation. *Educational Psychology*, 38, 435–450. <https://doi.org/10.1080/01443410.2017.1402863>

- Ntoumanis, N., Ng, J. Y. Y., Prestwich, A., Quested, E., Hancox, J. E., Thøgersen-Ntoumani, C., Deci, E. L., Ryan, R. M., Lonsdale, C., & Williams, G. C. (2021). A meta-analysis of self-determination theory-informed intervention studies in the health domain: Effects on motivation, health behavior, physical, and psychological health. *Health Psychology Review, 15*(2), 214–244. <https://doi.org/10.1080/17437199.2020.1718529>
- OECD. (2021). *Beyond academic learning: First results from the survey of social and emotional abilities*. OECD Publishing. <https://doi.org/10.1787/92a11084-en>
- Oga-Baldwin, W. L. Q., Nakata, Y., Parker, P., & Ryan, R. M. (2017). Motivating young learners: A longitudinal model of self-determined motivation in elementary school foreign language classes. *Contemporary Educational Psychology, 49*, 140–150. <https://doi.org/10.1016/j.cedpsych.2017.01.010>
- Parise, M., Canzi, E., Olivari, M. G., & Ferrari, L. (2019). Self-concept clarity and psychological adjustment in adolescence: The mediating role of emotion regulation. *Personality and Individual Differences, 138*, 363–365. <https://doi.org/10.1016/j.paid.2018.10.023>
- Qualter, P., Pool, L. D., Gardner, K. J., Ashley-Kot, S., Wise, A., & Wols, A. (2015). The emotional self-efficacy scale. *Journal of Psychoeducational Assessment, 33*(1), 33–45. <https://doi.org/10.1177/0734282914550383>
- Rigby, C. S., & Ryan, R. M. (2018). Self-determination theory in human resource development: New directions and practical considerations. *Advances in Developing Human Resources, 20*(2), 133–147. <https://doi.org/10.1177/1523422318756954>
- Rodriguez-Meirinhos, A., Antolín-Suárez, L., Brenning, K., Vansteenkiste, M., & Oliva, A. (2020). A bright and a dark path to adolescents' functioning: The role of need satisfaction and need frustration across gender, age, and socioeconomic status. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being, 21*(1), 95–116. <https://doi.org/10.1007/s10902-018-00072-9>
- Rose-Krasnor, L. (1997). The nature of social competence: A theoretical review. *Social Development, 6*(1), 111–135. <https://doi.org/10.1111/j.1467-9507.1997.tb00097.x>
- Rose-Krasnor, L., & Denham, S. (2009). Social-emotional competence in early childhood. In K. H. Rubin, W. M. Bukowski, & B. Laursen (Eds.), *Handbook of peer interactions, relationships, and groups* (pp. 162–179). Guilford Press.
- Roth, G., Kanat-Maymon, Y., & Bibi, U. (2011). Prevention of school bullying: The important role of autonomy-supportive teaching and internalization of pro-social values. *The British Journal of Educational Psychology, 81*(4), 654–666. <https://doi.org/10.1348/2044-8279.002003>
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Press.
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology, 61*, 101860. <https://doi.org/10.1016/j.cedpsych.2020.101860>
- Ryan, R. M., & Moller, A. C. (2017). Competence as central, but not sufficient, for high-quality motivation. In A. J. Elliot, C. S. Dweck, & D. S. Yeager (Eds.), *Handbook of competence and motivation: Theory and application* (2nd ed., pp. 216–238). Guilford Press.
- Saarni, C., Campos, J. J., Camras, L. A., & Witherington, D. (2006). Emotional development: Action, communication, and understanding. In W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology (Vol. 3: Social, emotional, and personality development)*; pp. 226–299). Wiley.
- Schroeder, D. A., & Graziano, W. G. (2015). The field of prosocial behavior: An introduction and overview. In D. A. Schroeder & W. G. Graziano (Eds.), *The Oxford handbook of prosocial behavior* (pp. 3–34). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780195399813.013.32>
- Semrud-Clikeman, M. (2007). *Social competence in children*. Springer. <https://doi.org/10.1007/978-0-387-71366-3>
- Sheldon, K. M., Osin, E. N., Gordeeva, T. O., Suchkov, D. D., & Sychev, O. A. (2017). Evaluating the dimensionality of self-determination theory's relative autonomy continuum. *Personality and Social Psychology Bulletin, 43*(9), 1215–1238. <https://doi.org/10.1177/0146167217711915>

- Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology*, 85, 571–581. <https://doi.org/10.1037/0022-0663.85.4.571>
- Spilt, J. L., Koomen, H. M. Y., Thijs, J. T., & van der Leij, A. (2012). Supporting teachers' relationships with disruptive children: The potential of relationship-focused reflection. *Attachment & Human Development*, 14(3), 305–318. <https://doi.org/10.1080/14616734.2012.672286>
- Stump, K. N., Ratliff, J. M., Wu, Y. P., & Hawley, P. H. (2009). Theories of social competence from the top-down to the bottom-up: A case for considering foundational human needs. In J. L. Matson (Ed.), *Social behavior and skills in children* (pp. 23–37). Springer. <https://doi.org/10.1007/978-1-4419-0234-4>
- Tian, L., Chen, H., & Huebner, E. S. (2014). The longitudinal relationships between basic psychological needs satisfaction at school and school-related subjective well-being in adolescents. *Social Indicators Research*, 119, 353–372. <https://doi.org/10.1007/s11205-013-0495-4>
- Tilga, H., Hein, V., & Koka, A. (2019). Effects of a web-based intervention for PE teachers on students' perceptions of teacher behaviors, psychological needs, and intrinsic motivation. *Perceptual and Motor Abilities*, 126(3), 559–580. <https://doi.org/10.1177/0031512519840150>
- Vansteenkiste, M., & Ryan, R. M. (2013). On psychological growth and vulnerability: Basic psychological need satisfaction and need frustration as a unifying principle. *Journal of Psychotherapy Integration*, 23(3), 263–280. <https://doi.org/10.1037/a0032359>
- Weinstein, N., & Ryan, R. M. (2010). When helping helps: Autonomous motivation for prosocial behavior and its influence on well-being for the helper and recipient. *Journal of Personality and Social Psychology*, 98, 222–244. <https://doi.org/10.1037/a0016984>
- Wentzel, K. R., Filisetti, L., & Looney, L. (2007). Adolescent prosocial behavior: The role of self-processes and contextual cues. *Child Development*, 78(3), 895–910. <https://doi.org/10.1111/j.1467-8624.2007.01039.x>
- White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review*, 66(5), 297–333. <https://doi.org/10.1037/h0040934>
- Yoder, N., Conner, P., Martinez-Black, T., & Ressel, R. (2021). Elevating social and emotional learning throughout the day: 10 teaching practices that promote SEAD in culturally responsive ways. In T. Madden-Dent & D. Oliver (Eds.), *Leading schools with social, emotional, and academic development (SEAD)*. IGI Global. <https://doi.org/10.4018/978-1-7998-6728-9>

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Chapter 3

A Qualitative Study on the Social-Emotional Competencies of Peer Support Champions



Hui Ming Cheryl Yeoh and Betsy Ng

Abstract The current research project focuses on the opinions of students in Singaporean classrooms following a school-based intervention that supports self-determination theory (SDT) and social-emotional learning (SEL) frameworks. By fostering and creating peer support initiatives in students' learning environment, educators and students are given the opportunity to learn from each other and enhance their character growth, prosocial behaviors, set positive goals, and show improvement toward their academic performance. This study carefully and purposefully investigates the benefits of the SEL initiative in a primary school in Singapore where students as peer support champions (PSCs) are tasked with the role and responsibility of helping their peers in times of emotional distress. With that, comparisons can be formed to examine if the PSCs' SEL and SDT abilities have shown any progress after the intervention. Emerging themes were studied, and they were then investigated in relation to literature, based on semi-structured interviews conducted with the PSCs. Some PSCs require more guidance in enhancing their social-emotional competencies as they lack the experience and exposure to certain problems faced. Teachers are then needed to provide more support and strengthen their training content and methods to better shape the PSCs. Overall, the qualitative data gave insightful and meaningful information about the classroom setting.

Introduction

In the coming few years, there has been a sudden rise in anxiety issues faced by youths in Singapore. More specifically, the age group comprises those aged 10–24 who are found to be facing problems with their mental well-being caused by their academic pursuits (Neo et al., 2022). The pressure to perform academically well

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starts at childhood and requires a continuous effort throughout the first 10 years from Primary 1. Prolonged exposure to such a hyper-competitive learning environment has thus resulted in some adverse effects on their mental well-being. To cope with such a competitive learning environment, it is crucial to gain an early start in developing their social-emotional competencies (SECs). Many studies globally have proved the positive effects of attaining good social-emotional skills in children as their enhanced social-emotional intelligence levels enable them to achieve higher physical and mental strength (Ng, 2020). As such, during the past few years, a greater emphasis was made on the social-emotional development of younger children using a humanistic approach at a local level.

Social-emotional learning (SEL) is a continuing social development skill necessary for all students of all ages. According to the Collaborative for Academic, Social, and Emotional Learning (CASEL, 2018), it is considered a lifelong development skill where children and adults “acquire and effectively apply knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others”, which are essential in achieving a deeper level of understanding of their emotions. Besides understanding one’s emotions, knowledge in managing one’s emotions is vital as well, especially during the interactions children encounter with their peers. As sentient beings, it is salient that children at a young age are taught to effectively identify and recognize their emotions, while attaining the important competencies to achieve positive goals and express empathy for others. Aside from acquiring the ability to show empathy for others, based on the five Core SECs by CASEL, children must be able to make responsible decisions, maintain positive relationships, develop self-awareness, self-management, and social awareness.

Supportive school environments including positive teacher–student relationships and peer-to-peer connections will facilitate SEL (Ministry of Education, 2019). One of the supportive school platforms that enables the facilitation of socioemotional skills is the peer support program (PSP). Peer support (PS) is important as it helps to understand common mental health issues (e.g., mental stress) or symptoms that their peers may experience (Channel News Asia, 2020). PSP will equip peer support champions (PSCs) with skills such as emotional regulation, problem-solving, managing relationships and conflicts. The PSCs will develop empathy toward peers with maladaptive behaviors, as well as know when and how to seek help for them and themselves. As PS can contribute to students’ well-being, the present chapter aims to establish the provision of peer support for all students by looking out for one another with empathy. This study will discuss and examine the current field of research on self-determination theory (SDT) and SEL, together with its central concepts, empirical findings, and implications for several spheres of human behavior.

Theoretical Framework

Self-determination Theory

Humans have three fundamental psychological needs, namely autonomy, competence, and relatedness. To have free will and the ability to make decisions is what is meant by autonomy. The need to feel effective, capable, and competent in one's activities is related to competence. Feeling connected, forming close emotional bonds, and having deep relationships with others represent the need for relatedness. SDT makes distinctions between various motivational types. When someone is motivated solely by their own intrinsic desire or satisfaction and not by external factors like rewards or pressure from others, they are said to be intrinsically motivated. Hence, SDT proposes that when these basic psychological needs are satisfied, individuals are more likely to be intrinsically motivated, experience optimal performance, and achieve greater well-being. Below is a brief overview of the theoretical framework of SDT.

Autonomy is understood as the need to experience making choices in life, together with willingness and volition in their behavior toward their learning environment (Guay, 2021). It emphasizes the importance of individual feelings because they need to ensure that their behavior is intertwined with the "self" and aligned with their own values rather than being controlled or coerced by external factors. Autonomy is seen as a fundamental need for human growth, development, and optimal functioning.

Competence is understood as the need for people to feel effective, capable, and competent in one's learning environment (Guay, 2021). In one's chosen activities, it involves the skill of mastery, seeking challenges to improve one's aptitudes, and skill improvement. Since people are more likely to be intrinsically driven when they feel competent in their work, competence is considered a crucial requirement for motivation and engagement.

To feel connected and foster closer emotional bonds with another person or a group of people is what is meant by the term "relatedness" in psychology (Guay, 2021). It emphasizes the importance of fostering positive human relationships and forming harmonious bonds during social interactions. Relatedness is thus having a sense of belonging and feeling connected to others, which are fundamental human needs that boost motivation, engagement, and overall well-being.

SDT proposes that the satisfaction of these three basic psychological needs - autonomy, competence, and relatedness- is critical for intrinsic motivation, optimal performance, and well-being (Ryan & Deci, 2019). When these needs are met, individuals are more likely to engage in activities for their inherent value, experience a sense of vitality and well-being, and achieve positive outcomes in various aspects of life. On the other hand, when these needs are thwarted or unmet, individuals may experience diminished motivation, lower well-being, and negative outcomes.

In addition, extrinsic and intrinsic motivation are distinguished by SDT, with intrinsic motivation being the most independent and self-reliant type. According to SDT, the satisfaction of fundamental psychological needs encourages the growth

of intrinsic motivation, but the existence of external variables might stifle it and encourage more extrinsically motivated conduct (Ryan & Deci, 2019). As considered, the SDT theoretical framework offers a thorough understanding of the function of autonomy, competence, and relatedness as essential psychological factors that affect people's motivation, behavior, and well-being. It has been thoroughly studied and implemented in numerous areas of psychology, education, workplace, and sports, offering insightful knowledge about human motivation and enhanced performance.

In summary, SDT has drawn a lot of attention over the years as a thorough and significant framework for comprehending human motivation and behavior in a variety of circumstances. Numerous studies in the SDT literature contend that to increase intrinsic motivation, all three psychological demands must be fulfilled. The relative impact of each psychological need is rarely examined in investigations. One of the psychological requirements that has historically received the least attention in SDT research is relatedness. The Relational Motivation Theory (RMT) is one of the newest SDT sub-theories, and it acknowledges relatedness as a fundamental psychological need itself (Wang et al., 2019). The need for relatedness is aligned with the competencies of SEL.

Five Core Elements of Social-Emotional Competencies

Beyond the assimilation and mastery of academic materials, education must incorporate a holistic approach to training and preparing young children for life success. A broad and balanced educational structure is crucial in preparing them to transform into responsible adults (Pollock, 2007). During the past few decades, scientific reviews were conducted, and research has indicated that the incorporation of social-emotional learning (SEL) initiatives at elementary levels to eighth-grade students has yielded a very promising outcome in promoting positive adjustment and improving academic performance as well as reducing maladaptive behavioral problems (Payton et al., 2008).

SEL is the process by which young children learn and practice abilities linked to comprehending and regulating their emotions, building healthy relationships, making wise choices, and displaying prosocial and empathic behaviors. Since research suggests that SEL is linked to a number of positive outcomes, including higher academic achievement and prosocial behaviors, contributing to their overall well-being (Martinez, 2016). As a result, it has attracted numerous attentions as a vital component of child development in recent years. SEL is thus of paramount importance for families, schools, and even communities to discover and discern relevant and essential information to implement research-based initiatives that specifically support the child's development of SECs during the early phases of growth before adulthood.

As CASEL has identified the core elements of SEL that are fundamental to learning and development, institutions should apply these five competencies in

their SEL programs. The SECs include self-awareness, self-management, social awareness, relationship skills, and responsible decision-making.

First, self-awareness is seen in a person with the ability to understand one's emotions, accurately assess one's thoughts, and know how their own behaviors will have an influence on others. It is also important to note that this includes their ability to self-assess their personal values, strengths, and limitations that shape their sense of self-confidence (Payton et al., 2008). Evidence has pointed out that certain parts of the self are linked to behavior, and when that schema is activated, it influences the behavior of the person (Froming et al., 1998). Children, especially boys, were found to self-regulate their emotions during their social interactions with girls as their social interaction schema was activated and they behaved friendlier in the girls' presence. Hence, students effectively demonstrate self-awareness, especially in displaying keenness in their strengths and emotions, are likely self-reflective in their own actions and thus capable of behaving appropriately and responding accordingly.

Second, self-management represents the ability to manage one's behavior and emotions by demonstrating the skill in handling stress, curbing impulses, and persevering in addressing challenges (Payton et al., 2008). With one's emotions in check, positive and close relationships can be established, which enables one to interact well with their peers and succeed at work while maintaining a healthy mindset. Research has indicated children who get along well with their peers generally exhibit positive behaviors such as cooperation and friendliness and are lower in negative emotions like aggression and disruptiveness (Asher & McDonald, 2009; Ironsmith & Poteat, 1990; Zeller, et al., 2003). A study conducted in 2019 has reported that children require a very long time to develop social and emotional skills, hence early intervention is crucial, and the cultivation of teacher-child relationships has strong links to developing good prosocial behaviors, academic success, emotional skills, and helping children lead healthy lives (Alzahrani, et al., 2019). As such, the way children are able to manage their own emotions and thoughts, which may in turn lead to helping them achieve future goals and aspirations.

Third, social awareness is the ability to consider the perspectives of others, empathize and subsequently read the emotional cues of others. When children can read the emotional cues of others, they are thus able to understand and respond appropriately to their feelings. Empathy is key to developing this bridge to understand other people's feelings, which helps them relate to each other's emotional state. Empathy is observed when children are capable of regulating their responses to their peers' emotional distress, which indicates an increased sensitivity to positive socialization (Wagers & Kiel, 2019).

Fourth, relationship management relates to the ability to form healthy and supportive relationships, which require constant maintenance of cooperation and communication with people (CASEL, 2022). Examples of relationship management include resisting inappropriate social pressure, resolving interpersonal conflict, and seeking help when necessary (Payton et al., 2008). Studies have examined and shown how children in their middle childhood years manage their social relationships with the people around them. The results yielded were comparisons between children with

higher prosocial behavior and children who are more aggressive. The outcome indicated that children with greater prosocial behaviors had more friends than those who exhibited aggressive behaviors and, as a result, were less accepted by their friends (Rodkin, et al., 2013).

Fifth and finally, responsible decision-making refers to the ability to make ethical decisions when addressing problems and challenges in situations (CASEL, 2022). The consideration of constructive choices regarding one's social behavior and reaction to others is of paramount importance. This includes "making decisions based on consideration of ethical standards, safety concerns, appropriate social norms, respect for others, and the likely consequences of various actions" (Payton et al., 2008, p. 6). Learning how to make responsible decisions requires early intervention with the help of parents and teachers to guide them throughout the process (Vygotsky, 1978). Therefore, training is needed through independent problem-solving and learning how to communicate effectively when confusion arises during the training.

Literature Review

Existing Initiatives of SEL

Several SEL programs aim to teach students core social competence skills in the classroom. Recently, more schools have gained a growing awareness of the importance of SEL and its beneficial effects on students. It has become more prevalent in American schools, where educators are curious to know if schools globally are sufficiently preparing their students for life beyond the classroom (Mahoney et al., 2018). These lessons cover a range of subjects, such as character-building, violence prevention, positive goal setting, and conflict resolution, to facilitate deeper discussions and help students consider the safety and well-being of themselves and others.

Recently, the USA has already conducted SEL programs and is in the process of establishing standards for the development of specifically targeted SEL abilities at every school grade level (Mahoney et al., 2018). Local policies have also shown a willingness to partake in this initiative by providing funding to support such programs in the long run. A study was conducted with the purpose of documenting the effectiveness of such SEL programs and to examine what kind of positive outcomes were yielded. It investigated four substantial meta-analyses on the impacts of student involvement in SEL programs. An approach to combining all of the available study data and condensing them into a single, comprehensive assessment is referred to as a meta-analysis, which is a statistical method of synthesizing numerous prior attempts to evaluate the efficacy of a certain program. For instance, one of the meta-analyses synthesizes data from studies of 213 school-based SEL programs, including 270,000 students from kindergarten to high school level (Mahoney et al., 2018). As such, empirical evidence strongly indicates that SEL programs do, in actuality, provide substantial advantages for the students involved (Mahoney et al., 2018).

Furthermore, SEL initiatives are becoming a more important component of teaching in schools. MindUP is an existing school-based SEL program that focuses on training and the creation of mindfulness-based curriculum aimed at enhancing children's well-being and has also grown in popularity as an emerging practice in education (Crooks et al., 2020). There are several school-based programs that integrate mindfulness into a SEL framework. As such, there is growing recognition of these approaches to students' well-being that are not only beneficial but also add value to their development. Results by Crooks et al. (2020) have thus demonstrated strong support for the implementation of SEL initiatives. The skills students learn in SEL have been shown to help students be more engaged in learning and feel more motivated to succeed socially and academically at school.

However, SEL is not an instant panacea but rather an effective approach for enhancing children's social and emotional competencies, which are linked to a number of beneficial behavioral and academic outcomes. Various studies have utilized multiple techniques to examine the efficacy of SEL initiatives. Yet, it is strongly encouraged that future research could focus on constructing narrower questions to better tackle the issues, such as discovering the type of program that is most effective for promoting which SEL skills exactly and for which students in the short and long runs (Mahoney et al., 2018).

Empirical Studies on SDT and SEL

SDT started off with intrinsic motivation, which is a psychological need to engage in actions for the joy or fulfillment in performing something that grants the user internal satisfaction (Ryan & Deci, 2019). Humans are generally viewed as proactive individuals who are born with a natural inclination toward developmental growth, mastering and overcoming challenges, and gaining new experiences to supplement their learning experience. These innate desires and tendencies require a supportive and all-encompassing environment, which is not possible in every social setting the child is in. As a result, it could lead to possible negative outcomes such as lack of compliance, rebellion, or poor behaviors and a lack of engagement in learning (Guay, 2021). For example, Guay (2021) discovered that a large number of high school students chose to drop out before completing their formal education because they felt suffocated and doubted their own competencies in school. Hence, more research is needed to develop socially sensitive measures in SDT that help to better shape student motivation levels.

Although schools are increasingly gaining awareness and recognition of SEL programs, it has not been able to expand into certain countries. It has been reported that research carried out on SEL is limited in Turkey. This scant research typically concentrates on the SEL abilities of preschoolers (Hanife & Cigdem, 2017). In contrast, SEL should encompass a variety of children from preschool through high school and involve all possible young age groups who would be affected. Lack of study, particularly for various student subgroups, potentially limits the scope of

analysis and effectiveness of knowing how social-emotional programs have changed them over time. Only early childhood or elementary school is typically the main focus of existing longitudinal research, and cross-sectional studies do not provide sufficient insight into how competencies change over time (West et al., 2020). Moreover, there are concerns about the scope of the results of many SEL studies because they use small sample sizes that are convenient in certain settings.

Purpose of the Study

The education system of every school mainly focuses on the academic competence and achievements of students. Yet, what we failed to realize was the importance of equipping students with lifelong skills required to cope and succeed in life beyond the classroom. While teaching and imparting the knowledge derived from the academic materials, there is a need to place a greater emphasis on the SECs of the students. Often, teachers are called upon to create a suitable learning environment where students are given the opportunity to develop their social and emotional skills in tandem with academics. This empirical study examines student relationships in a primary school setting, where the PSCs function as leaders who express care and concern toward their peers in need. While examining the student relationships, a second focus will be directed at discovering the potential challenges faced, a comparison of SECs between Primary 4 and 5 levels and the beneficial effects of the SEL initiative on the PSCs. Based on these observations, this qualitative study aims to address the gaps and explore the perceived benefits and limitations of the SEL initiative conducted with primary school students in the Singapore setting.

Method

Participants

Fourteen primary school students (10–11 years old) from a Singapore's primary school participated in the present study. They were Primary 4 and 5 students, which is similar to Grades 4 and 5, respectively. Prior to data collection, ethical clearance was granted from the university's Institutional Research Board (IRB-2022-238). Prior to the group interviews, participants were briefed on the purpose of the study and were given assurance regarding the confidentiality of their recorded responses. All participants were interviewed online via the Zoom platform, and their identities were anonymized.

Procedure

In collaboration with a primary school in Singapore, the peer support program covers skillsets derived from SDT and SEL exhibited by Primary 4 and 5 students. Firstly, the school needs to determine the necessity of an SEL program and assess their readiness level. Secondly, there must be a problem identification that needs to be addressed in the students' learning environment, which helps to properly examine the links between SEL and SDT and their benefits. Thirdly, consultation sessions are required especially with the teacher advisors who work closely with the students, and these sessions lead to opportunities for planning and implementing the necessary steps required to apply the SEL and SDT frameworks. Hence, students who are higher in prosocial behaviors were selected by the teachers, and some had volunteered to be a PSC, a role tasked with the responsibility of looking out for their peers in times of emotional distress. Subsequently, both the teacher advisors and PSCs are trained through weekly lessons conducted separately for the PSCs, where they are educated on the issues of bullying and the appropriate measures to adopt when met with such cases. The PSCs are empowered by their teachers and given the autonomy to perform their roles around their peers. The PSCs are trained to be motivated to help their peers through actions such as giving encouraging feedback to their peers and demonstrating empathy and patience when listening to problems. Followed by the implementation of the peer support initiative to assist the PSCs in developing their SEL abilities. In essence, the PSCs are aspiring leaders who set exemplary role models for their classmates and are trained to be prompt and swift in their actions. After undergoing the peer support initiative, PSCs will be more equipped with their social skills and emerge with a healthier and more positive impact on their well-being.

Semi-structured interviews were deployed during the study to collect students' responses according to the interview questions. A set of guiding questions was constructed for the purpose of data collection. The guiding questions provide a clear set of instructions for interviewers and can generate comparable and desired qualitative information (Cohen & Crabtree, 2006). The nature of these questions contains a small level of openness but framed in "more deliberate terms" nonetheless (Dowson & McInerney, 2003). Semi-structured interviews were conducted in groups of two (for students). The interview questions had a more informal tone (e.g., "Were there more interactions between you and your peers compared to last semester? Please elaborate on your example(s)"; "What is the extent of help you would offer to your fellow peers/classmates?" for students). Since the interviews were audio-recorded, transcribing of all interviews was performed and each interview lasted about 30 min.

Data retrievals were conducted through thematic coding entirely from all the interviews. The data analysis is based on thematic coding which includes identification of main themes from the SEL and SDT frameworks. The main themes from SEL include self-awareness, social awareness, self-management, relationship management, and responsible decision-making. As for SDT, the main themes are competence, autonomy, relatedness, intrinsic motivation, and extrinsic motivation. These

emerging themes will be captured and form the basis of this study. Two independent researchers (from Nanyang Technological University) were recruited to assist and examine the entire coding process of the interview transcripts. The examination of codes leads to different interpretation of themes, such disparities were addressed, and an agreement was reached. Excerpts were then carefully selected from the students' responses to reflect the main themes.

Findings and Discussion

Student Relationship Management

The PSCs have dutifully carried out their roles and responsibilities in supporting their peers whenever appropriate. In terms of relationship management, the PSCs have shown indications of establishing and maintaining healthy relationships by being an active listener and helping their peers when required.

I am more sensitive to caring for my peers as I listen to what kind of problems they are facing. Then I try my best to help them. (Student 10, P5)

I care for my peers every day. I play with them, and I have a good connection with my classmates, so I play with them every day. I also help them with questions that they don't understand. (Student 13, P5)

Both PCSs, who are Primary 5 students, are observed to have shown a higher level of sensitivity in showing concern for their peers in need and firmly believe in establishing good connections and positive relationships among their peers. According to Martínez, research has reported positive impacts of SEL initiatives among students. SEL has been shown to reduce emotional distress and aggression, while increasing prosocial behaviors (Martínez, 2016). Such behaviors drive a positive attitude toward the self and others; as a result, the PSCs have a clear understanding of working toward creating good connections and positive relationships among their peers. Hence, this in turn leads to promoting a healthier level of relationship management.

If I was sitting near my classmate, I would be thinking that she doesn't really feel like being open to me (she does not feel comfortable sharing her feelings). Then I will just wait for a while until she feels more comfortable with the class, I will approach her. (Student 12, P5)

Student 12, who is also in Primary 5, is observed to be more contemplative in his own thoughts as he strategizes to establish positive relationship management with a new peer. Student 12 is seen to display a higher sensitivity level in showing concern towards the peer as an emphasis on cooperation and preventing social pressure is demonstrated. Studies have shown that, compared to students who were not involved in SEL programs, those involved displayed higher levels in SEL skills and positive social behavior (Mahoney et al., 2018). Overall, these PSCs have displayed the qualities of an experienced person capable of managing their relationships with their peers, especially those in need of emotional assistance.

Student Responsible Decision-Making

Students who exhibit responsible decision-making are likely competent to make good decisions regarding daily challenges they faced, show respect for others as they are aware of the consequences, and act out ethically. In terms of responsible decision-making, the Primary 5 PSCs below are observed to possess the skill in carrying out such an emotional competency.

I comforted her and said I think that you did, or you did alright you did good and that it doesn't matter. (Student 13, P5)

You let them calm down first then after a few days you ask if you can talk to them. (Student 4, P5)

Students 4 and 13 have readily displayed responsible decision-making, as they are confident in what they decide to act on and have a strong awareness of the kind of social response they should give to their peers in need. Research has indicated that students aged 12 who exhibit a good level of responsible decision-making are due to the presence of supportive parents (Dotsenko et al., 2020). Hence, the increase in personal maturity in making responsible decisions is not directly linked to the age of the child. This is observed from a study where the maturity level of 6 to 11 years olds is greater than those who are 12 years old, as the presence of a supportive adult plays a huge role in their decision-making process (Dotsenko et al., 2020). Therefore, Students 4 and 13 may very likely have had supportive adults throughout their childhood years who have exhibited a good amount of ethical consideration and are thus careful in their actions.

That time Miss Ong taught us cyberbullying, so right now when our friend is getting bullied, we must help them out and stop... Now, when I see people in trouble, I will always come forward and help them. (Student 9, P4)

Student 9, who is a Primary 4 PSC, shows a strong sense of justice in acting according to ethical standards as well, despite having lesser experience as a PSC. Student 9 is thus equally capable of making good ethical decisions and possesses a strong emotional competency in applying the appropriate response to social situations, which contributes positively to the well-being of one's school and community. Hence, these PSCs have demonstrated a good amount of respect toward their peers and the ability to consider ethical and correct courses of action so that they can be handled at a responsible level.

Student Self-management

Students who are adept at demonstrating self-management are competent in regulating their individual emotions to manage stress, curb their impulsive emotional behaviors, and in turn, able to express their emotions appropriately outwardly (Mahoney et al., 2018). In terms of self-management, the following excerpts from the

PSCs have indicated their competency in regulating their own emotions in a calm and confident manner without any impulsive outbursts in behavior or stressful feelings.

Most of my peers are happy but sometimes if they are feeling sad, they have their best friends who will try to comfort them. If they don't want me to comfort them, they'll just ask their best friends instead. (Student 13, P5)

I do not feel stressed when I hear stress from my classmates. (Student 10, P5)

Students 10 and 13 are clearly unaffected when social situations do not go their way or when faced with stressful situations. Student 13 is well aware and understands that peer support is not confined to the PSCs only. Peers who have other friends whom they trust and look up to are also encouraged to help their friends in times of emotional distress. Student 13 accepted this fact and does not display feelings of negativity such as indignance or jealousy or cast doubtful feelings about the capability as a PSC. As for Student 10, Student 10 displays a great amount of self-management as the stress felt from the peers does not affect her mood or emotional levels, thus effectively demonstrating the competence in regulating and controlling one's emotions and impulses.

The challenges I faced include having to ensure the way you talk or the approach you use while talking. For example, if you use a friendly and more patient way in talking, meaning the right way, then the person will feel he or she is able to trust you and like share his or her feelings readily. (Student 6, P4)

Student 6, a Primary 4 PSC, is newer in his experience as a PSC in comparison with Students 10 and 13 as some level of challenge is faced. The difficulty in regulating one's emotions and controlling impulses can be observed from Student 6. Student 6 remarked that the way one talks and choosing the right approach to handle the social situation is tricky. However, instead of responding in a helpless manner, Student 6 is observed to be persevering in addressing the challenge, or, in short, rising to the challenge given. In general, these PSCs have demonstrated the SEL ability to manage their emotional health by regulating their emotions first, thus exhibiting positive social behavior and low emotional distress (Mahoney et al., 2018).

Student Social Awareness

Students who are competent in demonstrating social awareness are more likely to observe social cues, understand social norms, and empathize with others from diverse cultures and backgrounds (Gimbert et al., 2023). Hence, they are able to understand the other person's feelings and express their own feelings appropriately in response.

When my classmate is upset about the exam results, I calm them down by telling them there's always another exam and they can try harder during this next exam. (Student 1, P4)

I know that we should care for everyone like help them when in need... most of the time I am able to detect the issues of my peers, who are feeling a bit stressful. (Student 10, P5)

People in my class were thinking it is weird that I talk to my friend who is being bullied. Then I thought to myself and wondered how it is weird for me to talk to him when he is

like bullied. What am I doing that is weird? I have to do it because they keep bullying them. (Student 12, P5)

Students 1 and 10, who are in Primary 4 and 5 respectively, effectively show hints of social awareness because they are able to pick up emotional cues from their peers. When their peers are stressed, Student 1 calms his friend down by giving words of encouragement, and the advice given is to do better the next round. Student 10 displays empathy toward his peers which heightens his social awareness because there was a detection in a spike in stress levels from his peers. Student 12 shows greater social awareness in seeking out for his peers as he is more aware of his duty as a PSC to protect his peers from bullying. Student 12 also displays a stronger commitment toward his responsibilities as a PSC as he is determined to shield his peers from acts of bullying. This visibly implies Student 12 has demonstrated a keener sense of compassion when he realized his peer is very sad from the effects of bullying and had displayed appropriate response to address the issue at hand (Gimbert et al., 2023). As such, students possess the ability to appropriately read the mood and identify a change in the behavior of their peers.

Student Self-awareness

Self-awareness is the key in understanding one's emotions which enables the person to self-regulate his thoughts and feelings, make sense of them, and respond in an appropriate behavior (Gimbert et al., 2023). Student 10 shows a keen sense of self-awareness as the problem could not be solved and advises the peer to seek professional help from the teacher instead. Hence, Student 10 is aware of her thoughts and emotions.

I will ask her to ask the teacher because the teacher can help her. Because I cannot help much as I am just a child, not an adult. I can't help to call the police or something so she should refer to a trusted adult instead. (Student 10, P5)

I find that I have more empathy now. When Miss Ong goes through some bullying cases, she teaches us how to empathize with them. So, from that situation, we can also feel how it feels like to be in the other person's shoe. (Student 3, P4)

Student 3 shows improvement in empathy levels and emotional sensitivities as the training conducted by the teacher, Miss Ong, proves to be effective in demonstrating how to better express empathy toward their peers.

Last semester, I am confused on my role as a PSC through actions like the need to talk to them, but now I am clearer about why I do this. I mean, last semester I was confused on like how I am going to help my classmates. But this semester is more comfortable because I actually did my role quite well. (Student 12, P5)

Student 12 indicates an improved version of his self-awareness as he forms a comparison between the two semesters as a PSC. He showed an increased depth in self-awareness because previously he was uncertain about his role as a PSC, but

after one semester, he remarked that he has a better understanding of what he needs to do and feels more comfortable. Hence, students have demonstrated the ability to identify their own individual strengths, weaknesses and emotions which then affect how they respond to their peers' help.

Student Intrinsic Motivation

Students who are high in intrinsic motivation can be attributed to a high internal satisfaction level with the work they are doing. When a person's three psychological needs are met, the greater the person feels internally to motivate himself to work toward a particular goal (Wang et al., 2019). These students have not only carried out their responsibilities as a PSC, but they took extra measures in providing emotional support to their peers in need.

I will help them out because I don't like to see people sad. So, I just want to help people out so that they will be happier and won't be sad or depressed. (Student 11, P5)

Student 11 is observed to display a very high-level intrinsic motivation as she wants to see her peers happy and seeing them in distress makes her uncomfortable. Thus, she is internally highly motivated to support her peers by offering her help whenever necessary.

Whenever I see someone fighting during recess, in the field, I'll go to them and tell them to stop fighting. The people fighting will go to each side so there's one person on my left then you go to the right side. (Student 8, P4)

As a PSC, Student 8 is highly internally motivated to carry out his responsibilities dutifully by mitigating the situation when a fight breaks out. He understands the problem and is intrinsically motivated to provide a resolution. As mentioned by Wang in his research, people who are intrinsically motivated partake in activities that interest them and are determined to solve it or fulfill what is required (Wang et al., 2019).

I help my peers by playing with them, hanging out with them and also because they were like the bottom few (least amount of friends) those kind, where lots of people don't like them. (Student 12, P5)

Student 12 demonstrates his enthusiasm in helping his peers, which indicates he is internally motivated to fulfill his role as a PSC who readily supports his peers. He empathizes with some of the peers who have fewer friends, therefore, it pushes him internally to bring some form of joy to them. These students have thus demonstrated their personal motivation by voluntarily providing their assistance to their peers when in emotional distress. Student 11 is especially prominent in her pursuit to reduce her peers' emotional distress because she is intrinsically motivated regardless of her school position as a PSC. Student 11 had remarked that she will help anyone who is emotionally upset because she dislikes seeing a person feeling disheartened or

dispirited. Hence, Student 11 possesses a naturally higher level of intrinsic motivation than others and her being appointed as a PSC only serves to amplify her strong determination to support her peers in need. Student 12 is also exceptional in his personal motivation levels because he has a passionate heart, which enables him to easily empathize with the feelings of others, and he is determined to ensure they return to their healthier state of well-being by bringing happiness in the form of companionship and a listening ear to his peers in need.

Student Competence

Competence is seen in students when they exhibit mastery in a task or topic. It also includes the signs of cognitive activation such as deep thinking, metacognition, and achievement in performing something (Förtsch et al., 2016). Both Students 11 and 13 have demonstrated competence in spotting signs of emotional distress in their peers and readily offer their assistance. Student 13 is observed to be more perceptive as he is able to detect signs of distress based on their facial expressions. Hence, this posits mastery in a skill in detecting distressing signs among his peers.

I approach them first when I see those signs like they are sad or depressed, but if I did not manage to spot these signs then they will come to me. (Student 11, P5)

I can detect the issues normally by their facial expressions, I can. Last time when my classmate sat beside me and when she failed her math exam, she was very sad, and I could tell by her facial expression and tried to comfort her. (Student 13, P5)

The strategies used where you look out for those signs of feeling stress and anxious and even though they don't say, you can observe them by their actions if like they are very stressful then they will show by studying like crazy. (Student 8, P4)

Student 8 has this heightened sense of awareness as he skillfully detects any signs of anxiety and stress among his peers. He has also equipped himself with strategies to sieve out peers who are under stress through their sudden change in behaviors but dare not speak up or approach the PSCs for emotional help. As such, the PSCs have demonstrated the mastery and skill in detecting signs of emotional changes observed from their peers.

Student Autonomy

When it comes to learning, a person's psychological desire for autonomy is understood as the need to experience making choices in life, together with willingness and volition in their behavior toward their learning environment (Guay, 2021).

If they are still not alright, I'll wait until they are more calmed down then I'll try to help them. (Student 13, P5)

Student 13 demonstrates a high level of autonomy, as he realizes the other person is in a state of distress and he knows that he should allow the person to calm down first before taking any action and providing his own opinions. In this case, he is capable in demonstrating self-restraint which is an action he has decided for himself in order to refrain himself from further potentially agitating his peer. He also does not shy away from helping his friends even when he realizes that they may still be struggling because he has control of his himself and his environment. He thus practices self-restraint as he thinks before he acts. Hence, he is observed to have portrayed a good sense of autonomy as he takes control of his environment and decides what actions to take.

I usually help them if they are not here and when the teacher says you can pack your bags then sometimes, I would help, if they come back very late, then I would help to put their pencils in the pencil case. (Student 9, P4)

Student 9 pays attention to the absence of other classmates and takes initiative when they are not around. He exhibits some awareness as he notices that the other classmates might be occupied with other work and do not have time to attend to their belongings. However, the student only acts on certain occasions (“usually” and “sometimes”) and when he hears verbal cues (e.g., when the teacher instructs them to do something). This is an example of having autonomy that is dependent on the situation. Student 9 is thus autonomously dependent on the context of the situation which connects to how his peers behave in class (Guay, 2021). Despite these conditions, Student 9 still expresses his willingness to make his own decisions, and he is in control of his environment. It is evidently demonstrated in his ability to decide when to provide assistance or not. Therefore, he portrays a relatively good sense of autonomy.

Because as PSCs we should form a bridge so that whenever there’s something wrong you can always help the student to raise it up even though they don’t want to raise it up, because they don’t want to trouble us but as PSCs, our job is to help students not to become victims of bullying. (Student 8, P4)

Student 8 recognizes his important role as a PSC as he develops care and concern for the people around him. He is empathetic toward those who are being intimidated in school and even demonstrates willingness to offer support or speak up for them. He is confident in his ability to deal with problems and understands that there are consequences if he does not help these students. These PSCs thus demonstrate autonomy where they are in control of their learning environment and take ownership of their actions. Yet, autonomy must not be mistaken for feelings of detachment, as people could generalize a person with high levels of autonomy as being independent and not wanting to rely on others. Furthermore, numerous studies have indicated that students with a high sense of autonomy want to be accepted by their peers as well (Guay, 2021). In choosing to speak up for his peers in distress, Student 8 exhibits a strong attachment toward his peers as they are being victimized and is determined to promote a harmonious relationship among his peers. By doing this, Student 8 does seek to be accepted by his peers and hopes to emphasize that they can trust

and rely on him whenever they are in need of emotional support. As such, Student 8 clearly shows his deep sense of justice and compassion which fuels his strong sense of autonomy.

Student Relatedness

To feel connected and foster closer emotional bonds to another person or a group of people is what is meant by the term “relatedness” in psychology (Guay, 2021).

Sometimes I see my friend really sad and tired when she comes to school then I will just ask her and she will just tell me whatever problems she has. (Student 10, P5)

Student 10 showcases his interest in his friends’ well-being, providing them with a shoulder to cry on. Extends his support to his friends, gives his friends the confidence to speak up about their issues. His friend can share his concerns, and the student can make him feel emotionally connected, fostering a sense of relatedness.

I am more sensitive in caring this semester, this semester I was on the last few days of school and was trying to make those people with very few friends feel some enjoyment on their last few days with me. (Student 12, P5)

Student 12 emotionally engages and interacts with other students who have fewer friends and promotes interest and enthusiasm in celebrating the end of the school semester with them. His intentions to socialize with these students help them to feel connected and important in the completion of their semester together, demonstrating a highly supportive friendship. This clearly demonstrates the reason for having this psychological need as without this need, Student 12 would not display such a strong level of willingness and readiness to form ways to interact effectively and in a harmonious manner with his peers (Guay, 2021).

During class free time I will play with my friends, and I will make up some games and then we will just play the game together. (Student 13, P5)

Student 13 has a strong sense of relatedness to his friends where they can partake in an activity together even when it is thought up/formulated on the spot. This feeling of belonging and camaraderie allows them to have fun with people that they enjoy being around, reflecting a positive attitude toward interpersonal friendship. These PSCs are observed to have the intention of promoting more social interactions through connection building among their peers.

Implications and Limitations

The present study has examined the SECs and SDT psychological needs of the PSCs at a primary school in Singapore. After conducting the study, comparisons of the PSCs’ abilities gave meaningful and insightful perspectives and findings,

which provided a deeper layer of understanding into the benefits of the peer support program based on SEL and SDT frameworks. Educators and researchers alike have gained a better and clearer comprehension of students' perspectives in approaching the challenges faced as PSCs.

Based on the findings and discussion section, the implications include PSCs demonstrating an increase in sensitivity in caring for their peers by expressing more empathy and concern. However, Primary 5 PSCs are shown to display a higher level of SECs such as relationship management and social awareness, based on their experienced approach to peer support. In contrast, Primary 4 PSCs are shown to face more challenges in managing their emotions as they are still new to their role as PSCs. As such, Primary 4 PSCs require more guidance in their roles due to being inexperienced and need to enhance their SECs in areas where they fall short as compared to the Primary 5 PSCs. In general, the SEL initiative has resulted in a greater positive effect on the PSCs for, they have displayed the SECs in helping their peers, as well as improving their own SEL and SDT levels to a certain extent.

Although a child's specific talents may vary, their relative proficiencies in their strengths and weaknesses may change over time as well. Hence, there are still limitations to consider when conducting future research. In order to promote children's SEL abilities, it is critical to act early and consistently. Moreover, it is significant to maintain their SEL levels in mind as they grow older, and they may fall behind or experience a decrease in certain competencies without continual supervision.

SEL activities are frequently insufficient in school settings, despite prior understanding that SEL does play a crucial role in creating and maintaining positive results among students. Further research is, therefore, required to examine the effectiveness of these SEL initiatives, how they are widely disseminated and whether they are continuously evaluated, improved, and sustained over the next few years. For instance, future studies can ponder the various methods to be implemented to strengthen schools' ability to implement SEL initiatives and how educational policies might be better matched to allow for the expansion of SEL programs in other school globally. In other words, it is essential to improve the interaction between researchers, institutions, and local leaders. To achieve this, it will be necessary for a variety of stakeholders to collaborate to ensure the well-distributed exposure of a well-designed SEL program is made accessible internationally.

Conclusion

With an in-depth understanding of the perspectives of the students during the SEL intervention in a primary school setting, it widened the scope of the study and addressed certain issues pertaining to SEL in students. This study gave a detailed account of actions that foster autonomy from the viewpoint of students. To accurately record everything that was said and done in class, as well as each student's replies in terms of learning and interaction, however, will take a lot of work. Therefore, it

is advised that future studies utilize a greater amount of classroom observations and video recordings to expand on the current findings.

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References

- Alzahrani, M., Alharbi, M., & Alodwani, A. (2019). The effect of social-emotional competence on children academic achievement and behavioral development. *International Education Studies*, *12*(12), 141–149. <https://doi.org/10.5539/ies.v12n12p141>
- Asher, S. R., & McDonald, K. L. (2009). The behavioral basis of acceptance, rejection, and perceived popularity. In K. H. Rubin, W. M. Bukowski, & B. Laursen (Eds.), *Handbook of peer interactions, relationships, and groups* (pp. 232–248). The Guilford Press.
- CASEL. (2022). *What is the CASEL framework?* <https://casel.org/fundamentals-of-sel/what-is-the-casel-framework/>
- Channel News Asia (CNA). (2020). Schools to offer mental health lessons from 2021; more trips to Asian countries. <https://www.channelnewsasia.com/news/singapore/schools-mental-health-lessons-2021-more-trips-asia-moe-12499088>
- Cohen, D., & Crabtree, B. (2006). Qualitative research guidelines project. <http://www.qualres.org/HomeSemi-3629.html>
- Collaborative for Academic, Social, and Emotional Learning. (2018). *Core SEL competencies*. <https://casel.org/core-competencies/>
- Crooks, C. V., Bax, K., Delaney, A., Kim, H., & Shokoohi, M. (2020). Impact of mindup among young children: Improvements in behavioral problems, adaptive skills, and executive functioning. *Mindfulness*, *11*(10), 2433–2444. <https://doi.org/10.1007/s12671-020-01460-0>
- Dotsenko, E. L., Startseva, V. A., Pchelina, O. V., Karaberova, E. V., & Ivantsova, N. (2020). Responsible decision making as primary school children move into adolescence. *The International Journal of Emotional Education*, *12*(2), 90–102.
- Dowson, M., & McInerney, D. M. (2003). What do students say about their motivational goals: Towards a more complex and dynamic perspective on student motivation. *Contemporary Educational Psychology*, *28*(1), 91–113. [https://doi.org/10.1016/S0361-476X\(02\)00010-3](https://doi.org/10.1016/S0361-476X(02)00010-3)
- Esen-Aygun, H., & Sahin-Taskin, C. (2017). Teachers' views of social-emotional skills and their perspectives on social-emotional learning programs. *Journal of Education and Practice*, *8*(7), 205–212. ISSN 2222-288X.
- Förtsch, C., Werner, S., Dorfner, T., von Kotzebue, L., & Neuhaus, B. J. (2016). Effects of cognitive activation in biology lessons on students' situational interest and achievement. *Research in Science Education*, *47*(3), 559–578. <https://doi.org/10.1007/s11165-016-9517-y>
- Froming, W. J., Nasby, W., & McManus, J. (1998). Prosocial self-schemas, self-awareness, and children's prosocial behavior. *Journal of Personality and Social Psychology*, *75*, 766–777.
- Gimbert, B. G., Miller, D., Herman, E., Breedlove, M., & Molina, C. E. (2023). Social emotional learning in schools: The importance of educator competence. *Journal of Research on Leadership Education*, *18*(1), 3–39.
- Guay, F. (2021). Applying self-determination theory to education: Regulations types, psychological needs, and autonomy supporting behaviors. *Canadian Journal of School Psychology*, *37*(1), 75–92. <https://doi.org/10.1177/08295735211055355>

- Ironsmith, M., & Poteat, G. M. (1990). Behavioral correlates of preschool sociometric status and the prediction of teacher ratings of behavior in Kindergarten. *Journal of Clinical Child Psychology*, *19*(1), 17–25. https://doi.org/10.1207/s15374424jccp1901_3
- Mahoney, J. L., Durlak, J. A., & Weissberg, R. P. (2018). An update on social and emotional learning outcome research. *Phi Delta Kappan*, *100*(4), 18–23. <https://doi.org/10.1177/0031721718815668>
- Martínez, L. (2016). Teachers' voices on social emotional learning: identifying the conditions that make implementation possible. *International Journal of Emotional Education*, *8*(2), 6–24. <https://www.proquest.com/scholarly-journals/teachers-voices-on-social-emotional-learning/docview/1846607193/se-2>
- Ministry of Education (MOE). (2019). Social and emotional learning. <https://www.moe.gov.sg/education/programmes/social-and-emotional-learning>
- Neo, C. C., Goh, C. T., Yip, C., & Tan Bing Yang, R. (2022). *More youths seeking help with mental health—but finding it isn't always easy*. CNA. Retrieved March 17, 2023, from <https://www.channelnewsasia.com/cna-insider/youth-mental-health-illness-singapore-help-treatment-2649296>
- Ng, J. (2020). *How to help children develop social-emotional intelligence and resilience*. Today. Retrieved February 2, 2023, from <https://www.todayonline.com/commentary/how-help-children-develop-social-emotional-intelligence-and-resilience>
- Payton, J., Weissberg, R. P., Durlak, J. A., Dymnicki, A. B., Taylor, R. D., Schellinger, K. B., & Pachan, M. (2008). *The positive impact of social and emotional learning for kindergarten to eighth-grade students: Findings from three scientific reviews*. Collaborative for Academic, Social, and Emotional Learning.
- Pollock, J. E. (2007). *Improving student learning one teacher at a time*. ASCD.
- Rodkin, P. C., Ryan, A. M., Jamison, R., & Wilson, T. (2013). Social goals, social behavior, and social status in middle childhood. *Developmental Psychology*, *49*(6), 1139–1150. <https://doi.org/10.1037/a0029389>
- Ryan, R. M., & Deci, E. L. (2019). Brick by brick: The origins, development, and future of self-determination theory. *Advances in Motivation Science*, 111–156. <https://doi.org/10.1016/bs.adms.2019.01.001>
- Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. In M. Cole, V. John-Steiner, S. Scribner, & E. Souberman (Eds.). Harvard University Press.
- Wagers, K. B., & Kiel, E. J. (2019). The influence of parenting and temperament on empathy development in toddlers. *Journal of Family Psychology: JFP: Journal of the Division of Family Psychology of the American Psychological Association (Division 43)*, *33*(4), 391–400. <https://doi.org/10.1037/fam0000505>
- Wang, C. K. J., Liu, W. C., Kee, Y. H., & Chian, L. K. (2019). Competence, autonomy, and relatedness in the classroom: Understanding students' motivational processes using the self-determination theory. *Heliyon*, *5*(7), 1–6. <https://doi.org/10.1016/j.heliyon.2019.e01983>
- West, M. R., Pier, L., Fricke, H., Hough, H., Loeb, S., Meyer, R. H., & Rice, A. B. (2020). Trends in student social-emotional learning: Evidence from the first large-scale panel student survey. *Educational Evaluation and Policy Analysis*, *42*(2), 279–303. <https://doi.org/10.3102/0162373720912236>
- Zeller, M., Vannatta, K., Schafer, J., & Noll, R. B. (2003). Behavioral reputation: A cross-age perspective. *Developmental Psychology*, *39*, 129–139. <https://doi.org/10.1037/0012-1649.39.1.129>

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Chapter 4

Perceived Teacher's Autonomy Support and Social-emotional Outcomes in Students: Mediating Effect of Need Satisfaction



Hong Liu Wu, Betsy Ng, and Woon Chia Liu

Abstract Underpinned by self-determination theory (SDT; Ryan & Deci in *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Publications, 2017), the study was to explore how perceived teacher's autonomy support (PTAS) is related to students' social and emotional learning (SEL) and to examine whether the relationships are achieved through the satisfaction of students' basic psychological needs. The current sample involved 130 Singapore primary school students aged between 10 and 11 years. Results indicated that need satisfaction significantly mediated the relationships between PTAS and self-efficacy, PTAS and resilience, as well as PTAS and test anxiety, respectively. The current findings revealed that an autonomy-supportive environment enhances positive social-emotional outcomes via need satisfaction. Therefore, it is suggested that using autonomy support in school could be an effective approach to help satisfy students' psychological needs, which in turn allow students to build their self-efficacy and resilience while alleviating test anxiety.

Introduction

Stress is one the most prevailing concerns threatening adolescents' psychological well-being. For Asian societies, the stress related to academic achievement or excellence seems to be the most acute (Huan et al., 2008). In Hong Kong, research found that high expectations on academics in school significantly predicted children's academic stress (Chyu & Chen, 2022). Moreover, Chinese children and adolescents were reported high depressive symptoms and anxiety arising from high expectations toward their academic success (Chyu & Chen, 2022; Ma et al., 2018). Some evidence indicates that Chinese adolescents may suffer from more depression than their western counterparts (Sun et al., 2021). In South Korea, suicide becomes the

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second leading death cause of Korean adolescents in 2014, and about 25.1% of primary 4 to primary 6 students responded that school grade (43.6%) was the top major reasons of suicide, followed by family disputes (23.9%) and peer conflicts (9.5%) (Kim & Eom, 2017). Like their Asian counterparts, Singapore adolescents were reported higher mean scores of overall academic expectation stress and experiences of similar psychological concerns such as fear of academic failure (Huan et al., 2008).

Considering the psychological well-being of adolescents, the past decades have witnessed continuous reforms in education systems across Asian countries (Cheng, 2017). At the core of these changes is the emphasis on children's SEL, especially the twenty-first century social-emotional competencies (SECs). The framework of twenty-first-century Competencies (21CC) has been integrating into primary and secondary school curriculum in Asian countries or areas like Singapore, Japan, South Korea, Hong Kong, and Taiwan in different ways (Cheng, 2017). This framework includes six core values (i.e., respect, responsibility, resilience, integrity, care, and harmony) and five essential SECs (i.e., self-awareness, self-management, responsible decision-making, self-awareness, and relationship management) to prepare today's younger generations for the changing demands in the twenty-first century (CASEL, 2021). School teachers, as an integral part of the youth's microsystem affecting youth's growth directly, are considered acting a key role in supporting the youth's healthy development. For example, Singapore school educators are entrusted with major responsibilities of nurturing students' SECs. However, some researchers pointed out that approaches regarding how schools and educators can effectively cultivate the SECs still deserve constant exploration (Tan et al., 2017). With this consideration, the current study attempts to support teachers in their endeavors to foster students' social-emotional development from a self-determination theory's (SDT) perspective. Also, limited research investigates how SDT is related to primary school students' SEL. This study therefore seeks to extend prior research and support students' SEL, thereby facilitating psychological well-being of our youth.

Literature Review

Self-Determination Theory

Self-determination theory (SDT) is defined by Ryan and Deci (2017, p. 3) as "an empirically based, organismic theory of human behavior and personality development," and it critically examines the various social-contextual factors that affect human thriving (e.g., motivation and psychological needs). The three basic psychological needs for autonomy, competence, and relatedness are universal and fundamental "innate psychological nutriment" for individuals to achieve psychological well-being (Deci & Ryan, 2000, p. 229). Autonomy refers to having the ownership of one's behaviors; competence refers to the feeling of being competent to pursue goals;

and relatedness refers to a feeling of genuine connection and belonging (Deci & Ryan, 2000). When these three innate needs are satisfied, individuals gain more autonomous motivation and better psychological development (Vansteenkiste & Ryan, 2013). However, if thwarted, they would fail to foster growth potential and cause undesired psychological outcomes such as passivity, maladjustment, and ill-being. Prior research has confirmed that need satisfaction was positively associated with better academic performance (Marshik et al., 2017), stronger intrinsic motivation (Xiang et al., 2017), lower perceived stress (Neufeld et al., 2020), as well as less anger and distress (Stanley et al., 2021), whereas need frustration negatively predicted lower life satisfaction (Lin & Chan, 2020), online gaming disorder (T'ng et al., 2022), negative affect, and depressive symptoms (Levine et al., 2022).

Ryan and Deci (2000) also emphasized that social contexts (e.g., teachers) can be either need-supportive or need-deprived. Autonomy-supportive teachers create a need-supportive learning environment where they provide students with meaningful rationale, acknowledge students' feelings, use informative language and avoid controlling words, and show patience (Núñez & León, 2015; Reeve & Cheon, 2021), thus facilitating the satisfaction of students' basic needs. More importantly, when students' needs are met, teachers' autonomy-supportive behaviors help nurture positive learning and psychological outcomes such as better academic achievement (e.g., Tan et al., 2022), class engagement (e.g., Liu et al., 2021), enhanced autonomous motivation (e.g., Ljubin-Golub et al., 2020), stronger self-efficacy (Wang et al., 2017), enhanced resilience (Montero-Carretero & Cervelló, 2020), less depression (Zhang et al., 2022), and lower levels of anxiety (Yu et al., 2016).

Social and Emotional Learning

Social and emotional learning (SEL) involves the learning of a variety of emotional, cognitive, social, and behavioral competencies (Collie, 2020). The Collaborative for Academic, Social, and Emotional Learning (CASEL, 2021) defined SEL as the process whereby individuals can learn and use relevant knowledge and strategies that can allow them to regulate emotions, strive for positive goals, have an empathetic mind, maintain healthy interpersonal relationships, and make responsible decisions. CASEL specified five social and emotional competencies (SECs): self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. Researchers (e.g., Weissberg et al., 2015) proposed that SECs can be taught in classrooms and schools where children can learn in a caring, supportive, and well-crafted social and learning environment. Additionally, SECs are essential for individuals' development since these competencies are closely related to various positive outcomes from childhood to adulthood (Wigelsworth et al., 2022). Within educational settings, SECs are found to be closely associated with diverse desirable learning and psychological outcomes such as improved academic performance (e.g., McCormick et al., 2021; Murano et al., 2020), students' emotional well-being (e.g., Green et al., 2021), and behavioral adjustment (e.g., Yang et al., 2020).

Social-emotional Outcomes

Effective SEL implementation has been found to be related to various positive social-emotional outcomes of students (Mahoney et al., 2018). Prior research (Jones et al., 2017) has concluded that SEL programs have been highly related to young people's short-term and long-term outcomes such as enhanced academic achievement (e.g., academic grades), better behavioral adjustment (e.g., fewer conduct problems), as well as reduced emotional distress (e.g., reduced depression). For students participating in SEL programs, they benefit from these programs and gain various positive social-emotional outcomes (e.g., McCormick et al., 2021; Murano et al., 2020). For primary students, they also benefit from developing SECs in various aspects (e.g., McCormick et al., 2021). In terms of academic aspect, McCormick et al. (2021) found that primary students who joined in a school-based SEL program had improvements in academic skills in math and language. With respect to emotional aspect, a Korean study reported that school-based SEL intervention was associated with enhanced self-efficacy and resilience of primary students (Oh et al., 2020), which is consistent with other studies (e.g., Yamamoto et al., 2023). Additionally, children participating in SEL program also reported improvements in positive emotions which contributed to their mental health development (de Carvalho et al., 2017).

In the current study, four selected outcomes that are considered as more relevant to primary school students were tested: self-efficacy, resilience, test anxiety, and perceived stress. Aligned with previous research (e.g., Mahoney et al., 2018), these four outcomes are used in this study as social-emotional outcomes. Consistent with Whitney and Candelaria (2017), these outcomes involve how students feel (e.g., how they internalize their feelings, interests, and self-competence) or how they act in social setting (e.g., how they respond to school exams or other challenges). Based on prior literature (e.g., McLeod & Boyes, 2021), many examining the effect of school-based SEL interventions included these four outcomes as social-emotional outcomes as well. For example, based on previous SEL-focused research, effective SEL implementation has been considered as a reliable way to enhance students' self-efficacy (e.g., McLeod & Boyes, 2021; Oh et al., 2020), boost resilience (e.g., Blewitt et al., 2018; Green et al., 2021), reduce test anxiety (e.g., McLeod & Boyes, 2021; Whitney & Candelaria, 2017), and stress in school (e.g., Mahoney et al., 2018). These four selected outcomes are aligned with the four social-emotional outcomes measured in the current study.

Self-efficacy refers to one's judgments of competencies and an important element of human functioning (Kirk et al., 2008). In school contexts, self-efficacy is considered as fundamental not only to students' academic success (e.g., Yokoyama, 2019) but also to their social-emotional adjustments (e.g., Mao et al., 2020). Resilience refers to students' psychological resource necessary for them to resist academic challenges and important for their academic functioning and psychological well-being in school contexts (King & Caleon, 2021). Trigueros et al. (2020) discovered that for students, resilience is a negative predictor of both exam anxiety and academic stress. Thirdly, test anxiety is seen as worrying and negative emotion about test results and

is related to negative consequences on students' performance and academic success (Sarason, 1977). High test-anxious people are found to emit self-oriented and negative response during examinations which interfere with their tasks to be completed at hand (Tryon, 1980). Finally, perceived stress is about students' feelings and thoughts of uncontrollability when they are experiencing stress (Lee & Jeong, 2019). Perceived stress incorporates the negative distressful feelings that bring about changes in their perception in ability to counter challenges.

The four social-emotional outcomes can be nurtured by external environments such as in a classroom (e.g., Agasisti et al., 2018). Teacher's autonomy support may be an effective approach to nurture students' social-emotional outcomes. Prior research documented a positive correlation between autonomy-supportive teaching style and students' level of self-efficacy (e.g., Li et al., 2020; Oriol-Granado et al., 2017). Similarly, it is found that students tend to show more resilience in the face of academic challenges when they perceive they are supported by teachers during interactions (Reeve, 2012). Two Spanish researchers Montero-Carretero and Cervelló (2020) uncovered that autonomy support in PE classes positively predicted the level of resilience of primary and secondary school students, which is consistent with Pitzer and Skinner (2017). Moreover, empirical studies (e.g., Chang et al., 2016; Yu et al., 2016; Zheng et al., 2020) also supported that autonomy support from teachers can be one way to help reduce students' negative emotions such as anxiety and academic stress.

The Present Study

Grounded on SDT, this study aims to support teachers in their endeavors to foster the SEL in students. However, based on existing literature, due to limited research investigating the link between SDT and SEL especially at primary school level, this study seeks to fill this gap and contribute to the understanding of SDT in relation to social-emotional outcomes. The objectives of this study are: (1) to establish whether there are significant relationships among PTAS, need satisfaction, and social-emotional outcomes and (2) to examine whether PTAS affects students' social-emotional outcomes via need satisfaction.

To achieve the research goals, the study seeks to answer the following research questions and test the following hypotheses:

Does perceived teacher's autonomy support predict social-emotional outcomes?

Regarding this research question, it is hypothesized that:

perceived teacher's autonomy support positively predicts self-efficacy and resilience.

Perceived teacher's autonomy support negatively predicts test anxiety and perceived stress.

Does perceived teacher's autonomy support predict need satisfaction?

Regarding this research question, it is hypothesized that:
perceived teacher's autonomy support positively predicts need satisfaction.
Does need satisfaction predict social-emotional outcomes?

Regarding this research question, it is hypothesized that:
need satisfaction positively predicts self-efficacy and resilience.
need satisfaction negatively predicts test anxiety and perceived stress.

Does need satisfaction mediate the relationship between perceived teacher's
autonomy support and social-emotional outcomes?

Regarding this research question, it is hypothesized that:
need satisfaction mediates the relationship between perceived teacher's autonomy
support and social-emotional outcomes.

Method

Participants and Procedures

Data were collected from 130 students aged between 10 and 11 ($M = 10.36$; $SD = 0.48$) in a Singapore primary school. Out of the 130 participants, there were 68 female and 62 male students from primary four and five. Prior to data collection, the researchers gained ethic clearance from the Institutional Review Board (IRB) of the Nanyang Technological University. Approval was sought from the Research and Management Information Division, the Ministry of Education (Singapore). Parental and students' consents were sought prior to data collection. Information sheets were given to the students to inform them the main purpose of the study. Participants were informed that they were allowed to withdraw at any time. Data collection was conducted in a regular classroom, and participants were given about 20 min to respond to the questionnaire. They were encouraged to give honest responses by assuring them the anonymity and confidentiality of their responses.

Measures

For self-report measures, students rated items in 5-point Likert scales, with 1 being "Not true at all" and 5 being "Very true." For scoring, items in each scale were averaged, and means were calculated for data analysis.

Learning Climate Questionnaire (LCQ)

The LCQ (Black & Deci, 2000) was used as a measure of students' perception of teacher's autonomy-supportive teaching. The LCQ has been validated by Black and

Deci (2000) and reported high internal consistency and reliability. An example of the items was "I feel that my teacher provides me choices and options." For the current sample, the internal consistency for perceived teacher's autonomy support was $\alpha = 0.89$.

Basic Psychological Needs Scale (BPNS)

The BPNS (Ryan & Deci, 2000) was adopted as a measure of the degree to which students' needs for autonomy, competence, and relatedness were fulfilled. In the current study, the 12-item scale used was adapted and validated by Ng et al. (2016). An example of the items was "I do things because I really want to do them." Cronbach's alpha for the measurement of need satisfaction was 0.83.

Self-efficacy Scale

The Self-efficacy Scale (Ng, 2018) was adapted to measure the degree to which students are self-efficacious. An example of the items was "I am confident I can do an excellent job on the problems and tasks assigned for my schoolwork." For the current sample, Cronbach's alpha for measuring the degree of students' self-efficacy was 0.75.

School Resilience Scale (SRS)

The SRS designed by King and Caleon (2021) was used to measure the degree to which students experience subjective resilience in school setting. Previous study (i.e., Caleon et al., 2019) reported high internal consistency of the scale ($\alpha = 0.94$). An example of the items was "I manage disagreements with classmates well." Cronbach's alpha for the present sample for measuring the degree to which students perceive themselves as resilient was 0.71.

Anxiety Scale

The five-item Anxiety Scale (Ng, 2018) was used to assess the degree to which young children experiences psychological anxiety especially before examination. A sample item of the scale was "When I take an exam, I think about how poorly I am doing compared with other students." Cronbach's alpha for the measurement of the degree of young children's test anxiety was 0.76 in current sample.

Perceived Stress Scale (PSS)

The PSS (Lee & Jeong, 2019) was used to measure the degree to which young children perceive themselves as experiencing psychological stress in a school setting. The current scale was adapted from the original PSS-10-item scale designed by Cohen and Williamson (1988), and Cronbach's alpha for the PSS in the current sample was 0.75.

Data Analyses

Data were analyzed using SPSS 28.0. As preliminary analysis, internal consistencies of the scales were first performed. Descriptive statistics for study variables were then obtained. To test correlations between study variables, Pearson's product-moment correlations were then conducted. In the main analysis, to test the mediating effects of need satisfaction (hypothesis 6), *PROCESS* (version 4.1) in SPSS was conducted. Compared with the Baron and Kenny's approach which was criticized for its lack of directly testing the significance of indirect effect (Abu-Bader & Jones, 2021), *PROCESS* is based on bootstrapping and considered as more advantageous since it simplifies the mediation analyses (Hayes, 2009).

Results

Descriptive Statistics and Correlations

Table 4.1 presents descriptive statistics and correlations among variables measured in this study.

Correlations among all the study variables were statistically significant. More specifically, PTAS was significantly and positively related to students' need satisfaction ($r = 0.67, p < 0.001$). This suggested that when students perceived their teacher as more autonomy supportive, they experienced higher levels of need satisfaction. Furthermore, the results also revealed significant correlations among PTAS and the four social-emotional outcomes. Specifically, PTAS was significantly and positively associated with students' self-efficacy ($r = 0.48, p < 0.001$) and resilience ($r = 0.52, p < 0.001$) while significantly and negatively linked to students' test anxiety ($r = -0.28, p < 0.01$) and perceived stress ($r = -0.22, p < 0.05$). Similarly, need satisfaction was found to be positively linked to self-efficacy ($r = 0.66, p < 0.001$) and resilience ($r = 0.51, p < 0.001$) while negatively linked to test anxiety ($r = -0.31, p < 0.001$) and perceived stress ($r = -0.22, p < 0.05$). This result suggested that the higher students' needs were satisfied, the higher they experienced self-efficacy and resilience while the lower they experienced test anxiety and perceived stress.

Table 4.1 Descriptive statistics and correlations of variables measured

	Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1	PTAS	3.66	0.84	–					
2	Need satisfaction	3.55	0.67	0.67***	–				
3	Self-efficacy	3.32	0.76	0.48***	0.66***	–			
4	Resilience	3.27	0.85	0.52***	0.58***	0.40***	–		
5	Test anxiety	2.87	1.01	– 0.28**	– 0.31***	– 0.26**	– 0.36***	–	
6	Perceived stress	2.43	0.95	– 0.22*	– 0.22*	– 0.27**	– 0.36***	0.63***	–

Note *N* = 130; *SD* = standard deviation; *M* = mean. PTAS = perceived teacher’s autonomy support
 * *p* < 0.05. ** *p* < 0.01. *** *p* < 0.001

Regression Analyses

Self-efficacy

To test whether PTAS positively predicts self-efficacy (hypothesis 1.1) and whether PTAS positively predicts need satisfaction (hypothesis 2.1), self-efficacy scores and need satisfaction scores were regressed onto PTAS scores, respectively. Consistent with hypotheses 1.1 and 2.1, results showed that PTAS was a significant predictor of self-efficacy ($\beta = 0.48, p < 0.001, R^2 = 0.23, 95\% \text{ CI } [0.30, 0.58]$) and need satisfaction ($\beta = 0.67, p < 0.001, R^2 = 0.45, 95\% \text{ CI } [0.43, 0.63]$). As for hypothesis 3.1, the same analysis was conducted, and results demonstrated that need satisfaction positively predicted self-efficacy ($\beta = 0.61, p < 0.001, R^2 = 0.43, 95\% \text{ CI } [0.49, 0.90]$).

In hypothesis 4.1, need satisfaction was predicted as mediating the relationship between PTAS and self-efficacy (refer to Fig. 4.1). Based on the results, the total effect (path c) of PTAS on self-efficacy was significant, $\beta = 0.44, p < 0.001, 95\% \text{ CI } [0.30, 0.58]$. Similarly, the effect of PTAS on need satisfaction was also statistically significant, $\beta = 0.67, p < 0.001, 95\% \text{ CI } [0.43, 0.63]$ (path a). Considering the effect of PTAS on need satisfaction in the relationship between need satisfaction and self-efficacy, the effect of need satisfaction on self-efficacy was significant (path b), $\beta = 0.61, p < 0.001, 95\% \text{ CI } [0.49, 0.90]$. The indirect effect (path a * b) of PTAS on self-efficacy via need satisfaction was significant ($\beta = 0.37, 95\% \text{ CI } [0.23, 0.53]$). The direct effect (path c’) on the relationship between PTAS and self-efficacy was not significant ($\beta = 0.07, p = 0.40, 95\% \text{ CI } [- 0.09, 0.23]$). The indirect effect of PTAS on self-efficacy constituted approximately 80 percent of the total effect. Taken together, the results revealed that need satisfaction fully mediated the relationship between PTAS and self-efficacy. This result partially confirmed hypothesis 4.1.

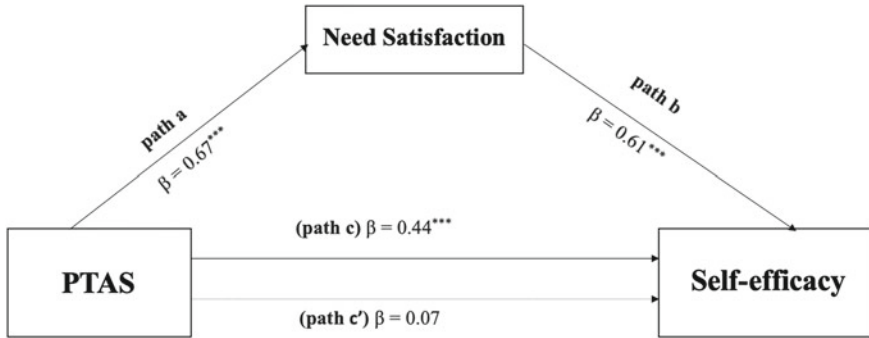


Fig. 4.1 Relationships among PTAS, need satisfaction, and self-efficacy. *Note* PTAS = perceived teacher's autonomy support. *** $p < 0.001$

Resilience

Likewise, to test hypotheses 1.1 and 2.1, resilience values and need satisfaction values were regressed onto PTAS scores. The results have confirmed both hypotheses. That is, PTAS positively predicted resilience ($\beta = 0.52, p < 0.001, R^2 = 0.27, 95\% \text{ CI } [0.37, 0.67]$) and need satisfaction ($\beta = 0.67, p < 0.001, R^2 = 0.45, 95\% \text{ CI } [0.43, 0.63]$). Additionally, to test hypothesis 3.1 (namely, whether need satisfaction positively predicts resilience), need satisfaction values were regressed onto resilience values. The results have validated hypothesis 3.1: need satisfaction was a positive predictor of resilience ($\beta = 0.42, p < 0.001, 95\% \text{ CI } [0.30, 0.77]$).

The relationship between PTAS and resilience was hypothesized to be affected by the mediating effect of need satisfaction in hypothesis 4.1 (refer to Fig. 4.2). Based on the results, the overall effect of PTAS on resilience (path c) was significant ($\beta = 0.52, p < 0.001, 95\% \text{ CI } [0.37, 0.67]$). As predicted, PTAS was a positive predictor of need satisfaction (path a). Controlling the effect of PTAS on need satisfaction, the effects of need satisfaction on resilience (path b) were also significant ($\beta = 0.42, p < 0.001, 95\% \text{ CI } [0.30, 0.77]$). The indirect effect of PTAS on resilience (path a*b), mediated by need satisfaction, was significant ($\beta = 0.28, 95\% \text{ CI } [0.14, 0.44]$). When need satisfaction was considered, the direct effect (path c') of PTAS on resilience was significant ($\beta = 0.24, p = 0.014, 95\% \text{ CI } [0.43, 0.24]$). Overall, the results indicated that need satisfaction partially mediated the link between PTAS and resilience. This finding partially substantiated hypothesis 4.1.

Test Anxiety

In hypotheses 1.2 and 2.2, PTAS is hypothesized to be negatively associated test anxiety and positively related to need satisfaction. Results of mediational analysis revealed that PTAS was a negative predictor of test anxiety ($\beta = -0.28, p = 0.001, R^2 = 0.08, 95\% \text{ CI } [-0.54, -0.13]$) and a positive predictor of need satisfaction

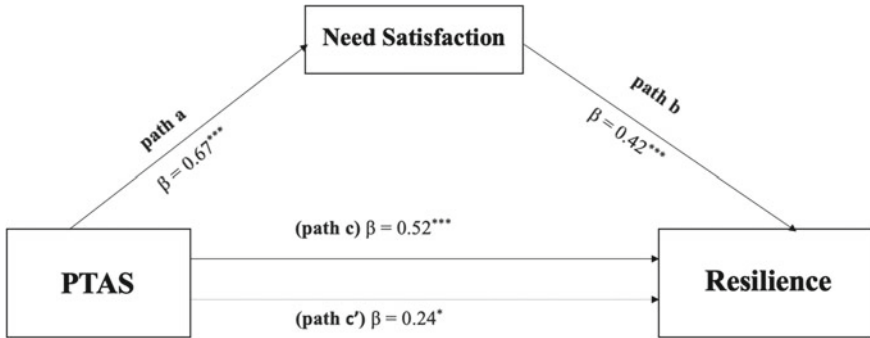


Fig. 4.2 Relationships among PTAS, need satisfaction, and resilience. *Note* PTAS = perceived teacher’s autonomy support. * $p < 0.05$. *** $p < 0.001$

($\beta = 0.67, p < 0.001, R^2 = 0.45, 95\% \text{ CI } [0.43, 0.63]$). To test hypothesis 3.2, test anxiety scores were regressed onto need satisfaction. The results have confirmed this hypothesis ($\beta = -0.23, p = 0.04, R^2 = 0.11, 95\% \text{ CI } [-0.69, -0.01]$).

In hypothesis 4.1, need satisfaction was also predicted to be a mediator of the relationship between PTAS and test anxiety (see Fig. 4.3). The overall regression results partially confirmed this hypothesis. In general, the overall model between PTAS and test anxiety (path c) was statistically significant ($\beta = -0.33, p = 0.001, 95\% \text{ CI } [-0.54, -0.13]$). The effect of PTAS on need satisfaction (path a) was also significant ($\beta = 0.67, p < 0.001, 95\% \text{ CI } [0.43, 0.63]$). Considering the effect of PTAS on need satisfaction in the relationship between need satisfaction and test anxiety, results indicated that need satisfaction significantly affected test anxiety (path b), $\beta = -0.23, p = 0.04, 95\% \text{ CI } [-0.69, -0.01]$. The indirect effect of PTAS on test anxiety, mediated by need satisfaction, was significant ($\beta = -0.15, 95\% \text{ CI } [-0.32, -0.02]$) (path a * b). However, when controlling for the effect of need satisfaction, the direct effect (path c’) of PTAS on test anxiety was not significant ($\beta = -0.15, p = 0.28, 95\% \text{ CI } [-0.42, 0.12]$). Based on the results, the indirect effect of PTAS on test anxiety accounted for about 56 percent of the total effect of PTAS on test anxiety. In general, need satisfaction fully mediated the link between PTAS and test anxiety.

Perceived Stress

It is hypothesized that PTAS negatively predicts perceived stress and positively predicts need satisfaction (hypotheses 1.2 and 2.2). To assess these hypotheses, perceived stress and need satisfaction were regressed onto PTAS. According to the results, the two hypotheses have been validated since there were significant effects of PTAS on perceived stress ($\beta = -0.22, p = 0.01, 95\%, R^2 = 0.05, \text{ CI } [-0.44, -0.06]$) and need satisfaction ($\beta = 0.67, p = 0.000, R^2 = 0.45, 95\% \text{ CI } [0.43, 0.63]$).

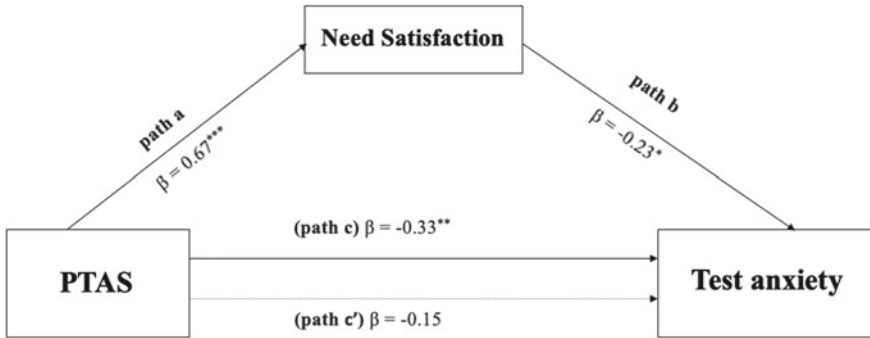


Fig. 4.3 Relationships among PTAS, need satisfaction, and test anxiety. *Note* PTAS = perceived teacher’s autonomy support. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$

In hypothesis 4.1 (refer to Fig. 4.4), regression results revealed that the association between PTAS and perceived stress (path c) was significant ($\beta = -0.25, p = 0.01, 95\% \text{ CI} [-0.44, -0.06]$). The path that PTAS positively predicted need satisfaction was also significant ($\beta = 0.67, p = 0.000, 95\% \text{ CI} [0.43, 0.63]$). However, controlling the effect of PTAS on need satisfaction, results indicated that path b (i.e., the effect of need satisfaction on perceived stress) was insignificant ($\beta = -0.13, p = 0.26, 95\% \text{ CI} [-0.52, 0.14]$). The indirect effect of PTAS on perceived stress, as mediated by need satisfaction, was also not significant ($\beta = -0.10, 95\% \text{ CI} [-0.31, 0.06]$). Moreover, when need satisfaction was controlled, the direct effect of PTAS on perceived stress (path c’) was not significant, $\beta = -0.15, p = 0.26, 95\% \text{ CI} [-0.41, 0.11]$). Conclusively, considering the insignificant predictive relationship between need satisfaction and perceived stress as well as the insignificant indirect effect of PTAS on perceived stress, the mediating effect of need satisfaction between PTAS and perceived stress was not supported. Thus, these findings did not support hypothesis 4.1.

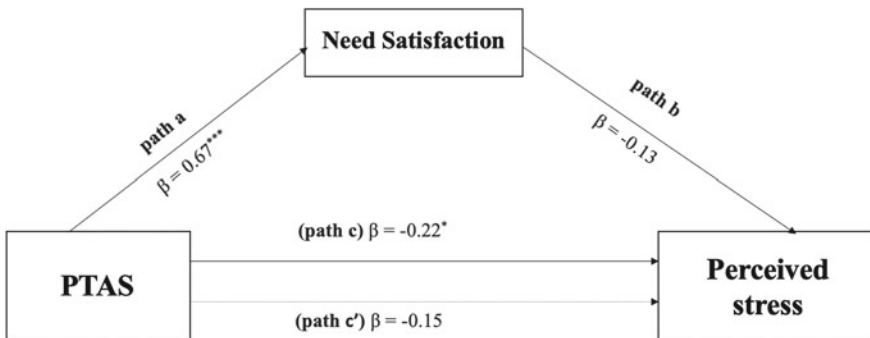


Fig. 4.4 Relationships among PTAS, need satisfaction, and perceived stress. *Note* PTAS = perceived teacher’s autonomy support. * $p < 0.05$. *** $p < 0.00$

Discussion

The present study explored the role of PTAS in SEL among primary school students and contributed to SDT in several ways. First, PTAS predicted students' social-emotional outcomes. Besides, PTAS positively predicted need satisfaction. Finally, need satisfaction served as an intervening variable between PTAS and students' social-emotional outcomes.

Key Findings

Relationships Between Autonomy Support and Social-emotional Outcomes

Results showed that PTAS positively predicted self-efficacy and resilience but negatively predicted test anxiety and perceived stress, which confirmed hypotheses 1.1, 1.2, 2.1, and 2.2. These findings suggest that when students perceived their teachers as autonomy supportive, they became more self-efficacious and resilient in school and experienced less stress and test anxiety. These findings are largely consistent with other correlational studies (e.g., Li et al., 2020; Salazar-Ayala et al., 2021). According to Núñez and León (2015), autonomy-supportive teachers tend to make students feel better adjusted and less stressful through acknowledging students' negative emotions, employing non-pressuring languages, and respecting students' choices. These need-supportive behaviors contribute to students' increased positive emotions and decreased negative emotions (Kaplan & Assor, 2012). Experienced positive emotions help activate students' cognitive resources such as self-efficacy (Oriol-Granado et al., 2017). As for resilience, the experience of positive emotions allows individuals to take positive actions and strengthens individuals' belief in their ability to handling challenges and bounce back from setbacks successfully (resilience, which is shown as one's ability to recover from challenges and hardships) (Pillay et al., 2022). With regard to perceived stress and test anxiety, autonomy-supportive teachers provide opportunities for students to set their goals, make their plans, and monitor and evaluate their learning. These autonomy-encouraging behaviors enhance students' autonomy and self-regulated learning (Sierens et al., 2009), which are found to be effective in reducing students' stress and anxiety (Zheng et al., 2020).

Relationships Between Autonomy Support and Need Satisfaction

As expected, results showed that PTAS was positively linked to students' need satisfaction, which confirmed hypothesis 3.1. This finding may fit reasonably with previous research confirming that the teaching perceived as more autonomy supportive by students significantly increases students' need satisfaction through need-supportive behaviors (e.g., Reeve, 2009). Prior researchers have identified the specific behaviors that help facilitate the satisfaction of students' needs for autonomy, competence, and relatedness (e.g., Kaplan, 2018). Specifically, teacher's behaviors such as providing choices, clarifying rationale of studied materials, acknowledging negative feelings, encouraging personal initiatives, and employing students' preferred teaching methods are found to be effective to support students' autonomy need (Kaplan, 2018). Teacher's behaviors to support competence need include providing optimal challenges, offering immediate and meaningful feedbacks, giving assistance in handling failure, and teaching learning strategies. Teacher's behaviors including acknowledging negative feelings of students, using non-controlling language, expressing affection, and devoting time and resources support students' relatedness need.

Relationships Between Need Satisfaction and Social-emotional Outcomes

Consistent with hypothesis 3.1, results revealed that need satisfaction positively predicted self-efficacy and resilience. This result indicated that the greater students' basic needs are fulfilled, the more self-efficacious and resilient the students become. When students' needs are fulfilled, they tend to be more autonomous, more competent, and intrinsically motivated (Reeve, 2009). Thus, students may attempt to make greater efforts to overcome difficulties themselves in schools, which is shown as increased resilience. This is in congruence with the previous studies (e.g., Liu & Huang, 2021; Skinner et al., 2016). Particularly, fulfillment of competence need enhances students' belief in their own capabilities to manipulate environment (Deci & Ryan, 2004), thus increasing students' self-efficacy. Furthermore, satisfaction of relatedness need helps establish closer student-and-teacher connections, thereby encouraging students to share ideas and solve problems with teacher's support (Macakova & Wood, 2022), which may make students more self-efficacious and resilient in school.

The hypothesis 3.2 that need satisfaction negatively predicted students' test anxiety and perceived stress has been validated. In terms of test anxiety, the negative relationship between need satisfaction and test anxiety can be explained by the role of intrinsic motivation (Maralani et al., 2016). When students' psychological needs are fulfilled, they become more self-determined and experience enhanced intrinsic

motivation. The increased intrinsic motivation, in turn, significantly alleviates the negative impact brought by students' test anxiety (Khalaila, 2015). With regard to students' perceived stress, it is understandable that need satisfaction negatively predicted students' stress. Previous research suggested that sources of students' stress in school contexts mainly lie in academic and interpersonal factors such as teachers' expectations (Bedewy & Garbriel, 2015), test anxiety (Akulwar-Tajane et al., 2021), and interpersonal relationships (i.e., relationships with peers and teachers) (Camara et al., 2017). When students' needs for autonomy, competence, and relatedness are met, they often exhibit enhanced intrinsic motivation (e.g., Maralani et al., 2016), have better mastery goals and self-regulated learning (Zheng et al., 2020), feel more connected to the class (Reeve, 2012), as well as build up more harmonious student-teacher relationships (Reeve, 2012). These positive outcomes linked by need satisfaction allow students to be more autonomous, self-regulated, goal-oriented, and less stressful in social relationships, thereby alleviating students' stress academically and interpersonally (e.g., Luo et al., 2020; Zheng et al., 2020).

The Mediating Role of Need Satisfaction

Self-efficacy

In line with hypothesis 4.1, perceived teacher's autonomy support was found to affect self-efficacy via need satisfaction. This finding is in accordance with previous researching (e.g., (Li et al., 2020), confirming that need satisfaction functions as an intervening role between perceived teacher's autonomy support and self-efficacy. For students, self-efficacy is related to students' judgment of their capabilities to control academic environment and achieve their goals. Teacher's autonomy support fulfills students' psychological needs including competence need through need-supportive behaviors such as acknowledging students' learning situations, offering choices, and minimizing demanding language (Jin & Wang, 2019). Thus, when students' needs are satisfied, they develop stronger sense of self-efficacy, which is defined as individuals' judgment of their ability to master academic tasks and achieve learning goals (Li et al., 2020). For instance, when teachers discuss solutions to problems with students, give meaningful feedbacks, and respect students' ideas, they satisfy students' need for competence. This increased sense of competence activate students' cognitive resources such as self-efficacy (Oriol-Granado et al., 2017).

Resilience

The study found that need satisfaction partially mediated the link between perceived teacher's autonomy support and resilience, which has partially proven hypothesis 4.1. This finding is consistent with prior research (Salazar-Ayala et al., 2021). When teachers offer choices to students, understanding their negative feelings, support

them with patience, and discuss solutions to their problems, they form students' experiences of genuine connection with teachers and peers (relatedness), endorsement of goals and values (autonomy), and stronger mastery of learning environment (competence) (Jang et al., 2009). Meeting these psychological needs provides essential conditions for individuals' optimal development (Ryan & Deci, 2017). For example, autonomy-supportive behaviors allow students to have a mastery of their own decision-making and thus make them feel more autonomous and volitional. This sense of autonomy activates students' internal motivational resources and intrinsic goal pursuits (e.g., Deci & Ryan, 2000; Vansteenkiste et al., 2004), which are closely linked to greater persistence and better adjustment outcomes (Vansteenkiste et al., 2004). Students therefore are more likely to be persistent and adjust themselves with resilience when facing obstacles and challenges in school.

With respect to the partial mediating role of need satisfaction, a possible explanation is that other relevant constructs such as self-efficacy may also serve as an intervening factor between perceived teacher's autonomy support and resilience. Resilience is intricately associated with factors such as self-efficacy and self-realization (Weston & Parkin, 2010). Specifically, research discovered that resilient individuals exhibit high levels of self-efficacy and self-realization (Timmerman, 2014). Based on these findings, it is therefore plausible to assume that other constructs that are highly related to resilience and autonomy support such as self-efficacy may also play an intervening role in the relationship between perceived autonomy support and resilience, which therefore explains the partial mediating role of need satisfaction in the current study.

Test Anxiety

Aligned with hypothesis 4.1, the finding showed that autonomy-supportive environment affected test anxiety via need satisfaction. When teachers adopt autonomy-supportive behaviors, they satisfy their students' psychological needs, which in turn reduce students' level of test anxiety. By adopting autonomy-supportive behaviors such as giving meaningful feedback to students, offering choices, respect students' ideas, and understanding students' negative emotions, teachers satisfy students' psychological needs for autonomy, competence, and relatedness (Kaplan, 2018). With the fulfillment of these basic needs, students feel more capable of controlling their studies (Jang et al., 2016), more autonomously driven (Reeve, 2009), and more genuinely connected to teachers (Reeve, 2012), thereby minimizing worries or anxiety about their exams. For example, research demonstrated that autonomy-supportive teachers establish genuine connectedness with students and minimize conflicts (Reeve, 2012), thereby building up good teacher-student relationship. High-quality teacher-student relationships characterized by warmth, trust, and acceptance improve students' emotional well-being and reduce emotional distress (Hoferichter et al., 2014). Considering the discussion above, in an autonomy-supportive classroom context, satisfying students' needs may serve as a buffer to the impact of students' test anxiety.

Perceived Stress

The current finding showed no significant mediating effect of need satisfaction between autonomy-supportive teaching and perceived stress, which is not consistent with hypothesis 4.1. One possible reason for the absence of such intervening effect is that the autonomy-supportive behaviors from the teacher may not necessarily match the needs of the participants well. This may be due to the reason that the support provided by the teacher may not address or satisfy the basic needs of students well. The buffering hypothesis (Cohen & Wills, 1985) proposed that social support can be a buffer or protector of the impact that stressful events may exert on one's distress. However, for this buffering role to work, there should be an optimal match between the needs and the type of support provided by the need supporters if the need recipients handle the stressors successfully (Chen & Bello, 2017).

Practical Implications and Limitations

The current study has provided an in-depth view of relationships among autonomy support, need satisfaction, and socioemotional outcomes. Firstly, study findings suggest that teacher's autonomy-supportive instruction can be one effective approach to increase primary students' self-efficacy and resilience while decrease test anxiety and perceived stress. However, generalization to a larger population is limited due to the limited sample size and diversity. Future study could improve the present study by including participants from representative schools in diverse areas. Moreover, the mediational findings suggested an applicable avenue for the six autonomy-supportive behaviors. For example, teacher's autonomy-supportive behaviors that facilitate students' psychological needs might be introduced into school courses to build up students' self-efficacy and resilience while reduce test anxiety. Nevertheless, the variable of test anxiety could be assessed more accurately. Prior research (e.g., Wigfield & Eccles, 1989) mentioned that test anxiety involves experience of anxiety in evaluative settings. Thus, considering the possible different feelings of participants with and without an examination, future data collection and analyses could improve based on the current study. Additionally, the variables were measured by self-report scales without a third-party observation. Future studies should consider using multiple informants and multiple methods in data collection.

Conclusion

The present study pointed out the importance of autonomy-supportive teaching on students' psychological need satisfaction and the crucial intervening role of need satisfaction on students' social-emotional outcomes. Findings suggested that teacher's autonomy support can be considered as one reliable method to satisfy

students' needs and help students develop necessary social and emotional skills and achieve desirable social-emotional outcomes.

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References

- Abu-Bader, S., & Jones, T. V. (2021). Statistical mediation analysis using the Sobel test and Hayes SPSS process macro. *International Journal of Quantitative and Qualitative Research Methods*. <https://ssrn.com/abstract=3799204>
- Agasisti, T., Avvisati, F., Borgonovi, F., & Longobardi, S. (2018). Academic resilience: What schools and countries do to help disadvantaged students succeed in PISA. <https://doi.org/10.1787/19939019>
- Akulwar-Tajane, I., Raikundlia, H., Gohil, R., & Shinde, S. (2021). Academic stress in physiotherapy students: Are open book examinations the solution in the face of the COVID-19 pandemic. *Health Research*, 5(2), 1–28. <https://doi.org/10.31058/j.hr.2021.52001>
- Bedewy, D., & Gabriel, A. (2015). Examining perceptions of academic stress and its sources among university students: The perception of academic stress scale. *Health Psychology Open*, 2(2), 2055102915596714. <https://doi.org/10.1177/2055102915596714>
- Black, A. E., & Deci, E. L. (2000). The effects of instructors' autonomy support and students' autonomous motivation on learning organic chemistry: A self-determination theory perspective. *Science Education*, 84(4), 740–756. [https://doi.org/10.1002/1098-237X\(200011\)84:6%3c740::AID-SCE4%3e3.0.CO;2-3](https://doi.org/10.1002/1098-237X(200011)84:6%3c740::AID-SCE4%3e3.0.CO;2-3)
- Blewitt, C., Fuller-Tyszkiewicz, M., Nolan, A., Bergmeier, H., Vicary, D., Huang, T., McCabe, P., McKay, T., & Skouteris, H. (2018). Social and emotional learning associated with universal curriculum-based interventions in early childhood education and care centers: A systematic review and meta-analysis. *JAMA Network Open*, 1(8), e185727–e185727. <https://doi.org/10.1001/jamanetworkopen.2018.5727>
- Caleon, I. S., Ilham, N. Q. B., Ong, C. L., & Tan, J.P.-L. (2019). Cascading effects of gratitude: A sequential mediation analysis of gratitude, interpersonal relationships, school resilience and school well-being. *The Asia-Pacific Education Researcher*, 28(4), 303–312. <https://doi.org/10.1007/s40299-019-00440-w>
- Camara, M., Bacigalupe, G., & Padilla, P. (2017). The role of social support in adolescents: Are you helping me or stressing me out? *International Journal of Adolescence and Youth*, 22(2), 123–136. <https://doi.org/10.1080/02673843.2013.875480>
- Chang, Y. K., Chen, S., Tu, K. W., & Chi, L. K. (2016). Effect of autonomy support on self-determined motivation in elementary physical education. *Journal of Sports Science & Medicine*, 15(3), 460–466. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4974858/>
- Chen, Y., & Bello, R. S. (2017). Does receiving or providing social support on Facebook influence life satisfaction? Stress as mediator and self-esteem as moderator. *International Journal of Communication*, 11(2017), 2926–2939. <https://ijoc.org/index.php/ijoc/article/view/6752>
- Cheng, K. M. (2017). Advancing 21st century competencies in East Asian education systems. *Asia Society*, 2, 26. <https://asiasociety.org/files/21st-century-competencies-east-asian-education-systems.pdf>
- Chyu, E. P. Y., & Chen, J. K. (2022). The correlates of academic stress in Hong Kong. *International Journal of Environmental Research and Public Health*, 19(7), 4009. <https://doi.org/10.3390/ijerph19074009>

- Cohen, S., & Williamson, G. (1988). Perceived stress in a probability sample of the U.S. In S. Spacapan, & S. Oskamp (Eds.), *The social psychology of health* (pp. 31–67). Sage. <https://psycnet.apa.org/record/1988-98838-002>
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98(2), 310–357. <https://doi.org/10.1037/0033-2909.98.2.310>
- Collaborative for Academic, Social and Emotional Learning (CASEL). (2021). *CASEL's SEL framework*. www.casel.org/what-is-SEL
- Collie, R. J. (2020). Social and emotional competence: Advancing understanding of what, for whom, and when. *Educational Psychology*, 40(6), 663–665. <https://doi.org/10.1080/01443410.2020.1775936>
- de Carvalho, J. S., Pinto, A. M., & Marôco, J. (2017). Results of a mindfulness-based social-emotional learning program on Portuguese elementary students and teachers: A quasi-experimental study. *Mindfulness*, 8, 337–350. <https://doi.org/10.1007/s12671-016-0603-z>
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Deci, E. L., & Ryan, R. M. (2004). *Handbook of self-determination research*. University Rochester Press.
- Green, A. L., Ferrante, S., Boaz, T. L., Kutash, K., & Wheeldon-Reece, B. (2021). Social and emotional learning during early adolescence: Effectiveness of a classroom-based SEL program for middle school students. *Psychology in the Schools*, 58(6), 1056–1069. <https://doi.org/10.1002/pits.22487>
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, 76(4), 408–420. <https://doi.org/10.1080/03637750903310360>
- Hoferichter, F., Raufelder, D., & Eid, M. (2014). The mediating role of socio-motivational relationships in the interplay of perceived stress, neuroticism, and test anxiety among adolescent students. *Psychology in the Schools*, 51(7), 736–752. <https://doi.org/10.1002/pits.21778>
- Huan, V. S., See, Y. L., Ang, R. P., & Har, C. W. (2008). The impact of adolescent concerns on their academic stress. *Educational Review*, 60(2), 169–178. <https://doi.org/10.1080/00131910801934045>
- Jang, H., Reeve, J., & Halusic, M. (2016). A new autonomy-supportive way of teaching that increases conceptual learning: Teaching in students' preferred ways. *The Journal of Experimental Education*, 84(4), 686–701. <https://doi.org/10.1080/00220973.2015.1083522>
- Jang, H., Reeve, J., Ryan, R. M., & Kim, A. (2009). Can self-determination theory explain what underlies the productive, satisfying learning experiences of collectivistically oriented Korean students? *Journal of Educational Psychology*, 101(3), 644. <https://doi.org/10.1037/a0014241>
- Jin, G., & Wang, Y. (2019). The influence of gratitude on learning engagement among adolescents: The multiple mediating effects of teachers' emotional support and students' basic psychological needs. *Journal of Adolescence*, 77, 21–31. <https://doi.org/10.1016/j.adolescence.2019.09.006>
- Jones, S., Brush, K., Bailey, R., Brion-Meisels, G., McIntyre, J., Kahn, Nelson, B., & Stickle, L. (2017). Navigating SEL from the inside out. *Looking Inside and Across*, 25, 1–349. https://web.archive.org/web/20180426100052id_/http://www.wallacefoundation.org/knowledge-center/Documents/Navigating-Social-and-Emotional-Learning-from-the-Inside-Out.pdf
- Kaplan, H., & Assor, A. (2012). Enhancing autonomy-supportive I–Thou dialogue in schools: Conceptualization and socio-emotional effects of an intervention program. *Social Psychology of Education*, 15, 251–269. <https://doi.org/10.1007/s11218-012-9178-2>
- Kaplan, H. (2018). Teachers' autonomy support, autonomy suppression and conditional negative regard as predictors of optimal learning experience among high-achieving Bedouin students. *Social Psychology of Education*, 21(1), 223–255. <https://doi.org/10.1007/s11218-017-9405-y>
- Khalaila, R. (2015). The relationship between academic self-concept, intrinsic motivation, test anxiety, and academic achievement among nursing students: Mediating and moderating effects. *Nurse Education Today*, 35(3), 432–438. <https://doi.org/10.1016/j.nedt.2014.11.001>

- Kim, H. J., & Eom, J. (2017). Advancing 21st century competencies in South Korea. *Asia Society, Center for Global Education*. <http://globeducate.s3.amazonaws.com/PDF%2F21st-century-competencies-south-korea.pdf>
- King, R. B., & Caleon, I. S. (2021). School psychological capital: Instrument development, validation, and prediction. *Child Indicators Research*, 14(1), 341–367. <https://doi.org/10.1007/s12187-020-09757-1>
- Kirk, B. A., Schutte, N. S., & Hine, D. W. (2008). Development and preliminary validation of an emotional self-efficacy scale. *Personality and Individual Differences*, 45(5), 432–436. <https://doi.org/10.1016/j.paid.2008.06.010>
- Lee, B., & Jeong, H. I. (2019). Construct validity of the perceived stress scale (PSS-10) in a sample of early childhood teacher candidates. *Psychiatry and Clinical Psychopharmacology*, 29(1), 76–82. <https://doi.org/10.1080/24750573.2019.1565693>
- Levine, S. L., Brabander, C. J., Moore, A. M., Holding, A. C., & Koestner, R. (2022). Unhappy or unsatisfied: Distinguishing the role of negative affect and need frustration in depressive symptoms over the academic year and during the COVID-19 pandemic. *Motivation and Emotion*, 46(1), 126–136. <https://doi.org/10.1007/s11031-021-09920-3>
- Li, W., Gao, W., & Sha, J. (2020). Perceived teacher autonomy support and school engagement of tibetan students in elementary and middle schools: Mediating effect of self-efficacy and academic emotions. *Frontiers in Psychology*, 11, 50. <https://doi.org/10.3389/fpsyg.2020.00050>
- Lin, L., & Chan, H. W. (2020). The associations between happiness motives and well-being in China: The mediating role of psychological need satisfaction and frustration. *Frontiers in Psychology*, 11, 2198. <https://doi.org/10.3389/fpsyg.2020.02198>
- Liu, H., Yao, M., Li, J., & Li, R. (2021). Multiple mediators in the relationship between perceived teacher autonomy support and student engagement in math and literacy learning. *Educational Psychology*, 41(2), 116–136. <https://doi.org/10.1080/01443410.2020.1837346>
- Liu, Y., & Huang, X. (2021). Effects of basic psychological needs on resilience: A human agency model. *Frontiers in Psychology*, 12, 700035. <https://doi.org/10.3389/fpsyg.2021.700035>
- Ljubin-Golub, T., Rijavec, M., & Olčar, D. (2020). Student flow and burnout: The role of teacher autonomy support and student autonomous motivation. *Psychological Studies*, 65(2), 145–156. <https://doi.org/10.1007/s12646-019-00539-6>
- Luo, Y., Deng, Y., & Zhang, H. (2020). The influences of parental emotional warmth on the association between perceived teacher–student relationships and academic stress among middle school students in China. *Children and Youth Services Review*, 114, 105014. <https://doi.org/10.1016/j.childyouth.2020.105014>
- Macakova, V., & Wood, C. (2022). The relationship between academic achievement, self-efficacy, implicit theories, and basic psychological needs satisfaction among university students. *Studies in Higher Education*, 47(2), 259–269. <https://doi.org/10.1080/03075079.2020.1739017>
- Mahoney, J. L., Durlak, J. A., & Weissberg, R. P. (2018). An update on social and emotional learning outcome research. *Phi Delta Kappan*, 100(4), 18–23. <https://doi.org/10.1177/0031721718815668>
- Mao, Y., Yang, R., Bonaiuto, M., Ma, J., & Harmat, L. (2020). Can flow alleviate anxiety? The roles of academic self-efficacy and self-esteem in building psychological sustainability and resilience. *Sustainability*, 12(7), 2987. <https://www.mdpi.com/2071-1050/12/7/2987>
- Maralani, F. M., Lavasani, M. G., & Hejazi, E. (2016). Structural modeling on the relationship between basic psychological needs, academic engagement, and test anxiety. *Journal of Education and Learning*, 5(4), 44–52. <https://doi.org/10.5539/jel.v5n4p44>
- Marshik, T., Ashton, P. T., & Algina, J. (2017). Teachers' and students' needs for autonomy, competence, and relatedness as predictors of students' achievement. *Social Psychology of Education*, 20(1), 39–67. <https://doi.org/10.1007/s11218-016-9360-z>
- Ma, Y., Siu, A., & Tse, W. S. (2018). The role of high parental expectations in adolescents' academic performance and depression in Hong Kong. *Journal of Family Issues*, 39(9), 2505–2522. <https://doi.org/10.1177/0192513X18755194>

- McCormick, M. P., Neuhaus, R., O'Connor, E. E., White, H. I., Horn, E. P., Harding, S., Cappella, E., & McClowry, S. (2021). Long-term effects of social-emotional learning on academic skills: Evidence from a randomized trial of INSIGHTS. *Journal of Research on Educational Effectiveness, 14*(1), 1–27. <https://doi.org/10.1080/19345747.2020.1831117>
- McLeod, C., & Boyes, M. (2021). The effectiveness of social-emotional learning strategies and mindful breathing with biofeedback on the reduction of adolescent test anxiety. *Canadian Journal of Education, 44*(3), 815–847. <https://doi.org/10.53967/cje-rce.v44i3.4869>
- Montero-Carretero, C., & Cervelló, E. (2020). Teaching styles in physical education: A new approach to predicting resilience and bullying. *International Journal of Environmental Research and Public Health, 17*(1), 76. <https://doi.org/10.3390/ijerph17010076>
- Murano, D., Sawyer, J. E., & Lipnevich, A. A. (2020). A meta-analytic review of preschool social and emotional learning interventions. *Review of Educational Research, 90*(2), 227–263. <https://doi.org/10.3102/0034654320914743>
- Neufeld, A., Mossière, A., & Malin, G. (2020). Basic psychological needs, more than mindfulness and resilience, relate to medical student stress: A case for shifting the focus of wellness curricula. *Medical Teacher, 42*(12), 1401–1412. <https://doi.org/10.1080/0142159X.2020.1813876>
- Ng, B. (2018). Exploring procrastination and self-regulated learning through motivational beliefs. *Journal of Research Initiatives, 3*(3). <https://digitalcommons.uncfsu.edu/jri/vol3/iss3/11>
- Ng, B. L. L., Liu, W. C., & Wang, J. C. K. (2016). Student motivation and learning in mathematics and science: A cluster analysis. *International Journal of Science and Mathematics Education, 14*(7), 1359–1376. <https://doi.org/10.1007/s10763-015-9654-1>
- Núñez, J. L., & León, J. (2015). Autonomy support in the classroom. *European Psychologist, 20*(4), 275–283. <https://doi.org/10.1027/1016-9040/a000234>
- Oh, Y. A., Lee, A. Y., An, K. J., & Park, S. A. (2020). Horticultural therapy program for improving emotional well-being of elementary school students: An observational study. *Integrative Medicine Research, 9*(1), 37–41. <https://doi.org/10.1016/j.imr.2020.01.007>
- Oriol-Granado, X., Mendoza-Lira, M., Covarrubias-Apablaza, C. G., & Molina-López, V. M. (2017). Positive emotions, autonomy support and academic performance of university students: The mediating role of academic engagement and self-efficacy. *Revista De Psicodidáctica, 22*(1), 45–53. <https://doi.org/10.1387/RevPsicodidact.14280>
- Pillay, D., Nel, P., & van Zyl, E. (2022). Positive affect and resilience: Exploring the role of self-efficacy and selfregulation. A serial mediation model. *SA Journal of Industrial Psychology, 48*(1), 1–12. <http://dx.doi.org/10.4102/sajip.v48i0.1913>
- Pitzer, J., & Skinner, E. (2017). Predictors of changes in students' motivational resilience over the school year: The roles of teacher support, self-appraisals, and emotional reactivity. *International Journal of Behavioral Development, 41*(1), 15–29. <https://doi.org/10.1177/0165025416642051>
- Reeve, J. (2009). Why teachers adopt a controlling motivating style toward students and how they can become more autonomy supportive. *Educational Psychologist, 44*(3), 159–175. <https://doi.org/10.1080/00461520903028990>
- Reeve, J. (2012). A self-determination theory perspective on student engagement. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 149–172). Springer. https://doi.org/10.1007/978-1-4614-2018-7_7
- Reeve, J., & Cheon, S. H. (2021). Autonomy-supportive teaching: Its malleability, benefits, and potential to improve educational practice. *Educational Psychologist, 56*(1), 54–77. <https://doi.org/10.1080/00461520.2020.1862657>
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Publications.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*(1), 54–67. <https://doi.org/10.1006/ceps.1999.1020>

- Salazar-Ayala, C. M., Gastélum-Cuadras, G., Hernández, E. H., & Moreno-Murcia, J. A. (2021). Autonomy support in student's resilience through a cognitive-social model of motivation. *European Journal of Education and Psychology*, 14(1), 1–16. <https://doi.org/10.32457/ejep.v14i1.1548>
- Sarason, I. G. (1977). *The test anxiety scale: Concept and research*. <https://apps.dtic.mil/sti/pdfs/ADA039887.pdf>
- Sierens, E., Vansteenkiste, M., Goossens, L., Soenens, B., & Dochy, F. (2009). The synergistic relationship of perceived autonomy support and structure in the prediction of self-regulated learning. *British Journal of Educational Psychology*, 79(1), 57–68. <https://doi.org/10.1348/000709908X304398>
- Skinner, E. A., Pitzer, J. R., & Steele, J. S. (2016). Can student engagement serve as a motivational resource for academic coping, persistence, and learning during late elementary and early middle school? *Developmental Psychology*, 52(12), 2099–2117. <https://doi.org/10.1037/dev0000232>
- Stanley, P. J., Schutte, N. S., & Phillips, W. J. (2021). A meta-analytic investigation of the relationship between basic psychological need satisfaction and affect. *Journal of Positive School Psychology*, 5(1), 1–16. <https://doi.org/10.47602/jpsp.v5i1.210>
- Sun, F., Zhu, J., Tao, H., Ma, Y., & Jin, W. (2021). A systematic review involving 11,187 participants evaluating the impact of COVID-19 on anxiety and depression in pregnant women. *Journal of Psychosomatic Obstetrics & Gynecology*, 42(2), 91–99. <https://doi.org/10.1080/0167482X.2020.1857360>
- T'ng, S. T., Ho, K. H., & Pau, K. (2022). Need frustration, gaming motives, and internet gaming disorder in mobile multiplayer online battle arena (MOBA) games: Through the lens of self-determination theory. *International Journal of Mental Health and Addiction*, 1–21. <https://doi.org/10.1007/s11469-022-00825-x>
- Tan, L., Wei, B., & Cui, T. (2022). Relationships among perception of teacher autonomy support, achievement motivations, intellectual risk-taking, and science academic performance: a serial mediation model. *International Journal of Science Education*, 1–22. <https://doi.org/10.1080/09500693.2022.2151328>
- Tan, J. P. L., Choo, S. S., Kang, T., & Liem, G. A. D. (2017). Educating for twenty-first century competencies and future-ready learners: Research perspectives from Singapore. *Asia Pacific Journal of Education*, 37(4), 425–436. <https://doi.org/10.1080/02188791.2017.1405475>
- Timmerman, L. C. (2014). *Self-determination in transitioning first-year college students with and without disabilities: Using MAP-Works for assessment* (3619256) [Doctoral dissertation, Ball State University]. ProQuest.
- Trigueros, R., Padilla, A. M., Aguilar-Parra, J. M., Rocamora, P., Morales-Gázquez, M. J., & López-Liria, R. (2020). The influence of emotional intelligence on resilience, test anxiety, academic stress and the Mediterranean diet: A study with university students. *International Journal of Environmental Research and Public Health*, 17(6), 2071. <https://doi.org/10.3390/ijerph17062071>
- Tryon, G. S. (1980). The measurement and treatment of test anxiety. *Review of Educational Research*, 50(2), 343–372. <https://doi.org/10.3102/00346543050002343>
- Vansteenkiste, M., & Ryan, R. M. (2013). On psychological growth and vulnerability: Basic psychological need satisfaction and need frustration as a unifying principle. *Journal of Psychotherapy Integration*, 23(3), 263. <https://doi.org/10.1037/a0032359>
- Vansteenkiste, M., Simons, J., Lens, W., Sheldon, K. M., & Deci, E. L. (2004). Motivating learning, performance, and persistence: The synergistic effects of intrinsic goal contents and autonomy-supportive contexts. *Journal of Personality and Social Psychology*, 87(2), 246–260. <https://doi.org/10.1037/0022-3514.87.2.246>
- Wang, J., Liu, R. D., Ding, Y., Xu, L., Liu, Y., & Zhen, R. (2017). Teacher's autonomy support and engagement in math: Multiple mediating roles of self-efficacy, intrinsic value, and boredom. *Frontiers in Psychology*, 8, 1006. <https://doi.org/10.3389/fpsyg.2017.01006>
- Weissberg, R. P., Durlak, J. A., Domitrovich, C. E., & Gullotta, T. P. (2015). Social and emotional learning: Past, present, and future. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P.

- Gullotta (Eds.), *Handbook of social and emotional learning: Research and practice* (pp. 3–19). The Guilford Press.
- Weston, K. J., & Parkin, J. R. (2010). *Resilience Encyclopaedia of cross-cultural school psychology*. Springer.
- Whitney, C. R., & Candelaria, C. A. (2017). The effects of No Child Left Behind on children's socioemotional outcomes. *AERA Open*, 3(3), 2332858417726324. <https://doi.org/10.1177/2332858417726324>
- Wigelsworth, M., Verity, L., Mason, C., Qualter, P., & Humphrey, N. (2022). Social and emotional learning in primary schools: A review of the current state of evidence. *British Journal of Educational Psychology*, 92(3), 898–924. <https://doi.org/10.1111/bjep.12480>
- Wigfield, A., & Eccles, J. S. (1989). Test anxiety in elementary and secondary school students. *Educational Psychologist*, 24(2), 159–183. https://doi.org/10.1207/s15326985ep2402_3
- Xiang, P., Agbuga, B., Liu, J., & McBride, R. E. (2017). Relatedness need satisfaction, intrinsic motivation, and engagement in secondary school physical education. *Journal of Teaching in Physical Education*, 36(3), 340–352. <https://doi.org/10.1123/jtpe.2017-0034>
- Yamamoto, T., Nishinaka, H., & Matsumoto, Y. (2023). Relationship between resilience, anxiety, and social support resources among Japanese elementary school students. *Social Sciences & Humanities Open*, 7(1), 100458. <https://doi.org/10.1016/j.ssaho.2023.100458>
- Yang, C., Chan, M. K., & Ma, T. L. (2020). School-wide social emotional learning (SEL) and bullying victimization: Moderating role of school climate in elementary, middle, and high schools. *Journal of School Psychology*, 82, 49–69. <https://doi.org/10.1016/j.jsp.2020.08.002>
- Yokoyama, S. (2019). Academic self-efficacy and academic performance in online learning: A mini review. *Frontiers in Psychology*, 9, 2794. <https://doi.org/10.3389/fpsyg.2018.02794>
- Yu, C., Li, X., Wang, S., & Zhang, W. (2016). Teacher autonomy support reduces adolescent anxiety and depression: An 18-month longitudinal study. *Journal of Adolescence*, 49, 115–123. <https://doi.org/10.1016/j.adolescence.2016.03.001>
- Zhang, D., Jin, B., & Cui, Y. (2022). Do teacher autonomy support and teacher-student relationships influence students' depression? A 3-year longitudinal study. *School Mental Health*, 14(1), 110–124. <https://doi.org/10.1007/s12310-021-09456-4>
- Zheng, J., Jiang, N., & Dou, J. (2020). Autonomy support and academic stress: A relationship mediated by self-regulated learning and mastery goal orientation. *New Waves-Educational Research and Development Journal*, 23, 43–63.

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Chapter 5

Exploring Social-Emotional Competencies of Students Through Peer Support in a Primary School



Chun Rong Ng and Betsy Ng

Abstract Research on whether peer support benefits primary school students' social and emotional learning is still in its infancy. This study aimed to investigate the benefits of a peer support program (PSP) on the acquiring of social-emotional competencies and self-determination in a primary school context. In this primary school context, the peer support champions (PSCs) were trained to carry out their roles in looking out for their peers. The program continued for a semester before 11 primary four and five students were interviewed to study the impact of PSCs on them. Results showed that the PSCs had a close relationship with their peers. Additionally, they were found to be positive influences on their peers and had benefited them. These findings suggest that the PSP can be an effective intervention for students to learn SECs and become self-determined individuals. Overall, this study highlights the importance of peer influence on students in school. Further research is required to substantiate this argument and explore the long-term effects of the program on students as the study was relatively small-scale.

Introduction

In a competitive society like Singapore, students are often pressured to excel academically (Poh, 2018). This pressure, often bred from self and parental expectations, drives the students to place great emphasis on academics, sometimes to the extent of taking a toll on their mental well-being. The effects of the competitive society in Singapore can be seen in the research done by the Organization for Economic Cooperation and Development (OECD), where 75% of the students in Singapore were found to be exceptionally worried and fearful about examinations and results as compared to the international students (Wong, 2019).

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The Ministry of Education (MOE) in Singapore has introduced several changes in attempt to help students cope with their academic stress. This includes the removal of mid-year examinations for primary school students, which is part of an effort to help students place less emphasis on academic results. However, according to Ng (2019), these implementations are usually “filled with paradoxes”. Academic quality should be sustained despite advocating for less time spent on academic studies. In addition to reducing the removal of mid-year examinations (Ang, 2022), efforts should be made to improve students’ resilience by imparting them with important students’ social-emotional competencies (SECs). For instance, the MOE has been promoting social and emotional learning (SEL) in schools for their Character and Citizenship Education curriculum. In addition, a supportive learning environment such as the peer support program (PSP) will equip students with SECs for facing future challenges with resilience. Through the PSP in a primary school context, students are trained as peer support champions (PSCs) who in turn will look out for their fellow classmates or peers in terms of emotional and academic support. Since students spend most of their time with their classmates or peers in school, the PSP is thus an important enabler of student SEL that supports good character and citizenship. The role of the PSP is likely to nurture a positive educational or learning climate that promotes the social and emotional well-being of students, which can extend beyond academic outcomes and into positive psychological development.

Theoretical Framework

Self-Determination Theory

According to self-determination theory (SDT), individuals become self-determined when their basic psychological needs for autonomy, competence and relatedness are met. Autonomy includes the feelings of having the rights to make choices for themselves; competence refers to feeling able to overcome challenges; relatedness involves experiencing connection with other people (Deci & Ryan, 2000). When these three psychological needs are met, individuals would cultivate intrinsic motivation, which occurs when they have the propensity and motivation to engage in activities that they find meaningful and acquire new knowledge (Liu et al., 2014; Ryan & Deci, 2017). This development is crucial for cognitive and social growth, allowing students to develop interests and self-confidence which helps to improve their performance and well-being (Eng, 2010; Xia et al., 2022). These soft skills are necessary for individuals to excel in their daily lives. While recent research (Vasconcellos et al., 2020) found that peer influence was linked to relatedness in school settings, little was found about its impact on the other two psychological needs.

Research has also shown that intrinsic motivation is associated with better outcomes, including greater persistence, creativity and well-being (Ryan & Deci,

2017). Additionally, intrinsic motivation has been linked to better academic achievement, greater interest in learning and a more positive attitude toward school (Linnenbrink-Garcia et al., 2016).

Social and Emotional Learning

Social and emotional learning (SEL) refers to the process of acquiring socioemotional competencies. According to the CASEL (2017), the five SECs are (a) self-awareness which refers to the ability to understand and recognize their own emotions, thoughts and values; (b) social awareness which refers to the ability to recognize, understand and empathize with others' emotions and perspectives; (c) self-management which refers to the ability to manage their own emotions and behavior; (d) relationship management which refers to the ability to establish and maintain positive and healthy relationships with others; and (e) responsible decision-making which refers to the ability to make constructive and safe decisions based on realistic evaluation of consequences.

These competencies cover both intrapersonal and interpersonal skills which are both important soft skills today. These skills help one to function well as an individual, and to communicate effectively with others respectively. Through SEL, one should be able to understand and manage their emotions, empathize with others, form and maintain positive relationships as well as to make decisions responsibly (Weissberg et al., 2015). Within the school context, there is evidence to show that individuals who possess these SECs are likely to be more well-behaved, establish and maintain healthy relationships with others, as well as excel academically (Epstein et al., 2000; Trentacosta & Fine, 2010). On the other hand, students who do not have these competencies are more likely to have maladaptive behavior, as they may not have the ability to manage and regulate their emotions.

Literature Review

Empirical Research on SEL

Recent research showed that SEL helped young people act more positively and responsibly (Graczyk et al., 2000; van de Sande, 2019). Those with SECs were also found to be more academically successful in schools (van de Sande, 2019). Additionally, they tend to have healthy relationships with the people around them. Previous studies about SEL programs implemented in schools also revealed significant long-lasting positive outcomes where participating students experience improved mental and physical well-being (Durlak et al., 2011; Sklad et al., 2012; Taylor et al., 2017). Furthermore, the benefits of SEL include the prevention of mental health related

illness and undesirable behaviors (Taylor et al., 2017). However, limited program has a comprehensive coverage of the five SECs (Payton et al., 2000). Most programs only targeted three out of the five competencies, with social awareness being the most highly covered (van de Sande, 2019).

Empirical Research on SDT

Based on the abovementioned literature, SDT encourages individuals to be self-determined when their three basic psychological needs are met. Several studies were conducted in the context of online learning, physical education and classroom management. Research has shown that an autonomous learning environment can satisfy the students' needs to autonomy and thus improve their ability to obtain the intended learning outcome (Núñez & León, 2015). Studies highlighted the association between intrinsic motivation and students' success and well-being, as well as the relationship between a motivation and undesirable results. This could be due to basic psychological need of competence left unmet (Han & Brinton, 2020). This argument can be explained by a recent study which reflected the importance of competence in nurturing intrinsic motivation (Levesque-Bristol et al., 2011).

Some findings also revealed that teachers play a huge role in orientating students' motivation from a motivation to extrinsic motivation and then to intrinsic motivation (Lietaert et al., 2015; Roorda et al., 2011; Standage et al., 2005) as they have more impact on students' classroom experiences of autonomy and competence. There were also studies that showed the associations of relatedness with peer and teacher support (Foulkes et al., 2019). However, most of the research only reflected the teacher role in influencing the students via SDT, with limited studies on the relationship between peer influence and SEL.

Conceptual Links Between SEL and SDT

There are very limited studies that showed the connection between SEL and SDT in nurturing students to become responsible and healthy. Research found that the combination of both SEL and SDT also enhanced student's intrinsic motivation and perceived competence which in turn improved their academic results (Baggerly et al., 2020; Tarbetsky, et al., 2017).

Purpose of Study

The empirical papers found mainly focused on either SEL or SDT, and mainly talked about the importance of teacher influence on students. Research on how peer support could influence students' SECs is still in its infancy. Therefore, the aim of this paper

is to find out the extent of influences that peers have on the students' SEL and motivation.

This paper focused on the following four research questions:

- (a) What relationships are present among PSCs and their peers (i.e., students)?
- (b) What are the benefits of having a PSP for students in a primary school?
- (c) What are the positive influences of the PSCs on students?
- (d) What are the SECs of PSCs perceived by the students and their SECs?

Method

Participants and Procedure

There was a total of 11 primary four and primary five participants recruited from a Singapore's neighborhood school. Among them, there were five boys and six girls. Prior to data collection, this project has gone through ethical clearance from the university's Institutional Research Board (IRB-2022-238). Subsequently, the approval from MOE (Singapore) and permission from the school were obtained.

An SDT-trained expert conducted a 2-h training for the teacher-in-charge of the PSP in the primary school. Then, the trained teacher in turn conducted four sessions of peer support training for the PSCs. Each session was 1.5 h, and their training focused on the topic of bullying, which included cyber-bullying. The main study of this research occurred when the trained PSCs carried out their roles in looking out for their peers in the semester. At the end of the same semester, the peers (i.e., students) were interviewed to find out the effectiveness of the program.

The excerpts chosen were based on the students. Table 5.1 shows the 11 students and the number of times their excerpts were used in the discussion. As seen below, the number of times each student's excerpt used is quite proportionate, thus minimizing the biasness of results analysis.

Data Analysis

The transcripts of the interviews were coded individually. Based on the transcripts, excerpts related to the themes discussed in this paper (relationship with PSCs, benefits of peer support on students, positive influences of PSCs, students' SECs and others) were extracted and compounded in a coding template. Then, the keywords in these extracts were identified and coded according to their themes in the same template.

Table 5.1 Number of students versus number of excerpts used

Number	Interviewee	Count
1	Student A	3
2	Student B	3
3	Student C	3
4	Student D	3
5	Student E	3
6	Student F	3
7	Student M	4
8	Student N	3
9	Student X	3
10	Student Y	3
11	Student Z	3

Results and Discussion

The perceived impact of PSCs on students was evaluated and classified based on their themes: relationship with PSCs, benefits of peer support on students, positive influences of PSCs, students’ SECs and others. Within the excerpts, the text in bold is to highlight the context for the sub-themes.

Relationship with PSCs

The PSCs were tasked to befriend their classmates and provide them with the support that they might require. This section discusses the relationship between the PSCs and students. Overall, most of the students shared pleasant experiences with their PSCs. The following excerpts showed that they were close to their PSCs and trusted them. Here, interrelationship refers to being close to each other and having trust with the PSCs. There are three sub-themes, namely close to each other, trust in PSC and physical distance between PSC and student.

Close to Each Other

Recent evidence highlighted that students were more likely to participate in school activities voluntarily and obtain better academic achievements if they think they are “accepted, liked and cared for” by their peers (Sedlacek & Sedova, 2020). Hence, this implies that having a close relationship with the PSCs could result in a positive school experience for the students.

I actually tell the PSC whenever I need her help. I also tell her because she is very kind and comforting. I feel like I can always tell her anything that I need, whenever I want, and **she will always be there to help me.** (Student E)

I think at first right, we were in the same Chinese class we were afraid of failing our Chinese spelling because our Chinese teacher had very high expectations. She said that we would have to retest if we failed. So, we were quite scared and we told each other “Don’t worry, we will create a handshake to motivate us”. After we created the handshake, **we became closer** and more motivated to do spelling. (Student Y)

Trust in PSC

Recent research showed that having trust in school peers, or in this case is the PSCs, helps to cultivate a sense of belonging with their peers and the school, as well as to motivate them to persevere academically (Adams et al., 2022). Additionally, peer trust can be used to maximize the students’ learning and growth in school.

I will slowly find trust with them. Since they can empathize with other classmates, **I find that they are trustable.** (Student M)

Because I can trust him. He doesn’t tell anyone if I tell him not to tell... I have known him for two years. He doesn’t go out and tell people about the stuff I tell him. (Student X)

Physical Distance Between PSC and Student

It was interesting to note that the physical distance between the PSCs and students in class was a factor of their relationships as seen in the excerpts below. This may be due to students having higher chances of interacting with peers sitting near them through group work, therefore making physical distance a factor of their friendships in school.

I don’t really interact with him. Like I don’t talk to him or anything because **I’m seated far away from him.** (Student Z)

Maybe I’m not really close friends with those people that I was with last year. Because now **we are not really sitting together** so we wouldn’t talk a lot. (Student C)

Benefits of Peer Support on Students

This theme discusses the various benefits of peer support on the primary school students. This will aid in the overall evaluation of the benefits of the PSP in the primary school context. There are four sub-themes, namely provide emotional support, provide academic support, intrinsic motivation and relatedness.

Provide Emotional Support

Firstly, students highlighted that their PSCs voluntarily provided them with emotional support when they faced challenges both in and outside of school. This is supported by the following excerpts, where PSCs demonstrated empathy toward their classmates.

Once when I was quite stressed about schoolwork and home problems, **she will ask me if I'm okay when I look down**. When I said I'm okay, she would ask me why I was feeling sad. Then if I think it is shareable, I will tell her. She would then **comfort me** and ask if I need company. (Student M)

Yes (I am comfortable with sharing feelings with PSC) because **when I am sad, they will give remarks** like "Oh, it's okay. You will make it through your exams" or "It's okay you fail; we will still be friends" and they will say good luck to me for exams. (Student B)

Provide Academic Support

It was observed that the PSCs helped their peers (i.e., students) with their academic work. This is evident from the excerpts below:

For example, if I don't know how to do this question, and if I ask, **she would teach me** and I would have a better understanding. (Student N)

I will approach them for help. For example, maybe like my homework, I would sometimes approach the PSCs when I don't understand some questions and **they would help me** with it... Yes (they will **explain the questions**). (Student D)

Intrinsic Motivation

As mentioned by Hakimzadeh et al. (2016), the presence of such support can help to encourage cognitive participation, motivate them to take on a more positive attitude on academics as well as to promote interest in school-related activities. This is evident in the following excerpts, where the students commented that the PSCs helped them develop motivation for school, as well as feel more connected and belonged in school. These two sub-themes are closely tied with SDT.

They (PSCs) always check in. One of the PSCs in my class always checks in with me and asks me how I am feeling. He also **makes me excited for school and happy**. (Student E)

Yes (more excited to go to school). ... Like when time passes, I grow closer and closer to my friends (PSCs) and so I will be **more and more excited** to talk to them and play with them. (Student D)

Relatedness

The development of the relationship with PSCs may be beneficial for the students as they have a positive attitude toward school. When students are more positive toward attending school, their participation in class and academic performance would improve (Froiland & Worrell, 2016). The following excerpt suggests that the PSC had helped to make him feel at ease and support his belongingness to the school.

He likes to say funny stuff that makes me laugh and **makes me feel more like I am part of school, the bigger family**. (Student F)

Relatedness is also viewed as connectedness. In this case, relatedness may be expressed in the form of students having the PSCs' company. For example, the following excerpt highlights that student M enjoyed the company of her PSC as they got to play with each other. This seems to imply that student M has a sense of belonging in the school because of her PSC as they are connected by playing games together.

During active play, she would also ask if I want to play. If I said yes, **she would ask me to play with her**. (Student M)

Supported by Alivernini et al. (2019), relatedness, defined by peer acceptance and friendship, has a significant influence on a student's positive school experience. To summarize, the above excerpts highlight the benefits of the PSC program on students' experience in school.

Positive Influences of PSCs

During the interview, it was also found that PSCs do have positive influences on the students in various aspects. There are three sub-themes, namely academic improvement, improved emotion management and learned perseverance.

Academic Improvement

Apart from providing students with academic support, it seems that PSCs might have positive influence on their peers' academic results as seen in the excerpt below. This confirms the finding that peer support can help improve academic results.

I **improved** in my Chinese exam. ... (The PSC helped me) by teaching me how to speak Chinese, and learn the Chinese words. (Student B)

Improved Emotion Management

The PSCs were also perceived to be beneficial in helping students better manage their negative emotions which is the key for self-management. This implies that PSCs promote SEL in their daily lives. This can be supported by (Hakimzadeh et al., 2016), where perceived peer support allows students to make "better judgment about people and themselves", implying that students are able to make sensible decisions when they interact with their peers. The excerpt below demonstrates how perceived peer support can help students regulate and digest their negative emotions appropriately.

Ya, **he made me feel better**. My anger level dropped... I feel more chill than before... and not much anger with myself. (Student F)

Moreover, the PSCs were believed to have inculcated positive values like perseverance to the students. This is in line with literature, where relationships in the classroom help to build character strength (Thomas et al., 2022).

Learned Perseverance

The PSC whom I am closer with is also the one I like to play game (minecraft) with. In the game, he would motivate me to try again and again. When I play soccer, **he also taught me not to give up...** Yes (PSC influenced me not to give up easily). (Student X)

Students' SECs and Their Perceived PSCs' SEC

Based on the abovementioned literature, SDT and SEL are important in nurturing students to become motivated, responsible and independent individuals. Besides the benefits of peer support and positive influences of the PSCs on their peers, it is also important to examine the students' SECs and their perception of their PSCs' SECs. Except for social awareness, the other sub-themes relate to students' SECs with and without the influence of their PSCs. There are four sub-themes, namely self-awareness, social awareness, relationship and self-management, and responsible decision-making. The SECs of relationship management and self-management were combined as one sub-theme.

Self-Awareness

The following two excerpts show the demonstration of the SEC, self-awareness by the students without the influence of their PSCs.

Well, I feel that I am more comfortable sharing with my best friends though. Because I trust that they can help me with whatever difficulties I share with them. I believe they could help me. **That's the reason why I rather my best friends** than my PSC and my classmates. (Student A)

(To deal with negative emotions) I will write it down somewhere, and then throw it away. (Student Z)

The excerpt below illustrates the demonstration of the SEC, self-awareness by the students with the influence of their PSCs.

Yah, I do (feel comfortable sharing feelings with PSC). Because this is like I take a burden away from my heart, right? Like I take this bag of very strong feelings out of my heart, then **I won't feel stressed anymore.** (Student Y)

Social Awareness

The two excerpts below demonstrate the SEC, social awareness of the PSCs perceived by their peers (i.e., students).

Sometimes I won't open up to her because it is like a family problem or something. But **she will notice my behavior in school** and then after school she will text me and ask me if I am okay, and she will cheer me up. (Student E)

Sometimes I feel angry in school. **They will come to me** and tell me that it's like okay to... and then **they will try to make me happy** like ask me what happened and then find a solution for it. (Student C)

Relationship and Self-Management

In the following excerpt, student X was seen displaying relationship management where he would approach a classmate who was bullied and tried to help him feel better by proposing solutions for his situation.

Yes, actually I don't want to bother my friend, so I just talk to the guy getting bullied. But then he didn't want to report, so... (I didn't) (Student X)

In the excerpt below, student F mentioned that her closer friends were just like the PSCs in her class. Under their influence, she was able to manage her own negative emotions and made responsible decisions to make herself feel better about the situation.

Student F: It just give me... it will do the same. (If I face challenges in school, I will immediately go to one of my closer friends as it helps me by) reducing my anger level which makes me feel less angry at the person. **Instead of feeling mad, I will just ignore the person.** (Student F)

Responsible Decision-Making

In the excerpts below, the students were able to rationalize their decisions to be selective with the people they share their troubles with, showing that they considered each decision they made.

Sometimes **I won't open up to her because it is like a family problem or something.** But she will notice my behavior in school and then after school she will text me and ask me if I am okay, and she will cheer me up. (Student E)

So, if it is about family problems, I don't think I want to ask my parents because they are the ones involved in it. So, I will probably tell my trustable friends which is one of the PSCs. (Student M)

As seen from the excerpts above, students were displaying SECs in various aspects in school. Since it was found that the engagement of prosocial behavior was related to peer influence from high status peers (Choukas-Bradley et al., 2015), it may imply that the PSCs' and students' demonstration of SECs in school can have impact on other students through role or peer modeling.

Other Themes

There were a few interesting themes that emerged from the transcripts. The themes are not related to the benefits of peer support and influences of PSCs on their peers (i.e., students). They are based on the students' perspectives of their best friends or classmates who gave them emotional and academic support, as well as their motive to go to school and need for relatedness. There are five sub-themes in this section, namely characteristics of PSCs, provision of emotional support, provision of academic support, motivation toward school and need for relatedness. It is noteworthy to discuss these findings as they also offer some insights into the characteristics of PSCs. They also highlighted how some students can influence their peers the same way as PSCs.

Characteristics of PSCs

Firstly, since this program focused on building a peer support system in primary schools, it is important to explore the positive characteristics of PSCs which helped to enhance the experience for the students. The following excerpts provide us with some insights into the qualities the PSCs have displayed. The qualities of PSCs that were based on the students' perspectives include being helpful and approachable, which could be classified under empathetic and friendly. These qualities displayed by the PSCs are in sync with their roles in looking out for their peers, implying that the PSCs have fulfilled their duty.

That time when we had interdisciplinary project work, ..., we didn't have enough people to buy the materials and **he volunteered to help us** buy and things like that. (Student Y)

No (not difficult to communicate with PSC at the start)... She was sitting beside me and was the first person I met when I went to school. So, I didn't hesitate because **she was very friendly and nice**. So I started being more comfortable around her. (Student N)

Provision of Emotional Support

Next, it was also interesting to note that peers in school also influence the students in a similar way to the PSCs. Peers were found to have provided emotional and academic support, as well as to help students develop intrinsic motivation and relatedness in school. These areas of influence are evident in the following excerpt:

Well, I feel I am more comfortable sharing with my best friends. Because I trust that **they can help me with whatever difficulties** I share with them. I believe they could help me. That's the reason why I rather my best friends rather than my PSC and my classmates. (Student A)

I would look for my best friend (when I face challenges). ... Because **she calms me down** and tells me what to do. And then I will follow her steps carefully and it will always work out. (Student N)

Provision of Academic Support

Peer support was found to be a valuable strategy for promoting mental health and well-being among students in school (Richard et al., 2022). It is likely that the presence of peer support contributed to a caring school with a positive learning environment.

I don't really talk to my peers about my school and everything, but I did talk to some people about my schoolwork and share what I don't really understand in math or science and then **they (peers) will help me with it.** (Student Z)

Motivation Toward School

Based on the following two excerpts, both students seemed to develop intrinsic motivation toward school from their peer interactions (i.e., classmates), which may be associated with a positive school environment. In line with the literature, positive school climate was found to be helpful in promoting intrinsic motivation (Colletti & Ryan, 2019). This is beneficial as motivation is important for their engagement in school, which in turn improves their academic performance (Suárez, 2019).

Sometimes when I want to talk to my best friend who is always there. And every time I go down for recess, we will talk a lot and **it makes me feel happy.** (Student B)

I will also have more friends to play with during active play... Yes. Most of the time **because I want to go to school is mostly because I want to play with my friends.** (Student A)

Need for Relatedness

As seen below, students' psychological need for relatedness was fulfilled. Based on SDT, the satisfaction of the need for relatedness would reinforce the promotion of intrinsic motivation in students and drive them to become more self-determined individuals (Colletti & Ryan, 2019). The following excerpts demonstrate how the two students could influence their peers the same way as PSCs.

Okay, in school, I will definitely look for my friends in the same class..... when I am with them, I feel like **I am quite connected to them,** so I feel like they are more helpful than the rest of the classmates. (Student A)

My close friend (look help from first when facing challenges). ... **Because they are like closer to me so I can... I will feel more comfortable with them** and I... I will feel more comfortable and then I can seek help for them, their advice and then I will... yah. (Student C)

Implications

There are several implications of this research findings, which include two theoretical implications and two practical implications.

Considering the theoretical implications, combining SDT and SEL can contribute to the importance of a student's well-being. Firstly, the use of SDT into SEL programs can enhance the quality of school experiences for students. As mentioned earlier, SDT emphasizes the importance of autonomy, competence and relatedness for intrinsic motivation. Therefore, incorporating SDT principles into SEL programs may increase students' motivation to engage in social-emotional activities. This can be implied from the excerpts where students who were intrinsically motivated by their PSCs and peers could learn SECs from them. This can be done through peer modeling, which will be a more engaging and impactful way of acquiring the soft skills. According to King et al. (2021), peer modeling is an effective strategy to teach students the desired behavior. This can potentially be beneficial to other students in the school as they can be exposed to these SECs through observing their PSCs and peers, and from there improve their social-emotional skills.

Secondly, the application of SDT to SEL can promote a more holistic approach to education that focuses on students' social-emotional needs as well as academic achievement. This will ensure that the students are equipped with the skills to cope with the academic rigor in school.

With regard to practical implications, a potential strategy teachers could use is to implement a peer support system or a buddy system in class. This would help to enhance social support and peer relationships. For instance, such a system could help to promote students' sense of belonging to the school. This would satisfy their need for relatedness which would encourage intrinsic motivation for school. This would then in turn result in an improved academic performance due to increased participation.

Finally, this research would be for teachers to be more intentional in satisfying students' needs for competence, autonomy and relatedness in class. Examples could be building strong student-teacher relationships and complimenting them for good work when applicable. On top of that, teachers may also be more deliberate in demonstrating SECs in class, to role model for the students.

Limitations

The limitations of this research should be considered when interpreting the findings. Firstly, there was only a small and specific group of participants in the school who were involved in the research. This is because the PSC program was only implemented on one primary school in Singapore. Therefore, the findings of this paper might be biased and cannot be representative of all the primary schools. To improve

this aspect, it is possible to implement to program on a larger scale to obtain data that is more precise and inclusive.

Secondly, the period between implementation and data collection of the PSC program might be too short. The interview was done within the semester of implementation, which was less than six months. This duration might not be sufficient for some of the students to get to know their PSCs better, which may thus limit their perception of the PSCs. This may lead to the inability to collect comprehensive data on the effectiveness of the program. Future studies could consider implementing a one-year research study to better evaluate the perceptions of students.

Lastly, the effectiveness of the program is evaluated through interviews conducted with the students involved. This self-reported data might be influenced by social desirability bias, in which students provided responses that they believe are expected rather than their true experiences. As a result, this may make it challenging to obtain an accurate and comprehensive understanding of the program's effectiveness. To obtain an unbiased perspective of the program's effectiveness, the interviewer could consider encouraging honest responses and indirect questioning to share their genuine positive or negative experiences.

Conclusion

Current findings supported the four research questions of the study. Firstly, the students were found to have a positive relationship with their PSCs and peers. Next, the benefits of the PSP by maintaining good relationships with peers in primary school include the provision of emotional and academic support, as well as the satisfaction of need for relatedness and the promotion of intrinsic motivation. Furthermore, the PSP in primary school context was effective to a large extent as it was found to benefit and influence the students positively. Finally, the PSCs and students demonstrate their SECs in school through their daily interactions with their friends.

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References

- Adams, C., Adigun, O. B., & Fiegenger, A. (2022). Student trust in school peers: A relational condition for optimal school functioning. *Journal of Educational Administration*, 60(6), 545–560. <https://doi.org/10.1108/JEA-02-2022-0028>
- Alivernini, F., Cavicchiolo, E., Girelli, L., Lucidi, F., Biasi, V., Leone, L., Cozzolino, M., Manganelli, S. (2019). Relationships between sociocultural factors (gender, immigrant and socioeconomic background), peer relatedness and positive affect in adolescents. *Journal of Adolescence (London, England.)*, 76(1), 99–108. <https://doi.org/10.1016/j.adolescence.2019.08.011>.

- Ang, H. M. (2022, March 7). *Mid-year exams for all primary and secondary school levels will be removed by 2023: MOE*. Channel News Asia. <https://www.channelnewsasia.com/singapore/mid-year-exams-all-primary-and-secondary-school-levels-will-be-removed-2023-moe-2544051>.
- Baggerly, J., Soliz, A., Liles, S., & Hernandez, M. (2020). Exploring the Effect of a Social-Emotional Learning Intervention on Motivation and Academic Outcomes Using Self-Determination Theory. *Journal of Educational Psychology, 112*(7), 1402–1418. <https://doi.org/10.1037/edu0000425>
- Choukas-Bradley, S., Giletta, M., Cohen, G. L., & Prinstein, M. J. (2015). Peer influence, peer status, and prosocial behavior: An experimental investigation of peer socialization of adolescents' intentions to volunteer. *Journal of Youth and Adolescence, 44*(12), 2197–2210. <https://doi.org/10.1007/s10964-015-0373-2>
- Collaborative for Academic, Social, and Emotional Learning (CASEL). (2017). *What is SEL?* <https://casel.org/what-is-sel/>.
- Colletti, N. T., & Ryan, R. M. (2019). Intrinsic motivation to attend school: The effect of school climate, social support, and psychological needs satisfaction. *Journal of Educational Psychology, 111*(7), 1194–1216. <https://doi.org/10.1037/edu0000388>
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82*(1), 405–432. <https://doi.org/10.1111/j.1467-8624.2010.01564.x>
- Eng, Y. C. (2010). *Basic psychological needs and well-being of secondary school students* (Doctoral dissertation).
- Epstein, J. A., Griffin, K. W., & Botvin, G. J. (2000). Competence skills help deter smoking among inner city adolescents. *Tobacco Control, 9*, 33–39. <https://doi.org/10.1136/tc.9.1.33>
- Foulkes, J. D., Knowles, Z. R., & Fairclough, S. J. (2019). Exploring student and teacher perceptions of competence, autonomy and relatedness in physical education: A review of literature. *European Physical Education Review, 25*(2), 415–436. <https://doi.org/10.1177/1356336X18788813>
- Froiland, J. M., & Worrell, F. C. (2016). Intrinsic motivation, learning goals, engagement, and achievement in a diverse high school. *Psychology in the Schools, 53*(3), 321–336. <https://doi.org/10.1002/pits.21901>
- Graczyk, P., Matjasko, J., Weissberg, R., Greenberg, M., Elias, M., & Zins, J. (2000). The role of the collaborative to advance social and emotional learning (CASEL) in supporting the implementation of quality school-based prevention programs. *Journal of Educational and Psychological Consultation, 11*(1), 3–6. https://doi.org/10.1207/s1532768Xjepc1101_02.
- Hakimzadeh, R., Besharat, M. -A., Khaleghinezhad, S. A., & Ghorban Jahromi, R. (2016). Peers' perceived support, student engagement in academic activities and life satisfaction: A structural equation modeling approach. *School Psychology International, 37*(3), 240–254. <https://doi.org/10.1177/0143034316630020>.
- Han, Y., & Brinton, B. (2020). The role of social support and coping strategies in predicting Chinese international students' academic adaptation in the United States. *Psychological Studies, 65*(4), 501–510. <https://doi.org/10.1177/1745691620966789>
- King, H. C., Fischer, A. J., Lewis, H. L. J., & Payan, J. C. (2021). Peer modeling interventions. In T. A. Collins & R. O. Hawkins (Eds.), *Peers as change agents: A guide to implementing peer-mediated interventions in schools* (pp. 163–175). Oxford University Press. <https://doi.org/10.1093/med-psych/9780190068714.003.0014>.
- Levesque-Bristol, C., Knapp, T. D., & Fisher, B. J. (2011). The effectiveness of service-learning: It's not always what you think. *The Journal of Experiential Education, 33*(3), 208–224. <https://doi.org/10.1177/105382590113300302>

- Lietaert, S., Roorda, D., Laevers, F., Verschueren, K., & De Fraine, B. (2015). The gender gap in student engagement: The role of teachers' autonomy support, structure, and involvement. *British Journal of Educational Psychology*, *85*(4), 498–518. <https://doi.org/10.1111/bjep.12095>
- Linnenbrink-Garcia, L., Patall, E. A., & Pekrun, R. (2016). Adaptive motivation and emotion in education: Research and principles for instructional design. *Policy Insights from the Behavioral and Brain Sciences*, *3*(2), 228–236. <https://doi.org/10.1177/2372732216644450>
- Liu, W. C., Wang, C. K. J., Kee, Y. H., Koh, C., Lim, B. S. C., & Chua, L. (2014). College students' motivation and learning strategies profiles and academic achievement: A self-determination theory approach. *Educational Psychology*, *34*(3), 338–353. <https://doi.org/10.1080/01443410.2013.785067>
- Ng, P. T. (2019). The paradoxes of student well-being in Singapore. *Educational Research for Policy and Practice*, *18*(4), 423–439. <https://doi.org/10.1007/s10671-019-09244-9>
- Núñez, J. L., & León, J. (2015). Autonomy support in the classroom: A review from self-determination theory. *European Psychologist*, *20*(4), 275–283. <https://doi.org/10.1027/1016-9040/a000234>
- Payton, J. W., Graczyk, P. A., Bloodworth, M. R., Tompsett, C. J., Weissberg, R. P. (2000). Social and emotional learning: A framework for promoting mental health and reducing risk behavior in children and youth. *The Journal of School Health*, *70*(5), 179–185. <https://doi.org/10.1111/j.1746-1561.2000.tb06468.x>
- Poh, B. (2018, 29 September). *Commentary: A hyper-competitive culture is breeding severe test anxiety among many students*. Channel News Asia. <https://www.channelnewsasia.com/commentary/hyper-competitive-culture-breeding-severe-test-anxiety-among-799076>
- Richard, J., Rebinsky, R., Suresh, R., Kubic, S., Carter, A., Cunningham, J. E. A., Ker, A., Williams, K., & Sorin, M. (2022). Scoping review to evaluate the effects of peer support on the mental health of young adults. *British Medical Journal Open*, *12*(8), e061336. <https://doi.org/10.1136/bmjopen-2022-061336>
- Roorda, D. L., Koomen, H. M., Spilt, J. L., & Oort, F. J. (2011). The influence of affective teacher–student relationships on students' school engagement and achievement: A meta-analytic approach. *Review of Educational Research*, *81*(4), 493–529. <https://doi.org/10.3102/0034654311421793>
- Ryan, R. M., & Deci, E. L. (2017). Self-determination theory: Basic psychological needs in motivation, development, and wellness. *Guilford Publications*. <https://doi.org/10.1521/978.14625/28806>
- van de Sande, M. C. E., Fekkes, M., Kocken, P. L., Diekstra, R. F., Reis, R., & Gravesteyn, C. (2019). Do universal social and emotional learning programs for secondary school students enhance the competencies they address? A systematic review. *Psychology in the Schools*, *56*(10), 1545–1567. <https://doi.org/10.1002/pits.22307>
- Sedlacek, M. & Sedova, K. (2020). Are student engagement and peer relationships connected to student participation in classroom talk?. *Learning, Culture, and Interaction*, *26*(4). <https://doi.org/10.1016/j.lcsi.2020.100411>
- Sklad, M., Diekstra, R., De Ritter, M., Ben, J., & Gravesteyn, C. (2012). Effectiveness of school-based universal social, emotional, and behavioral programs: Do they enhance students' development in the area of skill, behavior, and adjustment? *Psychology in the Schools*, *49*(9), 892–909. <https://doi.org/10.1002/pits.21641>
- Standage, M., Duda, J. L., & Ntoumanis, N. (2005). A test of self-determination theory in school physical education. *British Journal of Educational Psychology*, *75*(3), 411–433. <https://doi.org/10.1348/000709904X22359>
- Suárez, N., Regueiro, B., Estévez, I., Ferradás, M. d. M., Guisande, M. A., Rodríguez, S. (2019). Individual precursors of student homework behavioral engagement: The role of intrinsic motivation, perceived homework utility and homework attitude. *Frontiers in Psychology*, *10*. <https://doi.org/10.3389/fpsyg.2019.00941>
- Tarbetsky, A. L., Martin, A. J., Collie, R. J. (2017). Social and emotional learning, social and emotional competence, and students' academic outcomes: The roles of psychological need

- satisfaction, adaptability, and buoyancy. In E. Frydenberg, A. Martin, R. Collie (Eds.), *Social and Emotional Learning in Australia and the Asia-Pacific*. Springer, Singapore. https://doi.org/10.1007/978-981-10-3394-0_2.
- Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting positive youth development through school-based social and emotional learning interventions: A meta-analysis of follow-up effects. *Child Development*, *88*(4), 1156–1171. <https://doi.org/10.1111/cdev.12864>
- Thomas, K. J., da Cunha, J., & Santo, J. B. (2022). Changes in character virtues are driven by classroom relationships: A longitudinal study of elementary school children. *School Mental Health*, *14*, 266–277. <https://doi.org/10.1007/s12310-022-09511-8>
- Trentacosta, C. J., & Fine, S. E. (2010). Emotion knowledge, social competence, and behavior problems in childhood and adolescence: A meta-analytic review. *Social Development*, *19*, 1–29. <https://doi.org/10.1111/j.1467-9507.2009.00543.x>
- Vasconcellos, D., Parker, P. D., Hilland, T., Cinelli, R., Owen, K. B., Kapsal, N., Lee, J., Antczak, D., Ntoumanis, N., Ryan, R. M., & Lonsdale, C. (2020). Self-determination theory applied to physical education: A systematic review and meta-analysis. *Journal of Educational Psychology*, *112*(7), 1444–1469. <https://doi.org/10.1037/edu0000420>
- Weissberg, R. P., Durlak, J. A., Domitrovich, C.E., & Gullotta, T. P. (2015). Social and emotional learning: Past, present, and future. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg & T. P. Gullotta (Eds.), *Handbook of social and emotional learning: Research and practice* (pp. 3–19). New York, NY: Guilford.
- Wong, P. (2019, December 3). *3 in 4 Singapore students fear failure, higher than global average: OECD study*. Today Online. <https://www.todayonline.com/singapore/3-4-singapore-students-fear-failure-higher-global-average-oecd-study>.
- Xia Q., Chiu, T. K., Lee, M., Sanusi, I. T., Dai, Y., & Chai, C. S. (2022). A self-determination theory education. *Computers and Education*, *189*. <https://doi.org/10.1016/j.compedu.2022.104582>.

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Part II
Socioemotional Competencies
for Adolescence and Students' Needs

Chapter 6

Development of Cohesion and Relatedness in the Classroom to Optimize Learning Processes in the Educational Setting



Francisco M. Leo, Miguel A. López-Gajardo, and Juan J. Pulido

Abstract Cohesion and social relationships have prompted research interest in various contexts. However, whereas cohesion had received limited attention in the educational setting, relatedness needs satisfaction from the self-determination theory has been more thoroughly investigated (Ryan & Deci, 2017). Specifically, relatedness needs satisfaction can determine cognitive, behavioral, and affective consequences, such as academic performance, during the learning process (Vasconcellos et al., 2020). Furthermore, some authors have considered that cohesion–cooperation in small workgroups of students affects academic achievement (e.g., Boyle, 2010), but they did not focus on class cohesion itself. However, students’ perceptions that they and their classmates are challenged to achieve the same goals and their feeling of being united in this effort appear to be an essential determinant in learning processes. In addition, students’ feeling that they have optimal interactions in class, both with the teacher and with classmates, can help to improve their engagement and motivation in classes, as they can turn to them at any time during the teaching–learning process. Thus, the teacher’s relatedness and class cohesion support can be relevant to learning new knowledge and skills.

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State of the Art

In most of our contexts, everyone is part of a group and continuously interacts with each member. This interrelation between the people who act within groups has focused research's attention on studying the importance and benefits of the relationships generated (Carron & Brawley, 2000). Several approaches have emerged to analyze social relations within groups. However, the relatedness satisfaction/frustration from the self-determination theory (SDT; Deci & Ryan, 1985, 2000) and the group cohesion of Carron et al.'s (1985) conceptual model have no doubt been two of the most used theoretical frameworks to analyze the benefits of social relations and the integration of people in groups. Within the educational context, the role of the relatedness need framed in the SDT has been investigated considerably (Deci & Ryan, 2014; Ryan & Deci, 2017), but cohesion within the class has received much less attention (Forrester & Tashchian, 2006). Specifically, SDT posits that social environments are associated with desired motivational outcomes because they satisfy students' basic psychological needs, enhancing the motivation, positive emotions, and engagement to learn (Ryan & Deci, 2017). Different social factors have been identified in educational contexts to encourage students' motivation and emotion to participate in class. Teachers' teaching approach has been one of the most studied factors, showing a direct impact on needs satisfaction, student motivation, and positive consequences (Behzadnia et al., 2018; Haerens et al., 2015; Jang et al., 2016; Reeve, 2013; Vasconcellos et al., 2020). Specifically, studies have identified an association between teacher relatedness support, relatedness satisfaction, and the cognitive, behavioral, and emotional consequences during the learning process (Cheon et al., 2012; Deci et al., 1981; Mouratidis et al., 2011), such as academic performance, engagement, well-being, fun, or happiness (Vasconcellos et al., 2020). Thus, the teacher's figure to adopt a close role and foster good relationships among the students can be essential to improve the teaching–learning processes and to foster positive emotions in students.

In addition, it seems relevant to address the relationships between classmates, although, to our knowledge, there is no extensive literature that has studied in depth their true value for improving class learning and students' emotions (Reeve, 2012). Some studies have reported that peer cooperation (Mathieu et al., 2015; Seethamraju & Borman, 2009) in small groups of students affects participation, positive emotions, and academic performance (e.g., Boyle, 2010), but they did not focus on class cohesion itself, only on the interactions between such groups of students. However, when students perceive that they and their peers are challenged to achieve the same goals, the feeling that they are united and cohesive in this effort seems to be a vital determinant in the teaching–learning processes (Erikstad et al., 2018; Pacewicz et al., 2020) and to generate positive emotions (e.g., well-being or happiness; Blanchard et al., 2009). In addition, the fact that students feel that they have optimal interactions in class, both with the teacher and with classmates, can help improve their emotional engagement and motivation in classes, as they can turn to them at any time in the teaching–learning process (Bosselut et al., 2018; Leo et al.,

2022a, 2022b, 2022c, 2022d). Therefore, the teacher's relationship with the students and their support of class cohesion can be relevant to learning new knowledge and skills and to generate positive emotions in them. In fact, Reeve (2012) established that the learning environment can be crucial for students in the educational field and pointed out that teacher–student and student–student relationships are fundamental aspects to improve motivation toward learning and emotional and behavioral engagement in the classes (Leo et al., 2023; Reeve, 2012; Vallerand, 1997). Thus, satisfying relatedness need and generating a high degree of class cohesion in students should not be ignored if we wish to optimize students' motivational, emotional (e.g., enjoyment and happiness), and learning processes (Sparks et al., 2015, 2017). Therefore, this chapter explains the relevance of class cohesion and teacher relatedness support within the educational context. It also shows scientific evidence about these variables and their relationship with motivational and emotional processes, and other consequences in learning processes. It presents instruments so that researchers and teachers can assess these variables in the class. Finally, it proposes concrete strategies for teachers to develop these variables in school through educational projects and activities with the students.

Social Relations from the Self-Determination Theory

One of the macro-theories that attempts to explain why a person performs some activity is SDT (Deci & Ryan, 1985, 2000). In particular, SDT can help understand why students engage in and motivate themselves toward a specific activity or learning a subject in general. SDT establishes a motivational continuum with different levels of self-determination depending on the type of motivation developed by each student. This theory has undergone advances, reflected in the development of each of its six mini-theories: the Cognitive Evaluation Theory (CET): intrinsic motivation (Harlow, 1953; White, 1959); the Organismic Integration Theory (OIT): extrinsic motivation (de Charms, 1968; Harter, 1981; Ryan & Connell, 1989); the Causal Orientations Theory (COT): autonomous motivation, controlled motivation, and amotivation, DeCharms, 1968; Vansteenkiste et al., 2010a, 2010b); the Basic Needs Theory (BNT; Deci & Ryan, 2000); the Goal Contents Theory (GCT; Kasser, 2002; Vansteenkiste et al., 2010a, 2010b); and the Relationships Motivation Theory (RMT; Deci & Ryan, 2014).

These six mini-theories have been building one of the most frequently used theoretical frameworks to explain motivation in different contexts (Deci & Ryan, 2000). However, before the explanation of each of these types of motivation, we need to understand the concept of internalization, contextualized in the educational field. Some authors (Chirkov et al., 2003; Deci & Ryan, 2000) define the process of internalization as the process by which students accept values and regulatory processes established by the social order, not intrinsically attractive, but which nevertheless become important reasons for performing an activity in the academic context. Based on this internalization process, SDT defends different types of motivation that range

along a gradient from higher to lower self-determination. Intrinsic motivation is the most self-determined degree, defined as voluntary participation in an activity due to the interest, satisfaction, and pleasure obtained through its performance (Deci & Ryan, 2000). In the educational field, it would be closely related to the student's performance of the activity just for the activity itself and with no external rewards for performing it.

Following the order of this motivational gradient, next is integrated regulation, which is present when the action of studying is immersed in the student's lifestyle, revealing characteristics that have to do with values, goals, personal needs, and identity (Deci & Ryan, 2000; Ryan & Deci, 2020). Therefore, this type of motivation is closely related to moral principles and personal development. However, it is not a characteristic of children and adolescents because, in these stages, the different aspects that make up lifestyle and personality are not yet integrated (Vallerand & Rousseau, 2001). Next, identified regulation is defined as a type of motivation in which the person perceives that the activity is good for them, finding benefit from the fact of doing it. However, they are not entirely self-determined to do it. In the case of the academic context, students believe that they achieve benefits for better personal and emotional development. Thus, with this regulation, behaviors are autonomous. Still, the decision to study is due to a series of external benefits and not for the pleasure and satisfaction inherent in the activity itself (Ntoumanis, 2001). Advancing along the motivational continuum, introjected regulation is defined by the feeling of guilt and pride in a person when they do not perform the activity. The student is oriented due to the obligation to attend classes, but not because the activity is perceived as pleasant or considered beneficial for them (Ryan & Deci, 2020). In the last extrinsic step, we find external regulation, which leads a person to perform any activity to get some kind of prize in return, either success and/or money, without any type of internalization or due to the penalty for not performing the action (Deci & Ryan, 2000). In students, the kind of reward can be related to grades, degrees, better social status through studies, prestige or pleasing others, concepts related to the activity, but far from the maximum level of self-determination (e.g., Haerens et al., 2015; Leo et al., 2022a, 2022b, 2022c, 2022d; Sparks et al., 2015, 2017; Van den Berghe et al., 2013).

Finally, within the motivational continuum established by SDT is amotivation, which is the total absence of a person's intrinsic and extrinsic regulations to perform some action, not knowing very well why they perform an activity, leading to maladaptive behaviors. In this type of regulation, a student would think that studying is pointless and would wonder why go on studying (e.g., Haerens et al., 2015; Ryan & Deci, 2020; Van den Berghe et al., 2013).

Traditionally and as mentioned above in the COT (de Charms, 1968; Vansteenkiste et al., 2010a, 2010b), SDT postulates three main motivational blocks: intrinsic motivation, extrinsic motivation, and amotivation. However, some contributions to the theory (Vansteenkiste et al., 2010a, 2010b), mainly based on the high correlations found between intrinsic, integrated, and identified regulations, defended a grouping made up of autonomous motivation (composed of intrinsic motivation and identified

regulation), controlled motivation (made up of external and introjected regulations), and amotivation.

In parallel, SDT has attempted to explain the conditioning factors that favor the emergence of self-determined motivation (Deci & Ryan, 2000; Ryan & Deci, 2020). Specifically, SDT postulates that the different levels of self-determination are determined by the degree of satisfaction of three psychological nutrients considered essential, universal, and innate to any person (Deci & Ryan, 2000). These nutrients for healthy development and functioning are what SDT calls basic psychological needs.

Thus, students' levels of self-determination will fluctuate depending on their degree of satisfaction or frustration of these needs (Deci & Ryan, 2000; Ryan & Deci, 2020). Delving into the explanation of each psychological mediator, the need for competence refers to people's desire to act effectively with the surrounding environment, as well as to feel competent in producing expected results and trying to prevent unexpected results (Deci & Ryan, 2000). However, the feeling of competence is not enough to create high levels of self-determination unless it is accompanied by feelings of autonomy. The need for autonomy refers to students' desire to be the source of their behaviors (Deci & Ryan, 2000; Reeve, 2006). Finally, the third factor that will determine students' levels of self-determination is the relatedness need, which refers to the person's feeling a connection and integration with other individuals in the social environment, in this case, the academic setting (Deci & Ryan, 2000).

Within SDT, the sixth mini-theory, the RMT (Deci & Ryan, 2014), postulates a basic psychological need for relatedness that moves people to seek such relationships. However, not all relationships are high quality and satisfy the basic psychological need for relatedness. For example, even in the closest relationships, only those in which both partners experience autonomy and support each other's autonomy arouse feelings that deeply satisfy the need for relatedness. Conversely, control, objectification, and contingent consideration frustrate not only the basic psychological need for autonomy, but also the need for relatedness, leading to low or poor-quality relationships (Deci & Ryan, 2014).

Given the importance of the motivational processes, SDT also addresses the influence of social determinants or antecedents (i.e., in this case, teachers) on the levels of satisfaction and frustration of basic psychological needs and students' motivation. Deci and Ryan (1985) established the term "social factor" to refer to the human and non-human factors found in the social environment, which can also be distinguished according to their level of generality. A recent classification of teacher behaviors consistent with SDT has been provided (Ahmadi et al., 2022). A total of 57 teacher motivational behaviors were identified as the most relevant psychological need and influence on motivation. These teaching behaviors have been classified into autonomy support/thwarting, competence support/thwarting, and relatedness support/thwarting. Within the relatedness dimension, a total of seven teaching behaviors were identified: showing unconditional positive regard, asking about students' progress, welfare, and/or feelings, promoting cooperation..., and eight other teaching behaviors associated with a relatedness-thwarting style: using

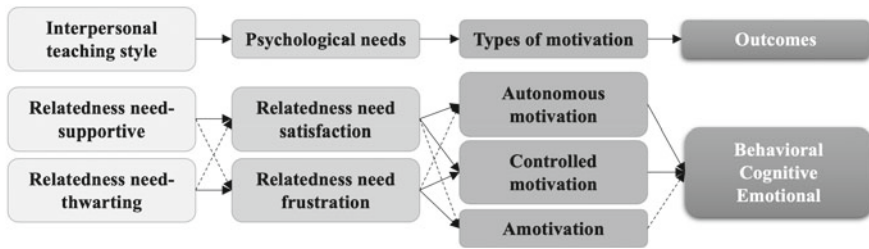


Fig. 6.1 Model of the self-determination theory (Deci & Ryan, 2000) focused on relatedness dimensions

abusive language (content), providing conditional positive regard, or being sarcastic, among others.

Concerning social relationships, teachers may adopt different interpersonal styles that lead to satisfaction or frustration of students' basic psychological need for relatedness (Sparks et al., 2016, 2017). One way could be to exhibit more tolerant and need-supporting behaviors to improve relatedness and motivation (Vasconcellos et al., 2020), proposing cooperative and interdependent tasks, dedicating time and resources to their students, and using a warm approach to promote an inclusive learning environment (Haerens et al., 2015). Teachers' relatedness-supportive strategies also attempt to foster empathy in the teacher–student relationship (Leo et al., 2022a, 2022b, 2022c, 2022d; Sparks et al., 2015, 2017), as well as help students feel socially connected and internalize the value of their behaviors (Van den Berghe et al., 2013).

On the contrary, the teacher can use more students' relatedness need-thwarting behaviors, showing an absolute disregard for the group's good atmosphere, using attitudinal punishments and expressions with a negative affective charge when the students do not meet their expectations. In addition, in this need-thwarting interpersonal teaching style, teachers do not usually express interest in the students' feelings and thoughts. Instead, they prioritize individual academic outcomes through tangible rewards that decrease the students' feelings of collaboration and cooperation (see Fig. 6.1).

Valuing Social Relationships in the Classroom

The instruments developed to measure teachers' support or thwart toward needs can be used to analyze the interpersonal teaching style focused on the relatedness dimension because these instruments contain items measuring students' need for autonomy, competence, and relatedness. In this sense, different tools have been developed in the educational field. Below are listed some examples of questionnaires (from the perceptions of students and teachers) and observation instruments:

- The Teacher as Social Context Questionnaire (Belmont et al., 1988) includes 24 items based on SDT with three subscales: teacher autonomy support, structure, and relatedness.
- The Classroom Motivation Climate Questionnaire (Tapia & Fernández-Heredia, 2008) is a 15-item scale that examines the classroom motivational climate.
- The Observed Teacher Need Support (Haerens et al., 2013) is an observational instrument containing 21 possible need-supportive behaviors, which evaluates autonomy, structure, and relatedness-supportive teaching style.
- The Need-Supportive Teaching Style Scale (Abós et al., 2018) is a 15-item questionnaire that evaluates teachers' perception of their interpersonal styles.
- The Adolescent Classroom—Psychological Need-Thwarting Scale (AC-PNTS; Adigun et al., 2022) is a 9-item questionnaire that measures specified dimensions of autonomy, competence, and relatedness.

In addition to assessing the teacher's relatedness support or thwarting, the students' relatedness satisfaction or frustration can also be evaluated. For this purpose, the following instruments can be used.

- The Need for Relatedness Scale (Richer & Vallerand, 1998) is a 10-item scale that assesses how important it is for students to be related to others.
- The Need for Relatedness at College Questionnaire (Guiffrida et al., 2008). This scale is composed by 12 items to measure need for relatedness.
- The Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS; Chen et al., 2015). The BPNSFS is a 24-item scale (four for each factor) that assesses six variables: autonomy satisfaction/frustration, competence satisfaction/frustration, and relatedness satisfaction—relatedness frustration. This scale, validated with adolescents from a general context, has been widely used in the educational context (e.g., Zamarripa et al., 2020).

Importance of Relatedness Dimension and Investigations in the Educational Setting

The teacher's interpersonal style plays a fundamental role in promoting students' self-determined motivation through the satisfaction of basic psychological needs (Vasconcellos et al., 2020). However, although the postulates of SDT indicate that learning environments that foster support for autonomy, competence, and relatedness may represent the optimal conditions to meet the students' basic psychological needs (Vasconcellos et al., 2020), most of the studies have focused on exclusively assessing the effects of support for autonomy (e.g., Haerens et al., 2015) or have used the circumplex model that prioritizes support/thwart of autonomy and the of structure/chaos dimensions, where low or high teaching directivity are represented (e.g., Aelterman et al., 2019). With this more "reserved" or two-dimensional approach (i.e., autonomy and competence/structure), the appraisal of learning environments that could promote the relatedness satisfaction is disregarded.

Previously, Deci and Ryan (2000) established the relationship between the different types of motivation belonging to the self-determination continuum and the resulting types of behavioral, cognitive, and emotional consequences. Thus, the most self-determined types of motivation will be associated with more adaptive consequences, whereas the lower levels of self-determination will be related to less adaptive outcomes (Ryan & Deci, 2017). Regarding the presumed growth-promoting role of psychological needs, research has shown that the satisfaction of these needs relates to engagement, well-being, and development, whereas their frustration relates to disengagement, ill-being, and even psychopathology (Ryan & Deci, 2017; Vansteenkiste & Ryan, 2013).

In this chapter, we identified how the role of the relatedness dimension could be associated with students' motivational processes and emotional outcomes. Some studies have shown that teachers' relatedness-supportive behaviors, either perceived by students (Sierens et al., 2009; Sparks et al., 2016) or observed by external raters (Jang et al., 2010), entail multiple benefits, including greater competence and perceived control (Skinner et al., 1998), better self-regulated learning (Sierens et al., 2009), fewer depressive feelings (Mouratidis et al., 2013), more emotional engagement (Jang et al., 2010; Leo et al., 2022a, 2022b, 2022c, 2022d) or subjects' greater perceptions of importance and usefulness (Leo et al., 2022a, 2022b, 2022c, 2022d). These effects can be primarily accounted for by relatedness needs satisfaction (Mouratidis et al., 2013).

Research has also increasingly indicated that the absence of teacher need support does not denote the presence of teacher need thwarting (e.g., Haerens et al., 2015; Jang et al., 2016). Previous investigations have found that teachers' need-thwarting style, in this case, relatedness-thwarting, to be especially predictive of a motivation (e.g., De Meyer et al., 2014; Leo et al., 2022a, 2022b, 2022c, 2022d), and emotional consequences such as emotional disengagement (Jang et al., 2016; Leo et al., 2022a, 2022b, 2022c, 2022d), anger and bullying behavior (Hein et al., 2015), anxiety (e.g., Assor et al., 2005; Flink et al., 1990), oppositional defiance (Haerens et al., 2015), or leads to students to present an increase cortisol levels, a physiological marker of stress, among students (Reeve & Tseng, 2011).

Practical Applications Based on SDT to Promote Relatedness in the Educational Context

Some strategies to support relatedness need (e.g., Ahmadi et al., 2022; Haerens et al., 2015; Leo et al., 2021) are listed below (some strategies are related to the promotion of competition and autonomy, and they are not entirely discriminant):

- Be close and friendly and offer constant help to students.
- Develop adequate communication with all the students.
- Promote student–teacher and student–student relations before, during, and after classes.
- Encourage cooperative and group work.

- Perform group dynamics, role-playing, trustful activities, problem-solving.
- Improve social skills (respect turns, help among classmates...) through working in pairs, small groups, and later on, large groups.
- Variability when forming the groups, with flexibility and constant heterogeneity, during the different teaching–learning activities.
- Promote activities to develop social skills.
- Show empathy as teachers, with behaviors of nearness (e.g., concern for personal issues), kindness, and acting as facilitating agents for the achievement of all the students' objectives.
- Adopt active listening, for example, in student-led discussions.
- Promote respect for the activities, material, classmates, teachers...
- Present exemplary behavior both within and outside the educational context, favoring students' positive personalities. Even use exemplification of inappropriate behaviors that may occur during the classes as a standard scenario for reflection and debate on why such attitudes are unsuitable for the proper functioning of a group.
- Use of interrogative feedback in the different work groups promoting internal debate and the search for consensual solutions among the students of the group. That is, establish directed questions about how they are developing or trying to solve the activity.
- Avoid work situations in which a student may feel publicly exposed, for example, activities where a student competes against the rest of the class or with exemplifications of students who may feel embarrassed.
- Teacher's recognition of each group member, and especially of the cooperative and collaborative processes among the students.
- Allow all the students to achieve task success in each work group with solutions at different difficulty levels.

On the contrary, a thwarting teaching behavior toward the students' relatedness would be characterized by an absolute disregard for the group's good atmosphere, using attitudinal punishments, and expressions with a negative affective charge when the students do not meet their expectations (Reeve, 2006; Skinner et al., 2003). Next, we present some examples of a relatedness thwarting teaching behavior:

- Absolute disregard for the good atmosphere of the group.
- Use of attitudinal punishments.
- Use of expressions with a negative affective charge when students do not meet their expectations.
- Lack of interest in students' feelings and thoughts.
- Prioritize individual academic achievement by using tangible rewards that diminish feelings of collaboration and cooperation.

Class Cohesion from the Conceptual Model of Cohesion

The term group cohesion was defined (Carron et al., 1998) as an emergent state that “is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs” (p. 213). Carron et al. (1985) developed a conceptual model that states that this perception of cohesion can be related to the task—*task cohesion*—which, in the educational setting, reflects the degree to which students of a class work together to achieve common goals; or to aspects of social welfare—*social cohesion*—which reflects the degree to which students of a class empathize with each other and enjoy the group’s companionship (Carron et al., 1998). Carron et al. propose that each group member develops a perception related to the group as a whole, where students can perceive a general level of cohesion related to proximity, similarity, and their bonding within the class as a whole, called group integration. The members also develop another perception about how the group meets their personal needs and goals; that is, an individual perception about the personal motivations that attract and retain each student in the class, or group attraction. However, the ability to distinguish between the concepts of integration and attraction among the young population is somewhat unclear; that is, children and adolescents cannot differentiate the two characteristics when they try to value cohesion in different contexts. In fact, in the field of sports, several instruments have been developed to assess cohesion in children (Martin et al., 2013) and adolescents (Eys et al., 2009) without differentiating the integration and attraction factors. In the educational field, Leo et al. (2022a, 2022b, 2022c, 2022d) do not distinguish the two factors in children and adolescents.

In addition, this conceptual model of cohesion proposes a series of main antecedents that affect the development of cohesion, which could apply to the educational context. The organization and naming of these antecedents evolved from their original classification of environmental, personal, leadership, and group factors (Carron, 1982). The last update indicates factors related to individual characteristics, group structure, group environment, group processes, and other emerging states (Eys et al., 2020; see Fig. 6.2). This model is organized into three large blocks: *inputs*, *throughputs*, and *outputs*. In the educational field, *inputs* include the students’ *individual characteristics* and the *group-class environment*. *Throughputs* are made up of the *group’s structure* (teaching behaviors, motivational climate, roles ...), emerging states (*group cohesion*, *collective effectiveness* ...), and *group processes* (motivation, cooperation, communication...). Finally, *outputs* are the main consequences in the groups, such as *individual outcomes* (satisfaction, engagement, learning, or individual academic performance) and *group outcomes* (class performance).

Analyzing the *inputs*, *individual characteristics* refer to the personal factors of class members. These may apply to demographic attributes (e.g., students’ belonging to different geographical areas and the personal characteristics entailed); knowledge (e.g., each student’s degree of intelligence); behaviors (e.g., the actions carried out by each student based on the education and training received); and individual satisfaction (e.g., the students’ degree of well-being or happiness).

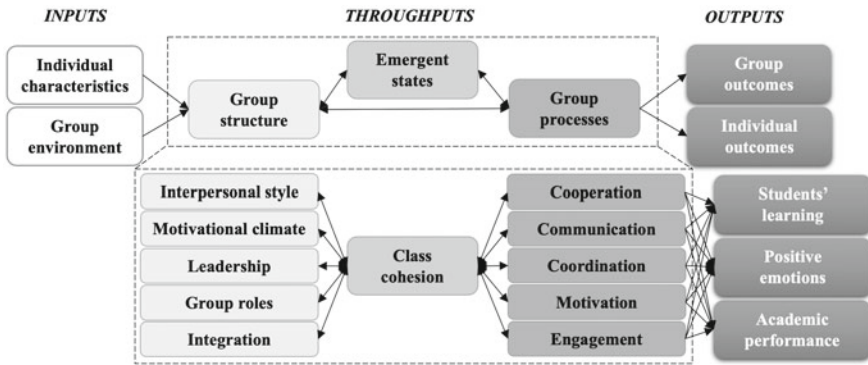


Fig. 6.2 Theoretical model for the study of groups developed by Eys et al. (2020) adapted to the educational context

On the other hand, the *group environment* is one of the most relevant aspects regarding the normative forces that hold a group together. Group environment can be determined by the number of students in a class, the stability of a class during an educational period without exchange between them, the expectations of the family, the school, and the teachers concerning the students, the limitation of centers due to the existence of geographical restrictions (e.g., populations with a single educational center). These influences can have an impact when it comes to keeping a group together, although other factors such as age, proximity, or the teacher’s or center’s demands can also play an important role. The ratio of students per class is undoubtedly one of the most relevant elements. It has been shown that groups with fewer individuals can generate more bonds (see Eys et al., 2020), the teacher can be closer to each student, and the learning processes improve. The educational level can also influence class cohesion, as there may not yet be closed groups of friends in Primary Education, and there is more interaction among all the students.

Within the **throughputs**, the *group’s structure* encompasses both teacher factors and aspects related to the students. Firstly, teaching behaviors, such as leadership, interpersonal teacher style, or the motivational climate generated by these aspects are of vital importance to generate unity and an optimal learning climate in the class. Fluid teacher–student communication about the goals to be achieved, the tasks to be done, and the function to be performed in the workgroups significantly influences cohesion. In addition, compatibility and connection between the teacher and all the students are essential to improve cohesion.

Secondly, factors related to the students will also play an important role in generating class cohesion. The informal roles established in small and large groups, the figure of the student leaders within the class, the roles of delegates and subdelegates to promote a good class atmosphere can be very relevant to keep the class united. In addition, group stability and adequate integration of new students into the class can be relevant elements (see Eys et al., 2020). All this will be associated with the rules established in class, the class’s desire for success, and the positive experiences

shared by the class, as this is relevant for the development and maintenance of class cohesion.

In relation to *emerging states*, class cohesion, class conflicts, and trust in the class to solve tasks are the most relevant. Firstly, the presence and relevance of class cohesion in the educational context have been shown previously in the chapter. Similarly, conflicts that may arise in the classroom and their management and resolution can also be decisive in generating an optimal learning environment. On the other hand, the importance of students' different interventions in class has frequently been observed but without considering their mutual collaboration and their actions with their classmates, which is what benefits the group. Therefore, Bandura (1997) states that adding the individual efficiencies of a group may be insufficient to represent the coordinative dynamics of its members. This concept, called collective efficacy, is defined by Zaccaro et al. (1995) as "a sense of collective competence shared among individuals when allocating, coordinating, and integrating their resources in a successful concerted response to specific situational demands" (p. 309). Therefore, the ability to trust and learn from peers should be considered by teachers in the teaching processes to benefit the whole class.

Group processes are the last element of the *throughputs*, referring to variables such as cooperation, intragroup communication, motivational processes, shared memory systems, or collective effort, or class engagement. Undoubtedly, the creation of a strong class cohesion can help students cooperate, improve their communicative processes, increase the group's motivation, engagement, and effort, and even generate networks of shared knowledge among the students, where each student knows who they can turn to, depending on the help or information they need (Leo et al., 2023, Leo 2022a, 2022b, 2022c, 2022d). Therefore, such group processes will improve if the levels of class cohesion are high because it will be easier to communicate, cooperate, coordinate, engage in, and be motivated by the subject. However, this relationship is bidirectional because these processes will also generate greater class cohesion; that is, improving communicative processes, motivation, cooperation, or coordination among classmates will help develop higher-class cohesion.

Finally, the *outputs* refer to the benefits that can be obtained thanks to the development of class cohesion. In this way, class performance can be improved. When a group presents strong bonds of union and the members show a predisposition to help their classmates, the group's qualities are optimized to achieve the proposed objectives. In addition, the perception of an engaged group in which most of the students make a great effort produces a collective contagion to achieve the desired objectives, generating positive emotions, and avoiding discouragement and frustration during the learning process. In addition, not only will the whole group benefit but also such benefits will be received by each of the students individually, improving their individual emotions, their learning processes, and academic performance. For instance, when students are in a cohesive group it is easier to ask for help from peers and achieve the proposed objectives, which leads to greater positive individual emotions (e.g., well-being or happiness; Blanchard et al., 2009).

Assessment of Class Cohesion in the Educational Context

Various instruments have been developed to assess cohesion, mainly focused on constructing questionnaires adapted to sports (Eys et al., 2020). Despite the extensive number of existing scales, the *Group Environment Questionnaire* (GEQ; Carron et al., 1985) has been the most used in the sports context. This instrument consists of 18 items that measure both task and social cohesion and has been adapted and validated in different languages and populations (e.g., Leo Marcos et al., 2015). However, in the educational field, there are only scales to measure the cohesion of workgroups in the university environment (Bosselut et al., 2018; Checa & Bohórquez, 2020) but not to measure class cohesion as a whole. In this regard, Leo et al. (2022a, 2022b, 2022c, 2022d) developed a scale through two research studies to measure class cohesion in Primary and Secondary Education. This instrument is based on those developed in the sports field for children and adolescents and contains 18 items, nine of which measure task cohesion and nine of social cohesion. In addition, the authors provide a short version of the scale with eight items, four representing task cohesion and four representing social cohesion. In both cases, the questionnaire is valid and reliable for measuring class cohesion at the two educational levels.

Importance of Cohesion and Investigations in the Educational Setting

Cohesion can emerge and be present in diverse ways during learning processes in the educational context (Leo et al., 2021). The class as a group has its own identity; the teacher and the students have common goals and objectives; there is interaction and continuous communication among the members because they cooperate to achieve objectives and tasks, and they are interdependent in the class activities and socially because they share experiences. Therefore, they may feel more or less integration into the class and also an interpersonal attraction to others. In addition, the students may feel task cohesion depending on how much their peers help in joint learning and achieving common learning objectives (Leo et al., 2023). They may even feel social cohesion depending on their affective relationships with their peers, their perception of group membership, and their satisfaction with the social contact with their peers. Moreover, each class can be distinguished by specific characteristics, such as the course, the letter or name that represents them, and the teacher-tutor who guides them. Therefore, the students of a class can be perceived as part of a different group (Leo et al., 2023).

Specifically, learning contexts through cooperation and help among students have been linked to better performance in academic, personal, emotional, and social variables than learning contexts characterized by individualistic or competitive learning (Gillies, 2016). Cooperative learning is structured around workgroups that share common learning goals, and it requires the students to help each other solve tasks and find solutions, which can be optimized through the cohesion of the whole class (Johnson et al., 2014). Therefore, the teacher's role in achieving optimal classroom learning environments can be decisive because they can learn strategies to develop

class cohesion to fulfill the students' common objectives. In addition, teachers can promote more shared experiences among their students (e.g., extracurricular activities, cultural outings, interschool competitions), which produces more social union in the class, and the students' self-perception as part of a different group (Leo et al., 2023). Therefore, class cohesion seems essential in the educational context to build better classes, generate positive emotions, and create optimal learning environments among peers.

Based on the conceptual model of Carron et al. (1998), most of the studies have been developed in the sports field and are very scarce in the educational context. In general, interpersonal styles supporting the basic psychological needs and task-involving motivational climates have been associated with greater group cohesion (De Backer et al., 2011; García-Calvo et al., 2014). Likewise, group cohesion has been positively related to the satisfaction of the basic psychological needs, autonomous motivation, behavioral and emotional engagement, and other positive emotions (Blanchard et al., 2009; Bosselut et al., 2020; Erikstad et al., 2018; Pacewicz et al., 2020). Specifically, in the educational field, Leo et al. (2023) developed an SDT-based study with Primary and Secondary Education students. They included cohesion as a social factor together with the support and thwarting of basic psychological needs to predict the satisfaction and frustration of needs, types of motivation, and positive and negative consequences such as emotional engagement, disruptive behaviors, and poor relationships in class. Their results showed that class task and social cohesion were positively related to the relatedness satisfaction, autonomous motivation, controlled motivation, and engagement, and negatively related to the relatedness frustration, amotivation, disruptive behaviors, and poor class relationships. In addition, class task and social cohesion were related to behavioral and emotional engagement through the satisfaction of the need for relationships and autonomous and controlled motivation. Therefore, class cohesion can produce a significant impact on students' relatedness need and motivation, which, in turn, will affect their emotional engagement and behaviors. Thus, the way teachers teach and the cohesion they generate in class can be decisive for the positive emotions in learning processes.

Practical Applications to Promote Class Cohesion in the Educational Context

The strategies and resources the teacher can perform during classes can be aimed at general aspects to consider in educational projects or programming units or at more specific aspects to be developed in activities or tasks (Leo et al., 2023). Teachers in the academic field can address the development of their own class's cohesion and each of the antecedents that can feed the perception of cohesion. In this sense, the teacher can develop group dynamics within and outside the classroom in small and large groups to encourage the students to cooperate, generating interdependent roles, functions, and responsibilities, favoring relationships that enhance peer communicative processes, and developing social skills and interactions among all the students. Specifically, teachers can develop concrete behaviors to promote task cohesion, such

as establishing common objectives to be achieved by the whole class, and individual and interdependent roles so that everyone will help everyone else and try to overcome the proposed challenges. Teachers can also perform behaviors to promote social cohesion, such as activities within and outside the classroom where all the students must interact to get to know each other better, sharing their interests, concerns, and motivations.

Below, we propose a series of strategies to promote class cohesion that teachers can use in their projects, didactic units, and class activities:

- Design objectives directly related to collaboration and cooperation among group members to achieve learning.
- Propose educational projects that must be developed within and outside school hours that involve the whole class.
- Develop knowledge activities (skills, knowledge, tastes, interests, hobbies...) among students and build trust so they can help each other at any time during the learning process.
- Perform group dynamics, problem-solving, role-playing, gamification (e.g., escape rooms in large groups) where each member plays a participatory role of a protagonist.
- Establish work guidelines where students can express their opinions, agree on common proposals, and present them to their group and the whole class in order to consider all the students' opinions.
- Promote moments where students are the main protagonists during the learning process, where each student, with their small or large group, can negotiate and decide what they want to learn.
- Design group activities where all the students can contribute ideas to design and select tasks to develop in class.
- Encourage cooperative work during classes by emphasizing communication, collaboration, and interdependence of each student's work and promoting this outside the classroom.
- Carry out projects where various activities are established in which there are continuous classmate changes between the groups established during each activity.
- Avoid excessive competition among peers or comparison of the students and encourage continuous help among them.
- Propose debates and discussions in small and large groups during the development of projects, constantly seeking the active participation of all the students.
- Propose tasks of group self-evaluations and co-evaluations among the groups as procedures of mutual help to learn, establishing moments to share and compare the evaluations in small or large groups.
- Establish moments for students to analyze their learning process, sharing it with their classmates and analyzing this process, for example, stopping in the middle of a class for the students to talk about how they are developing some activity.
- Establish a final phase of help among peers in all the individual activities when the students finish their activity.

- Include evaluation criteria that specifically mention collaboration and cooperation among group members.
- Propose evaluation processes through intrapersonal and intragroup indexes, valuing the challenges achieved by the learning processes of the student/group and not comparing students/groups with others.

Conclusions and Future Research Directions

This chapter has attempted to provide more knowledge about the importance of promoting social relationships and class cohesion, framing both variables within solid theoretical frameworks, and providing valid and reliable instruments for their assessment. We have also established clear antecedents for promoting these aspects through the existing scientific evidence in the literature and proposed teaching strategies to improve the students' relatedness satisfaction and class cohesion.

Given the importance of social and emotional processes in learning, more research should be carried out through correlational and experimental designs to verify the theoretical proposals of this chapter. First, it would be interesting to conduct studies in different educational settings, countries, and cultures to analyze the importance of class cohesion and the satisfaction of the need for relatedness in each context. Second, the assessment of these variables should continue to improve, as most current instruments employ students' perceptions. Although in many cases, this represents students' thoughts about what they feel in class (e.g., relatedness satisfaction/frustration), other teacher or class variables (e.g., interpersonal teaching style or class cohesion) could be assessed together with objective measures, observationally or through the teachers themselves.

In conclusion, teachers' interpersonal teaching style toward relatedness and the generated class cohesion can significantly impact students' motivational, emotional, and learning processes. Therefore, the way teachers teach, the strategies they develop in class, the decisions they make, and the way they relate to their students can have a significant impact on the motivations and emotions of their students, on their lives in school and on their learning throughout it.

References

- Abós, Á., Sevil-Serrano, J., Martín-Albo, J., Julián-Clemente, J. A., & García-González, L. (2018). An integrative framework to validate the Need-Supportive Teaching Style Scale (NSTSS) in secondary teachers through exploratory structural equation modeling. *Contemporary Educational Psychology, 52*, 48–60. <https://doi.org/10.1016/J.CEDPSYCH.2018.01.001>
- Adigun, O. B., Fiegenger, A. M., & Adams, C. M. (2022). Testing the relationship between a need thwarting classroom environment and student disengagement. *European Journal of Psychology of Education, 1*–15. <https://doi.org/10.1007/S10212-022-00622-Z/TABLES/2>

- Aelterman, N., Vansteenkiste, M., Haerens, L., Soenens, B., Fontaine, J. R. J., & Reeve, J. (2019). Toward an integrative and fine-grained insight in motivating and demotivating teaching styles: The merits of a circumplex approach. *Journal of Educational Psychology, 111*(3), 497–521. <https://doi.org/10.1037/edu0000293>
- Ahmadi, A., Noetel, M., Parker, P., Ryan, R., Ntoumanis, N., Reeve, J., Beauchamp, M., Dicke, T., Yeung, A., Ahmadi, M., Bartholomew, K., Chiu, T., Curran, T., Erturan, G., Flunger, B., Frederick, C., Froiland, J. M., González-Cutre, D., Haerens, L., Lonsdale, C. (2022). A classification system for teachers' motivational behaviors recommended in self-determination theory interventions. <https://doi.org/10.31234/osf.io/4vrym>.
- Assor, A., Kaplan, H., Kanat-Maymon, Y., & Roth, G. (2005). Directly controlling teacher behaviors as predictors of poor motivation and engagement in girls and boys: The role of anger and anxiety. *Learning and Instruction, 15*, 397–413. <https://doi.org/10.1016/j.learninstruc.2005.07.008>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.
- Behadnia, B., Adachi, P. J. C., Deci, E. L., & Mohammadzadeh, H. (2018). Associations between students' perceptions of physical education teachers' interpersonal styles and students' wellness, knowledge, performance, and intentions to persist at physical activity: A self-determination theory approach. *Psychology of Sport and Exercise, 39*, 10–19. <https://doi.org/10.1016/J.PSYCHSPORT.2018.07.003>
- Belmont, M., Skinner, E., Wellborn, J., & Connell, J. (1988). *Teacher as social context. A measure of student perceptions of teacher provision of involvement, structure, and autonomy support*. University of Rochester.
- Blanchard, C. M., Amiot, C. E., Perreault, S., Vallerand, R. J., & Provencher, P. (2009). Cohesiveness, coach's interpersonal style and psychological needs: Their effects on self-determination and athletes' subjective well-being. *Psychology of Sport and Exercise, 10*(5), 545–551. <https://doi.org/10.1016/j.psychsport.2009.02.005>
- Bosselut, G., Castro, O., Chevalier, S., & Fouquereau, E. (2020). Does perceived cohesion mediate the student personality–engagement relationship in the university setting? *Journal of Educational Psychology, 112*(8), 1692–1700. <https://doi.org/10.1037/edu0000442>
- Bosselut, G., Heuzé, J. P., Castro, O., Fouquereau, E., & Chevalier, S. (2018). Using exploratory structure equation modeling to validate a new measure of cohesion in the university classroom setting: The university group environment questionnaire (UGEQ). *International Journal of Educational Research, 89*, 1–9. <https://doi.org/10.1016/j.ijer.2018.03.003>
- Boyle, J. R. (2010). Strategic note-taking for middle-school students with learning disabilities in science classes. *Learning Disability Quarterly, 33*(2), 93–109. <https://doi.org/10.1177/073194871003300203>
- Carron, A. V. (1982). Cohesiveness in sport groups: Interpretations and considerations. *Journal of Sport Psychology, 4*(2), 123–138.
- Carron, A. V., Brawley, L. R., & Widmeyer, W. N. (1998). The measurement of cohesiveness in sport groups. In J. L. Duda (Ed.), *Advances in sport and exercise psychology measurement* (pp. 213–226). Fitness Information Technology.
- Carron, A., & Brawley, L. R. (2000). Cohesion conceptual and measurement issues. *Small Group Research, 31*(1), 89–106. <https://doi.org/10.1177/104649640003100105>
- Carron, A. V., Widmeyer, W., & Brawley, L. (1985). The development of an instrument to assess cohesion in sport teams: The group environment questionnaire. *Journal of Sport and Exercise Psychology, 7*(3), 244–266. <https://doi.org/10.1123/jsp.7.3.244>
- Chen, B., Vansteenkiste, M., Beyers, W., Boone, L., Deci, E. L., Van der Kaap-Deeder, J., Duriez, B., Lens, W., Matos, L., Mouratidis, A., Ryan, R. M., Sheldon, K. M., Soenens, B., Van Petegem, S., & Verstuyf, J. (2015). Basic psychological need satisfaction, need frustration, and need strength across four cultures. *Motivation and Emotion, 39*(2), 216–236. <https://doi.org/10.1007/S11031-014-9450-1/FIGURES/1>
- Cheon, S. H., Reeve, J., & Moon, I. S. (2012). Experimentally based, longitudinally designed, teacher-focused intervention to help physical education teachers be more autonomy supportive

- toward their students. *Journal of Sport and Exercise Psychology*, 34(3), 365–396. <https://doi.org/10.1123/JSEP.34.3.365>
- Chirkov, V., Ryan, R. M., Kim, Y., & Kaplan, U. (2003). Differentiating autonomy from individualism and independence: A self-determination theory perspective on internalization of cultural orientations and well-being. *Journal of Personality and Social Psychology*, 84(1), 97–110. <https://doi.org/10.1037/0022-3514.84.1.97>
- De Backer, M., Boen, F., Ceux, T., De Cuyper, B., Høigaard, R., Callens, F., ... & Broek, G. V. (2011). Do perceived justice and need support of the coach predict team identification and cohesion? Do perceived justice and need support among top volleyball and handball players in Belgium and Norway. *Psychology of Sport and Exercise*, 12(2), 192–201.
- De Meyer, J., Tallir, I. B., Soenens, B., Vansteenkiste, M., Aelterman, N., Van den Berghe, L., Speleers, L., & Haerens, L. (2014). Does observed controlling teaching behavior relate to students' motivation in physical education? *Journal of Educational Psychology*, 106(2), 541–554. <https://doi.org/10.1037/a0034399>
- DeCharms, R. C. (1968). *Personal causation: The internal affective determinants of behavior*. Academic Press.
- Deci, E. L., Nezlek, J., & Sheinman, L. (1981). Characteristics of the rewarder and intrinsic motivation of the rewardee. *Journal of Personality and Social Psychology*, 40(1), 1–10. <https://doi.org/10.1037/0022-3514.40.1.1>
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Plenum Press.
- Deci, E. L., & Ryan, R. M. (2000). The “What” and “Why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Deci, E. L., & Ryan, R. M. (2014). Autonomy and need satisfaction in close relationships: Relationships motivation theory. In N. Weinstein (Ed.), *Human motivation and interpersonal relationships* (pp. 53–73). Springer.
- Erikstad, M. K., Martin, L. J., Haugen, T., & Høigaard, R. (2018). Group cohesion, needs satisfaction, and self-regulated learning: A one-year prospective study of elite youth soccer players' perceptions of their club team. *Psychology of Sport and Exercise*, 39, 171–178. <https://doi.org/10.1016/j.psychsport.2018.08.013>
- Eys, M., Evans, B., & Benson, A. (2020). *Group dynamics in sport* (5a Edn). FiT Publishing.
- Eys, M., Loughhead, T., Bray, S. R., & Carron, A. V. (2009). Development of a cohesion questionnaire for youth: The Youth Sport Environment Questionnaire. *Journal of Sport and Exercise Psychology*, 31(3), 390–408. <https://doi.org/10.1123/jsep.31.3.390>
- Flink, C., Boggiano, A. K., & Barrett, M. (1990). Controlling teaching strategies: Undermining children's self-determination and performance. *Journal of Personality and Social Psychology*, 59, 916–924. <https://doi.org/10.1037//0022-3514.59.5.916>
- Forrester, W. R., & Tashchian, A. (2006). Modeling the relationship between cohesion and performance in student work groups. *International Journal of Management*, 23(3), 458–464.
- García-Calvo, T., Leo, F. M., Gonzalez-Ponce, I., Sánchez-Miguel, P. A., Mouratidis, A., & Ntoumanis, N. (2014). Perceived coach-created and peer-created motivational climates and their associations with team cohesion and athlete satisfaction: Evidence from a longitudinal study. *Journal of Sports Sciences*, 32(18), 1738–1750.
- Gillies, R. M. (2016). Cooperative learning: Review of research and practice. *Australian Journal of Teacher Education (Online)*, 41(3), 39–54.
- Guiffrida, D., Gouveia, A., Wall, A., & Seward, D. (2008). Development and validation of the Need for Relatedness at College Questionnaire (NRC-Q). *Journal of Diversity in Higher Education*, 1(4), 251–261. <https://doi.org/10.1037/a0014051>
- Haerens, L., Aelterman, N., Van den Berghe, L., De Meyer, J., Soenens, B., & Vansteenkiste, M. (2013). Observing physical education teachers' need-supportive interactions in classroom settings. *Journal of Sport and Exercise Psychology*, 35(1), 3–17. <https://doi.org/10.1123/jsep.35.1.3>

- Haerens, L., Aelterman, N., Vansteenkiste, M., Soenens, B., & Van Petegem, S. (2015). Do perceived autonomy-supportive and controlling teaching relate to physical education students' motivational experiences through unique pathways? Distinguishing between the bright and dark side of motivation. *Psychology of Sport and Exercise*, 16(3), 26–36. <https://doi.org/10.1016/j.psychsport.2014.08.013>
- Harlow, H. F. (1953). Motivation as a factor in the acquisition of new responses. In M. R. Jones (Ed.), *Current theory and research on motivation* (pp. 24–49). University of Nebraska Press.
- Harter, S. (1981). A new self-report scale of intrinsic versus extrinsic orientation in the classroom: Motivational and informational components. *Developmental Psychology*, 17(3), 300–312. <https://doi.org/10.1037/0012-1649.17.3.300>
- Hein, V., Koka, A., & Hagger, M. S. (2015). Relationships between perceived teachers' controlling behavior, psychological need thwarting, anger and bullying behavior in high-school students. *Journal of Adolescence*, 42, 103–114. <https://doi.org/10.1016/j.adolescence.2015.04.003>
- Jang, H., Kim, E. J., & Reeve, J. (2016). Why students become more engaged or more disengaged during the semester: A self-determination theory dual-process model. *Learning and Instruction*, 43, 27–38. <https://doi.org/10.1016/J.LEARNINSTRUC.2016.01.002>
- Jang, H., Reeve, J., & Deci, E. L. (2010). Engaging students in learning activities: It is not autonomy support or structure but autonomy support and structure. *Journal of Educational Psychology*, 102(3), 588–600. <https://doi.org/10.1037/a0019682>
- Johnson, D. W., & Johnson, R. T. (2014). Cooperative learning in 21st century. *Anales de Psicología*, 30(3), 841–851.
- Johnson, D. W., Johnson, R. T., Roseth, C., & Shin, T. S. (2014). The relationship between motivation and achievement in interdependent situations. *Journal of Applied Social Psychology*, 44(9), 622–633.
- Kasser, T. (2002). *The high price of materialism*. MIT Press.
- Leo, F. M., Behzadnia, B., López-Gajardo, M. A., Batista, M., & Pulido, J. J. (2022). What kind of interpersonal teaching style of need-supportive or need-thwarting is more associated with positive consequences in physical education? *Journal of Teaching in Physical Education*. <https://doi.org/10.1123/jtpe.2022-0040>.
- Leo, F. M., González-Ponce, I., Sánchez-Oliva, D., Pulido, J. J., & García-Calvo, T. (2015). Adaptation and validation in Spanish of the group environment questionnaire (GEQ) with professional football players. *Psicothema*, 27(3), 261–268.
- Leo, F. M., Mouratidis, A., Pulido, J. J., López-Gajardo, M. A., & Sánchez-Oliva, D. (2022). Perceived teachers' behavior and students' engagement in physical education: The mediating role of basic psychological needs and self-determined motivation. *Physical Education and Sport Pedagogy*, 1–18. <https://doi.org/10.1080/17408989.2020.1850667>
- Leo, F. M., Fernández-Río, J., Pulido, J. J., Rodríguez-González, P., & López-Gajardo, M. A. (2022b). Assessing class cohesion in primary and secondary education: Development and preliminary validation of the class cohesion questionnaire (CCQ). *Social Psychology of Education*. <https://doi.org/10.1007/s11218-022-09738-y>
- Leo, F. M., López-Gajardo, M. A., Fernández-Río, J., & Pulido, J. J. (2021). Development of cohesion and social relations in class to optimize motivation and involvement in physical education. In L. García-González (Ed.), *How to motivate in physical education* (pp. 131–145). University of Zaragoza.
- Leo, F. M., López-Gajardo, M. A., Rodríguez-González, P., Pulido, J. J., & Fernández-Río, J. (2023). How class cohesion and teachers' relatedness support/thwarting style relate to students' relatedness, motivation, and positive and negative outcomes in physical education. *Psychology of Sport and Exercise*, 65, 102360. <https://doi.org/10.1016/j.psychsport.2022.102360>
- Leo, F. M., Pulido, J. J., Sánchez-Oliva, D., López-Gajardo, M. A., & Mouratidis, A. (2022d). See the forest by looking at the trees: Physical education teachers' interpersonal style profiles and students' engagement. *European Physical Education Review*, 28(3), 720–738. <https://doi.org/10.1177/1356336X221075501>

- Leo Marcos, F., A Sánchez-Miguel, P., Sánchez-Oliva, D., Amado, D., & García-Calvo, T. (2015). Motivational climate created by other significant actors and antisocial behaviors in youth sport. *Kinesiology*, *47*(1), 3–10.
- Martin, L. J., Carron, A. V., Eys, M. A., & Loughead, T. (2013). Validation of the child sport cohesion questionnaire. *Measurement in Physical Education and Exercise Science*, *17*(2), 105–119. <https://doi.org/10.1080/1091367X.2013.761023>
- Mathieu, J. E., Kukenberger, M. R., D’Innocenzo, L., & Reilly, G. (2015). Modeling reciprocal team cohesion–performance relationships, as impacted by shared leadership and members’ competence. *Journal of Applied Psychology*, *100*(3), 713–734. <https://doi.org/10.1037/a0038898>
- Mouratidis, A., Vansteenkiste, M., Michou, A., & Lens, W. (2013). Perceived structure and achievement goals as predictors of students’ self-regulated learning and affect and the mediating role of competence need satisfaction. *Learning and Individual Differences*, *23*(1), 179–186. <https://doi.org/10.1016/J.LINDIF.2012.09.001>
- Mouratidis, A., Vansteenkiste, M., Sideridis, G., & Lens, W. (2011). Vitality and interest–enjoyment as a function of class-to-class variation in need-supportive teaching and pupils’ autonomous motivation. *Journal of Educational Psychology*, *103*(2), 353–366. <https://doi.org/10.1037/a0022773>
- Ntoumanis, N. (2001). A self-determination approach to the understanding of motivation in physical education. *British Journal of Educational Psychology*, *71*(2), 225–242. <https://doi.org/10.1348/000709901158497>
- Pacewicz, C. E., Smith, A. L., & Raedeke, T. D. (2020). Group cohesion and relatedness as predictors of self-determined motivation and burnout in adolescent female athletes. *Psychology of Sport and Exercise*, *50*, 101709. <https://doi.org/10.1016/j.psychsport.2020.101709>
- Reeve, J. (2012). A self-determination theory perspective on student engagement. In C. W. S. L. Christenson, A. L. Reschly (Eds.), *Handbook of research on student engagement* (pp. 149–172). Springer.
- Reeve, J. (2006). Teachers as facilitators: What autonomy-supportive teachers do and why their students benefit. *The Elementary School Journal*, *106*(3), 225–236. <https://doi.org/10.1086/501484>
- Reeve, J. (2013). How students create motivationally supportive learning environments for themselves: The concept of agentic engagement. *Journal of Educational Psychology*, *105*(3), 579–595. <https://doi.org/10.1037/a0032690>
- Reeve, J., & Tseng, C.-M. (2011). Cortisol reactivity to a teacher’s motivating style: The biology of being controlled versus supporting autonomy. *Motivation and Emotion*, *35*, 63–74. <https://doi.org/10.1007/s11031-011-9204-2>
- Richer, S. F., & Vallerand, R. J. (1998). Construction et validation de l’échelle du sentiment d’appartenance sociale (ÉSAS). *European Review of Applied Psychology*, *48*(2), 129–138.
- Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology*, *57*(5), 749–761. <https://doi.org/10.1037/0022-3514.57.5.749>.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford.
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, *61*, 101860. <https://doi.org/10.1016/j.cedpsych.2020.101860>
- Seethamraju, R., & Borman, M. (2009). Influence of group formation choices on academic performance. *Assessment & Evaluation in Higher Education*, *34*(1), 31–40. <https://doi.org/10.1080/02602930801895679>
- Sierens, E., Vansteenkiste, M., Goossens, L., Soenens, B., & Dochy, F. (2009). The synergistic relationship of perceived autonomy support and structure in the prediction of self-regulated learning. *British Journal of Educational Psychology*, *79*(1), 57–68. <https://doi.org/10.1348/000709908X304398>

- Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for classifying ways of coping. *Psychological Bulletin*, *129*(2), 216–269. <https://doi.org/10.1037/0033-2909.129.2.216>
- Skinner, E. A., Zimmer-Gembeck, M. J., Connell, J. P., Eccles, J. S., & Wellborn, J. G. (1998). Individual differences and the development of perceived control. *Monographs of the Society for Research in Child Development*, *63*(2), 234. <https://doi.org/10.2307/1166220>
- Sparks, C., Dimmock, J., Lonsdale, C., & Jackson, B. (2016). Modeling indicators and outcomes of students' perceived teacher relatedness support in high school physical education. *Psychology of Sport and Exercise*, *26*, 71–82. <https://doi.org/10.1016/J.PSYCHSPORT.2016.06.004>
- Sparks, C., Dimmock, J., Whipp, P., Lonsdale, C., & Jackson, B. (2015). "Getting connected": High school physical education teacher behaviors that facilitate students' relatedness support perceptions. *Sport, Exercise, and Performance Psychology*, *4*(3), 219–236. <https://doi.org/10.1037/spy0000039>
- Sparks, C., Lonsdale, C., Dimmock, J., & Jackson, B. (2017). An Intervention to improve teachers' interpersonally involving instructional practices in high school physical education: Implications for student relatedness support and in-class experiences. *Journal of Sport and Exercise Psychology*, *39*(2), 120–133. <https://doi.org/10.1123/jsep.2016-0198>
- Tapia, J. A., & Fernández-Heredia, B. (2008). Development and initial validation of the classroom motivational climate questionnaire (CMCQ). *Psicothema*, *20*(4), 883–889. <https://doi.org/10.1037/t68451-000>
- Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. In M. Zanna (Ed.), *Advances in experimental social psychology* (pp. 271–360). Academic Press.
- Vallerand, R. J., & Rousseau, F. L. (2001). Intrinsic and extrinsic motivation in sport and exercise: A review using the hierarchical model of intrinsic and extrinsic motivation. In R. N. Singer, H. A. Hausenblas, & C. M. Janelle (Eds.), *Handbook of sport psychology* (2a ed., pp. 389–416). John Wiley & Sons.
- Van den Berghe, L., Soenens, B., Vansteenkiste, M., Aelterman, N., Cardon, G., Tallir, I. B., & Haerens, L. (2013). Observed need-supportive and need-thwarting teaching behavior in physical education: Do teachers' motivational orientations matter? *Psychology of Sport and Exercise*, *14*(5), 650–661. <https://doi.org/10.1016/J.PSYCHSPORT.2013.04.006>
- Vansteenkiste, M., Lens, W., & Deci, E. L. (2010a). Intrinsic versus extrinsic goal contents in self-determination theory: Another look at the quality of academic motivation. *Educational Psychologist*, *41*(1), 19–31. https://doi.org/10.1207/S15326985EP4101_4
- Vansteenkiste, M., Niemiec, C. P., & Soenens, B. (2010b). The development of the five mini-theories of self-determination theory: An historical overview, emerging trends, and future directions. *Advances in Motivation and Achievement*, *16*, 105–165. [https://doi.org/10.1108/S0749-7423\(2010\)000016A007/FULL/XML](https://doi.org/10.1108/S0749-7423(2010)000016A007/FULL/XML)
- Vansteenkiste, M., & Ryan, R. M. (2013). On psychological growth and vulnerability: Basic psychological need satisfaction and need frustration as a unifying principle. *Journal of Psychotherapy Integration*, *23*(3), 263–280. <https://doi.org/10.1037/a0032359>
- Vasconcellos, D., Parker, P. D., Hilland, T., Cinelli, R., Owen, K. B., Kapsal, N., Lee, J., Antczak, D., & Ntoumanis, N. (2020). Self-determination theory applied to physical education: A systematic review and meta-analysis. *Journal of Educational Psychology*, *112*(7), 1444–1469. <https://doi.org/10.1037/edu0000420>
- White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review*, *66*(5), 297–333. <https://doi.org/10.1037/h0040934>
- Zaccaro, S. J., Blair, V., Peterson, C., & Zazanis, M. (1995). *Collective efficacy, Self-efficacy, adaptation, and adjustment*. Springer.
- Zamarrípa, J., Rodríguez-Medellín, R., Pérez-García, J. A., Otero-Saborido, F., & Delgado, M. (2020). Mexican basic psychological need satisfaction and frustration scale in physical education. *Frontiers in Psychology*, *11*, 1–8. <https://doi.org/10.3389/FPSYG.2020.00253/BIBTEX>

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Chapter 7

The Basic Psychological Need Satisfaction and Frustration, and Emotional Well-Being of Young At-Risk and Non-at-Risk Students in Singapore



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Abstract Students who are considered at-risk are usually described as having high probability to experience educational failure. They tend to slip far behind their peers, which may eventually lead to dropping out of school. These students tend to come from low-socioeconomic backgrounds or experience low parental involvement in the educational process and life in general. These students are likely to have family problems and personal issues resulting in poor academic performance and low well-being. This study underscores the importance of supporting the healthy development of children. In promoting children's well-being, we draw on the Basic Psychological Need Theory, which is one of the six mini-theories within Self-Determination Theory. The Basic Psychological Need Theory postulates that competence, autonomy, and relatedness are essential needs, which when supported, is likely to result in adaptive outcomes, such as high well-being. In contrast, the frustration of these needs represents threatening experiences that may reduce well-being. This study aims to compare the emotional well-being, as well as the basic psychological needs satisfaction and frustration of at-risk primary school students, with their peers identified as non-at-risk. The results of the study will be useful in raising awareness of the similarities and differences between these groups of students in terms of their basic psychological needs and emotional well-being, so that school programs can be tailored to meet student needs more effectively.

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Introduction

Students who are considered at-risk are usually described as having high probability to experience educational failure, slip far behind their peers, which may eventually lead to them dropping out of school prematurely (Kaufman et al., 1992). They are at-risk of experiencing negative outcomes due to their life circumstances. According to Kaufman et al. (1992), these circumstances may include coming from low-socioeconomic backgrounds, experiencing low level of parental or adult involvement and guidance, living in unhealthy home environments, and suffering from neglect, abuse, and violence. These circumstances may adversely affect their development and well-being, and lead to low school attendance and poor academic performance (Fortin et al., 2006).

As this study took place in a primary school in Singapore, our research team interviewed the school principal to enquire about the selection process and characteristics of the at-risk students in the school. The research team was informed that the at-risk students were identified using a set of rubrics that detailed the risk factors and guidelines provided by the Ministry of Education (MOE) in Singapore. The characteristics of these at-risk students, as described by the school, included having poor attendance rates, low academic performance, and exhibiting behavioral issues. These students also tend to have high emotional needs and come from struggling families (e.g., dysfunctional, permissive, and neglectful). Schools are expected to provide these students with the support that they need, to enhance their well-being and reduce the risk of them leaving the school system prematurely.

This study seeks to examine emotional well-being and basic psychological needs in at-risk and non-at-risk children. Using the Basic Psychological Need Theory (Ryan & Deci, 2017) as a framework, this study compares at-risk versus non-at-risk children in terms of the satisfaction and frustration of three basic psychological needs, namely competence, autonomy, and relatedness, and their emotional well-being. The similarities and differences between at-risk and non-at-risk children are useful to inform teachers how they can enhance students' emotional well-being and meet students' basic psychological needs.

Self-determination Theory

The Basic Psychological Need Theory, which is one of the six mini-theories within Self-Determination Theory (SDT; Ryan & Deci, 2017), postulates competence, autonomy, and relatedness as essential human needs. Competence refers to one's feeling of being capable and effective in carrying out tasks and achieving goals, rather than feeling inadequate to accomplish desired outcomes (Niemiec & Ryan, 2009). Autonomy is about having one's action to be self-determined and volitional (Deci & Ryan, 1985), as opposed to feeling pressured or coerced to act or behave in a certain way (Ryan et al., 2016). A high sense of autonomy is associated with actions that are

driven by self-endorsed choices. Relatedness is about being connected to others and having meaningful and caring relationships, rather than being ostracized or left out (Deci & Ryan, 2000). Collectively, these needs provide the nutrients for optimal functioning and well-being (Deci & Ryan, 2000). One of the postulates of the theory is that the influence of each need on well-being is independent of each other and that the effects of ones' action on well-being can be traced to the satisfaction of such needs (Ryan, 2009). According to the proponents of the Basic Psychological Need Theory, these three needs are universal: It means that their association with well-being and adaptive functioning tend to apply across different cultural contexts and stage of development (Ryan, 2009). The theory is a useful framework to describe the contextual conditions that promote optimization in performance and development, including well-being (Deci & Ryan, 2008).

Basic Psychological Need Satisfaction and Frustration in Children

Myriad studies have documented how need satisfaction can serve as a mediator that serves as a mechanism for contextual factors the influence outcomes in various domains. Research on Basic Psychological Needs Theory shows that when these needs are supported, it will result in optimal outcomes such as high well-being (Tay & Diener, 2011). In contrast, the frustration of these needs represents threatening experiences that will result in low well-being. Reducing need frustration and increasing the levels of needs satisfaction can help children, including at-risk students, to enhance their well-being, which can lead to improvements of functioning in other areas of their lives (Ryan & Deci, 2017). Although much research has been done on the basic psychological need satisfaction and frustration of students (Abidin et al., 2022; Vansteenkiste et al., 2020), most did not make comparisons between the at-risk and non-at-risk children and study the association of each construct with emotional well-being; an essential dimension of well-being responsible for the positive development of children. Studies of this nature are important to know which needs are particularly thwarted by harsh conditions in the lives of at-risk students and utilize such information to formulate targeted approaches that may reduce these students' propensity to develop maladaptive outcomes. The present chapter serves as a supplement to the sparse body of knowledge linking need satisfaction with well-being of children, including those facing various risk factors.

Supporting students' basic psychological needs is positively associated with various markers of well-being, such as life satisfaction and psychological well-being (Ryan & Deci, 2017); in contrast, the thwarting of students' basic needs is associated with ill-being, such as psychological distress (Vansteenkiste & Ryan, 2013). Supporting the need for competence, autonomy, and relatedness is important for all children, especially for at-risk students. For example, at-risk students

may have limited opportunities to optimize their potential and develop their competencies compared to their non-at-risk peers (Keys et al., 1998), thereby averting the fulfillment of their need for competence. Due to difficult circumstances, at-risk students may have limited autonomy and lack control over their lives (Hao et al., 2020), thwarting their need for autonomy. As having dysfunctional families usually emerge as a common profile of at-risk students (Cox & Sagor, 2013), there is high chance for these students to have negative models of relationships, which may prevent them from establishing positive connections outside of their homes. Thus, satisfying at-risk students' need for relatedness may be difficult to achieve. There is a need to investigate the need satisfaction for the young students in Singapore, especially for at-risk students, to see if interventions need to be school-wide or just focusing on at-risk students. However, quantitative studies which compare the need satisfaction of at-risk students with their non-at-risk peers are scarce; this study attempts to supplement this nascent research area. Comparing the two groups of students can help us better understand the students to see if resources need to be provided for all students or tailored specifically for at-risk students. For example, if the basic need satisfaction of at-risk students is not being met at home, it is essential for the school to create a safe environment to fulfill the basic psychological needs of these students to improve their adjustment to life and school challenges and boost their well-being.

In contrast to need satisfaction, need frustration occurs when the psychological needs are thwarted (Ryan et al., 2016; Vansteenkiste & Ryan, 2013). SDT suggests that it is important to distinguish between the experience of need satisfaction and need frustration because they are rooted in distinct social experiences and they have different effects on students' psychosocial outcomes, including well-being (Vansteenkiste & Ryan, 2013). The frustration of the need for competence describes feelings of incompetence; the frustration of the need for relatedness describes feelings of rejection and loneliness (Ryan, 1995); and the frustration of the need for autonomy describes feeling controlled by others (Deci & Ryan, 1985). The frustration of the psychological needs for autonomy, competence, and relatedness can lead to maladjustment and ill-being (Vansteenkiste & Ryan, 2013). Of the three needs, finding from a qualitative study studies suggest that among at-risk youths, the need frustration of relatedness was experienced more than the need frustration of competence and autonomy (Nagpaul & Chen, 2019). To our knowledge, no study has focused on comparing at-risk versus non-at-risk students in terms of the frustration of their psychological needs and this study aims to address this gap.

Emotional Well-Being of Children

Education researchers have paid little attention to the study of well-being in children (Huebner et al., 2014). This is likely due to an overemphasis on psychopathology and behavioral problems, as well as student academic outcomes (e.g., academic achievement) that, ironically, impact students' future well-being. However, with the global decline in students' subjective well-being as an increasing concern (Marquez & Long,

2021), more education researchers, practitioners, and policymakers have begun to espouse view that “happiness should be an aim of education, and a good education should contribute significantly to personal and collective happiness” (Noddings, 2003, p. 1).

Well-being is a complex construct that concerns one’s optimal functioning and experiences. There are generally two traditions in the study of well-being, namely the *hedonistic* tradition and the *eudaimonic* tradition (Ryan & Deci, 2017). The hedonistic tradition focuses on a person’s *emotional well-being*, or presence of positive affect and absence of negative affect; in contrast, the *eudaimonic* tradition focuses on the actualization of a person’s potentials and living life in a meaningful way. In this book chapter, we will mainly adopt the hedonistic approach and examine students’ emotional well-being, as children, relative to adolescents, are more likely to conceive well-being in hedonic (e.g., positive feelings) as opposed to eudaimonic terms (López-Pérez et al., 2016), since hedonic conceptions of well-being is more concrete and less abstract for young children to understand.

Emotional well-being is part of hedonic well-being and refers to one’s perceptions of happiness and interest in and satisfaction with life (Keyes, 2006). Emotional well-being is a building block for children’s overall well-being. It is important for the development and overall health of children and can have a significant impact on their quality of life. Research has shown that good emotional well-being positively affects the physical and mental health of children (Tillmann et al., 2018). According to the annual report by the National Institute for Health and Clinical Excellence (2009), good emotional well-being could protect children against future issues such as emotional and behavioral problems, delinquency, premature school drop-out and a life of violence and crime (see also Gavriel-Fried & Ronen, 2016; Stifter et al., 2020). Emotional well-being also helps children to cope with stress and demanding situations and develop resilience because they promote flexible thinking (Fredrickson, 2001) and facilitate both adaptive coping (Folkman & Moskowitz, 2000) and the maintenance of social relationships (Shiota et al., 2004). Furthermore, it was reported that the emotional well-being of children is one of the strongest predictor of life satisfaction in adulthood (Flèche et al., 2018). Therefore, it is especially important to study the emotional well-being of at-risk students who face life challenges regularly.

The Present Study

Emotional well-being is important to children because it is a key factor in their overall health and development (Tillmann et al., 2018). SDT suggests that meeting one’s basic psychological needs is important for emotional well-being (Ryan & Deci, 2017). While basic psychological need satisfaction and frustration have been examined in relation to emotional well-being in the literature, most of these studies focused on adolescents (Abidin et al., 2022). Studies on children, especially at-risk students, are limited. In response to this research gap, the present study aimed to

(a) investigate the relations between emotional well-being and basic psychological need satisfaction and frustration of children from a Singapore primary school, and (b) examine whether at-risk and non-at-risk children in the school differed in their emotional well-being and basic psychological need satisfaction and frustration. The comparison will be useful for primary schools to know the similarities and differences between these groups of children in terms of their basic psychological needs and emotional well-being for the purpose of tailoring school program accordingly. Based on the literature review, we hypothesized that the at-risk children would have significantly lower emotional well-being, need satisfaction and significantly higher need frustration than their non-at-risk peers.

Method

Participants and Procedures

The participants in the study were 313 students from a primary school in Singapore. They were aged between 10 and 12 years old (i.e., Grades four, five, and six). Of these students, 27 students (18 males and 9 females) were identified as at-risk, and the remaining 286 students (142 males and 144 females) were identified as non-at-risk. According to the school, the at-risk students were from unstable or dysfunctional families and their characteristics include poor attendance and behavioral issues. Informed assent and consent were obtained from the students and their parents/guardians respectively to participate in the study. Permission was sought and granted by the primary school's principal and teachers to conduct data collection in the school. Approval to conduct the study in the primary school was granted by the Ministry of Education in Singapore. Ethics approval for the study was also granted by the Institutional Review Board of Nanyang Technological University. The participants completed an online questionnaire in the school computer lab during curriculum time in the presence of a teacher who explained to them the rationale of the survey and instructions on how to complete the questionnaire. Students provided their demographic information and rated their emotional wellbeing as well as their basic psychological need satisfaction and frustration on a Likert scale. The survey was administered after the school examination period, two weeks before the students' year-end school holidays.

Measures

Emotional Well-Being

Emotional well-being was measured using the emotional well-being subscale of the Mental Health Continuum-Short Form (MHC-SF; Keyes, 2006). The subscale has three items (e.g., “during the past month, how often did you feel interested in life”; $\alpha = 0.81$), each measured on a 6-point Likert scale (0 = *Never* to 5 = *Every day*). Principal axis factoring (PAF) with direct oblimin rotation was performed to ensure the factorial validity of the items. A one-factor solution was extracted, with 73.2% of the variance explained and all factor loadings were above 0.70.

Basic Psychological Need Satisfaction and Frustration

Basic psychological need satisfaction and frustration were measured using the basic psychological need satisfaction and need frustration scale (BPNSNF; Chen et al., 2015). There were 24 items that measured six subscales—autonomy satisfaction (e.g., “I feel free to choose which activities I do”; $\alpha = 0.82$), autonomy frustration (e.g., “I feel pressured to do too many things”; $\alpha = 0.75$), relatedness satisfaction (e.g., “I feel close to the people I care about”; $\alpha = 0.77$), relatedness frustration (e.g., “The people I spend time with don’t like me”; $\alpha = 0.83$), competence satisfaction (e.g., “I can do things well”; $\alpha = 0.84$), and competence frustration (e.g., “I am often uncertain about whether I’m good at things”; $\alpha = 0.76$). The items were measured on a 6-point Likert scale (1 = *Strongly Disagree* to 6 = *Strongly Agree*). Confirmatory factor analysis was conducted with six latent factors. All factor loadings were significant at $p < 0.001$ and the six-factor model had a good fit to the data: $\chi^2(237) = 529.32$, $p < 0.001$; CFI = 0.91; TLI = 0.90; RMSEA = 0.06; SRMR = 0.06.

Statistical Analysis

Prior to the main analyses, reliability analysis, exploratory factor analysis, and confirmatory factor analysis were conducted to ensure that the measures were both internally consistent and factorially valid (see the measures section). Next, to examine the association between the variables of interest, Pearson bivariate correlation analyses were performed on not only the full sample, but also separately on the at-risk and non-at-risk students subsamples. Finally, Welch’s *t*-test was used to examine if the at-risk and non-at-risk students differed in their emotional well-being and basic psychological need satisfaction and frustration. Note that Welch’s *t*-test was used instead of Student’s *t*-test because the former has better error rates when sample

sizes and variances are unequal between groups (Delacre et al., 2017). The confirmatory factor analysis was conducted using *R* whereas the remaining analyses were conducted using the Statistical Package for the Social Sciences (SPSS).

Results

Descriptive Statistics

The descriptive statistics and bivariate correlation among all the study variables were shown in Tables 7.1 and 7.2, respectively. Consistent with expectation based on theory, the correlation analysis that is based on the full sample showed that emotional well-being was positively correlated with need satisfaction and negatively correlated with need frustration. Autonomy, relatedness, and competence satisfaction were positively correlated with one another. Likewise, autonomy, relatedness, and competence frustration were positively correlated with one another. While satisfaction and frustration of the same type of need (e.g., autonomy satisfaction and autonomy frustration) were negatively correlated, satisfaction, and frustration of the different types of need (e.g., autonomy satisfaction and relatedness frustration) were not significantly correlated.

We then conducted separate correlation analyses for at-risk ($n = 27$) and non-at-risk students ($n = 286$). As shown in Tables 7.3 and 7.4, there were some notable similarities and differences between at-risk and non-at-risk students in the correlation results. For starters, students' emotional well-being was positively associated with autonomy, relatedness, and competence need satisfaction for both at-risk and non-at-risk students. On the other hand, emotional well-being was negatively correlated with need frustration for non-at-risk students, but it did not significantly correlate with need frustration for at-risk students. Finally, need satisfaction and frustration of the same domain were negatively correlated for non-at-risk students. Contrastingly,

Table 7.1 Descriptive statistics of study variables for at-risk and non-at-risk students

Variable	At-risk ($n = 27$)		Non-at-risk ($n = 286$)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Emotional well-being	2.63	1.44	3.18	1.21
Autonomy satisfaction	4.73	1.32	4.48	1.05
Autonomy frustration	4.47	1.14	3.85	1.11
Relatedness satisfaction	4.69	1.29	4.69	0.87
Relatedness frustration	3.95	1.44	2.91	1.28
Competence satisfaction	4.41	1.20	4.17	1.06
Competence frustration	4.04	1.31	3.76	1.19

Table 7.2 Pearson correlation among study variables ($N = 313$)

	Variable	1	2	3	4	5	6	7
1	Emotional well-being	–						
2	Autonomy satisfaction	0.43***	–					
3	Autonomy frustration	– 0.35***	– 0.14*	–				
4	Relatedness satisfaction	0.45***	0.59***	– 0.06	–			
5	Relatedness frustration	– 0.30***	– 0.04	0.58***	– 0.25***	–		
6	Competence satisfaction	0.48***	0.62***	– 0.09	0.48***	– 0.05	–	
7	Competence frustration	– 0.33***	– 0.07	0.65***	– 0.11	0.65***	– 0.20***	–

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 7.3 Pearson correlation among study variables for at-risk student ($N = 27$)

	Variable	1	2	3	4	5	6	7
1	Emotional well-being	–						
2	Autonomy satisfaction	0.57**	–					
3	Autonomy frustration	0.12	0.39*	–				
4	Relatedness satisfaction	0.50**	0.69***	0.53**	–			
5	Relatedness frustration	0.06	0.11	0.72***	0.30	–		
6	Competence satisfaction	0.49*	0.86***	0.49**	0.67***	0.23	–	
7	Competence frustration	– 0.03	– 0.01	0.65***	0.29	0.87***	0.12	–

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

they were either non-significantly correlated (for relatedness and competence) or positively correlated (for autonomy) among at-risk students.

Comparison Between At-Risk and Non-at-Risk Students

To examine if at-risk and non-at-risk students differ in their well-being and basic psychological need satisfaction and frustration, a series of Welch’s t -test was performed. The results showed that at-risk students reported significantly lower levels of emotional well-being than non-at-risk students, $t(29.58) = -1.93, p < 0.05$. Likewise, as compared to their non-at-risk peers, at-risk students reported significantly

Table 7.4 Pearson correlation among study variables for non-at-risk student ($N = 286$)

	Variable	1	2	3	4	5	6	7
1	Emotional well-being	–						
2	Autonomy satisfaction	0.43***	–					
3	Autonomy frustration	– 0.39***	– 0.21***	–				
4	Relatedness satisfaction	0.45***	0.57***	– 0.15*	–			
5	Relatedness frustration	– 0.33***	– 0.08	0.55***	– 0.34***	–		
6	Competence satisfaction	0.49***	0.58***	– 0.16**	0.46***	– 0.10	–	
7	Competence frustration	– 0.36***	– 0.08	0.65***	– 0.17**	0.63***	– 0.24***	–

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

higher levels of autonomy frustration, $t(30.82) = 2.70$, $p < 0.01$, as well as relatedness frustration, $t(30.05) = 3.63$, $p < 0.001$. Both at-risk and non-at-risk students did not significantly differ in the other study variables.

Discussion

The present study examined (a) the correlations among students' emotional well-being, basic psychological need satisfaction, and frustration, and (b) whether at-risk and non-at-risk students differed in these variables of interest. For the correlation analysis on the full sample (see Table 7.2), we found that emotional well-being was positively correlated with need satisfaction and negatively correlated with need frustration. However, upon closer inspection, it was revealed that the correlations between emotional well-being and need frustration were not statistically significant among at-risk students (see Table 7.3). The non-significant correlation could be due to low statistical power as there were less than 30 at-risk students in the sample. Alternatively, it could be because need frustration is more related to ill-being (e.g., negative emotion) than well-being for the at-risk students. Indeed, the SDT on need satisfaction and need frustration (Vansteenkiste & Ryan, 2013) suggests that there are two pathways toward wellness, with need satisfaction being the primary factor leading to well-being and need frustration being the primary factor leading to ill-being (see Longo et al., 2016; Rodríguez-Meirinhos et al., 2020). Given the life circumstances that they face (Fortin et al., 2006; Kaufman et al., 1992), at-risk students are more vulnerable to ill-being, and this could make the two pathways to be more pronounced

for this population group. Nevertheless, as ill-being was not measured in this study, more research is required to ascertain this speculation.

It is also noteworthy that, for at-risk students, need satisfaction and frustration of the same domain were either positively or non-significantly correlated with one another. As discussed later, one likely explanation for this finding is that, unlike non-at-risk students, at-risk students tend to score high on both need satisfaction and frustration. This contradicts the assumption that “need frustration by definition involves low need satisfaction” (Vansteenkiste & Ryan, 2013, p. 265). Nevertheless, having a profile of high need satisfaction and frustration is not unheard of (e.g., Rodrigues et al., 2021; Rouse et al., 2020), though more studies are required to understand what it means to be simultaneously satisfied and frustrated in one’s needs.

Next, we compared the emotional well-being of at-risk and non-at-risk students. Consistent with our hypothesis, at-risk students reported that they experienced positive emotions less frequently than their non-at-risk counterparts. This is not surprising because at-risk students are typically disadvantaged in relation to various factors, such as family instability (Masten & Coatsworth, 1998) which tends to compromise their life satisfaction and happiness. According to Fredrickson’s (2001) broaden-and-build theory of positive emotions, experience of positive emotions is important as it *broadens* a person’s momentary thought-action repertoires. The broadening process, in turn, drives an individual to engage in a variety of exploratory behaviors that are useful in *building* durable physical (e.g., physical strength), social (e.g., positive relationships), psychological (e.g., resilience), and intellectual (e.g., knowledge, creativity) resources—resources that could prove beneficial for at-risk children to develop academic resilience and buoyancy that deal with setbacks (Martin & Marsh, 2009). Therefore, more attention is needed to help improve at-risk students’ emotional well-being.

While the findings supported the hypothesis on emotional well-being, the hypotheses on basic psychological need satisfaction and frustration were not fully supported. For example, the results did not show any significant difference between at-risk and non-at-risk students’ satisfaction and frustration of the need for competence. This result may suggest that the school could have provided ample opportunities for both groups of students to develop their sense of competency. As for the at-risk students, if their need for competence is not being fulfilled at home but tended to at school, it may help bring up their sense of competence to be on par with their non-at-risk peers. Similarly, the findings indicated that there was no significant difference between the at-risk and non-at-risk students in terms of the satisfaction of autonomy and relatedness. This is an interesting finding, given that at-risk students, with their disadvantaged backgrounds, may not have similar opportunities with their non-at-risk peers to have their basic psychological needs of competence, autonomy, and relatedness satisfied. One possibility is that the at-risk students in this study, who attend an after-school program three times weekly, may be receiving support from the teachers delivering the program. The program, which was designed to provide academic support, counseling services, and social-emotional learning opportunities, may have contributed to meeting the basic psychological needs of the at-risk students

to a certain extent. Other studies (e.g., Kremer et al., 2015) have revealed the effectiveness of this program on at-risk students. However, more research needs to be done to establish this possibility.

Consistent with our hypothesis, we found that at-risk and non-at-risk students differed significantly in terms of the frustration of their need for autonomy and relatedness. At-risk students were found to have statistically higher levels of need frustration in autonomy and relatedness than their non-at-risk peers. Research shows that the level of one's need satisfaction and frustration depend on one's life experiences and behaviors (Vansteenkiste et al., 2020). Examples of life experiences that have shown to contribute to need frustration include feeling lonely (Baumeister & Leary, 1995), experiencing failure (Waterschoot et al., 2020), and feeling conflicted about identity-relevant choices (Assor et al., 2020); all of which may be experienced by at-risk students on a more intense level or regularly than their non-at-risk peers. As need frustration predicts diverse forms of dysfunctional behaviors and ill-being, including both internalizing and externalizing problems (e.g., Vandekerckhove et al., 2019), efforts need to be directed toward reducing the basic psychological need frustration of at-risk students before their issues escalate further.

The finding that at-risk students did not differ from their non-at-risk peers in terms of the need satisfaction but are different from their non-at-risk peers in terms of need frustration is similar to the study by Nagpaul and Chen (2019). Their study found that while the at-risk Singapore youths indicated that their need for autonomy, competence, and relatedness are satisfied, they also noted frequent experiences of need frustration. As explained by Vansteenkiste et al., (2020, p. 7), "such qualitative studies help in identifying the concrete manifestations and themes underlying experiences of need satisfaction and frustration in diverse life domains, developmental periods, and cultures." This finding also highlights the importance of having both basic psychological need satisfaction and frustration measures when carrying research focusing on psychological needs, as having high level of need satisfaction does not imply that the subjects are not experiencing low need frustration. Other research has also shown that need thwarting practices increase basic psychological need frustration, regardless of whether need support was high or low (Collie et al., 2019). Finally, given that emotional well-being is negatively correlated with basic psychological need frustration (see Table 7.2), the high level of need frustration could be what might have caused the low levels of emotional well-being; however, extended research is needed to investigate the plausibility of a causal association. There is also a need for us to look at all the variables holistically.

Implications

The present study has several theoretical, research, and practical implications in educational settings. In terms of the theoretical implications, our findings suggest that need satisfaction and need frustration are distinct constructs. Past research has shown that not only could the six factors be distinguished factorially, but the factors are also

associated with different outcomes (Chen et al., 2015). The present study showed that at-risk and non-at-risk students could be distinguished via the need frustration scale but not the need satisfaction scale, which further supports the separation of basic psychological need satisfaction and frustration constructs.

In terms of research implications, the present study showed that research on Basic Psychological Needs Theory should always include measures of basic psychological need frustration and satisfaction. Our findings showed no statistically significant difference between at-risk and non-at-risk students in their basic psychological need satisfaction, but at-risk students were found to have significantly higher basic psychological need frustration. This finding implies that high satisfaction of basic psychological needs does not mean that there is low frustration of such needs, so researchers doing investigations based on Basic Psychological Needs Theory, especially those involving at-risk students, should be mindful to assess basic psychological need frustration as well. Additionally, while the present study demonstrated that at-risk students have lower levels of emotional well-being and higher levels of need frustration in autonomy and relatedness than their non-at-risk peers, we did not explore the factors that may contribute to these results. More research should be carried out to determine plausible causes of at-risk students' need frustration and emotional well-being to better inform policy and practice. Future research should also include a qualitative component to delve deeply into students' life experiences to find out the antecedents of students' need frustration and emotional well-being. Once plausible factors of need frustration are highlighted, longitudinal or experimental studies could be carried out to establish causality of the factors associated with young students' emotional well-being as well as their basic psychological need satisfaction and frustration.

The findings of the present study also suggest a need for educators to support at-risk students' emotional well-being, and one possible way to do so is to reduce frustration of their need for autonomy and relatedness. Educators can enhance at-risk students' emotional well-being by first identifying the sources and reasons behind their perceived autonomy and relatedness frustration and undertaking pertinent actions to avert this eventuality. Teachers can do this by providing support to at-risk students in their development and schoolwork to relieve students' relatedness frustration and by guiding students to be more autonomous in their schoolwork. Teacher training should be provided for all teachers, especially those who are mentoring at-risk students, so that teachers can learn of strategies that have been found effective in enhancing emotional well-being of young students and mitigating student need frustration, especially for autonomy and relatedness. Moreover, there is a possibility that at-risk students' need frustration was coming from non-school sources. In such cases, schools should initiate outreach programs to engage families of at-risk children, work alongside counselors, and collaborate with welfare organizations to help students cope with personal issues which are not related to school. If schools could provide the necessary support for at-risk students to reduce their basic psychological need frustration and enhance their emotional well-being, it could result in positive outcomes.

Limitations and Future Studies

The results and discussions in this book chapter should be interpreted with certain limitations in mind. First, the present study mainly recruited fourth to sixth grade students in a Singapore primary school. Hence, the findings may not be generalizable to students of other educational levels and contexts. Moreover, the at-risk students in this study attend an after-school program designed to provide them with the academic and social-emotional support that they need but lack on the home front. The study can be extended to include primary schools which do not have such programs in place to see if the results are similar to or different from the present study. Second, as compared to the non-at-risk students ($n = 286$), we only managed to recruit a small number of at-risk students ($n = 27$). Although steps were taken to address the unequal sample size between the two groups of students (e.g., use of Welch's *t*-test), the low sample size for the at-risk students could still lower the power of the statistical analysis. Finally, as this is a cross-sectional study, we could neither determine causality nor the order of effects of the study variables. A longitudinal study or experimental research is needed to conclude if need satisfaction or frustration would lead to changes in students' emotional well-being or at-risk status in the long run.

Conclusion

The present study compared the emotional well-being and basic psychological need satisfaction and frustration of at-risk and non-at-risk students in primary school, addressing the lack of such studies in the extant literature. The study is important for tailoring school intervention programs. The results suggest that at-risk students are comparable to the non-at-risk students in terms of the basic psychological need satisfaction of competence, autonomy, and relatedness. While at-risk students are still comparable with their non-at-risk peers in basic psychological need frustration of competence, they had higher frustration in their need for autonomy and relatedness and lower emotional well-being than their peers. This finding is concerning, as high basic psychological need frustration and low emotional well-being has been associated with a host of negative outcomes such as behavioral issues, delinquency, and premature school drop-out. Schools should address this issue by tailoring programs for at-risk students that focus on enhancing their emotional well-being and reducing their need frustration. Teacher training should be conducted to impart strategies that have been shown to be effective in enhancing emotional well-being and meeting students' basic psychological needs. When children have high emotional well-being and reduced need frustration, they are better able to regulate their emotions, develop resilience, have better coping skills, and build positive relationships with others, which can all contribute to their ability to handle stress and adversity, resulting in positive life outcomes, such as good mental and physical health in adulthood.

References

- Abidin, F. A., Yudianta, W., & Fadilah, S. H. (2022). Parenting style and emotional well-being among adolescents: The role of basic psychological needs satisfaction and frustration. *Frontiers in Psychology, 13*, 901646. <https://doi.org/10.3389/fpsyg.2022.901646>
- Assor, A., Soenens, B., Yitshaki, N., Ezra, O., Geifman, Y., & Olshtein, G. (2020). Towards a wider conception of autonomy support in adolescence: The contribution of reflective inner-compass facilitation to the formation of an authentic inner compass and well-being. *Motivation and Emotion, 44*, 159–174.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497–529.
- Chen, B., Vansteenkiste, M., Beyers, W., Boone, L., Deci, E. L., Van der Kaap-Deeder, J., Duriez, B., Lens, W., Matos, L., Mouratidis, A., Ryan, R. M., Sheldon, K. M., Soenens, B., Van Petegem, S., & Verstuyf, J. (2015). Basic psychological need satisfaction, need frustration, and need strength across four cultures. *Motivation and Emotion, 39*(2), 216–236. <https://doi.org/10.1007/s11031-014-9450-1>
- Collie, R. J., Granziera, H., & Martin, A. J. (2019). Teachers' motivational approach: Links with students' basic psychological need frustration, maladaptive engagement, and academic outcomes. *Teaching and Teacher Education, 86*, 102872. <https://doi.org/10.1016/j.tate.2019.07.002>
- Cox, J., & Sagor, R. (2013). *At risk students: Reaching and teaching them*. Routledge.
- Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality, 19*, 109–134. [https://doi.org/10.1016/0092-6566\(85\)90023-6](https://doi.org/10.1016/0092-6566(85)90023-6)
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Deci, E. L., & Ryan, R. M. (2008). Hedonia, eudaimonia, and well-being: An introduction. *Journal of Happiness Studies, 9*(1), 1–11. <https://doi.org/10.1007/s10902-006-9018-1>
- Delacre, M., Lakens, D., & Leys, C. (2017). Why psychologists should by default use Welch's t-test instead of student's t-test. *International Review of Social Psychology, 30*(1), 92–101. <https://doi.org/10.5334/irsp.82>
- Flèche, S., Lekfuangfu, W. N., & Clark, A. E. (2018). The long-lasting effects of family and childhood on adult wellbeing: Evidence from British Cohort Data, GLO Discussion Paper, No. 184, Global Labor Organization (GLO), Maastricht.
- Folkman, S., & Moskowitz, J. T. (2000). Positive affect and the other side of coping. *American Psychologist, 55*(6), 647–654.
- Fortin, L., Marcotte, D., Potvin, P., Royer, É., & Joly, J. (2006). Typology of students at risk of dropping out of school: Description by personal, family and school factors. *European Journal of Psychology of Education, 21*(4), 363–383. <https://doi.org/10.1007/BF03173508>
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist, 56*(3), 218–226. <https://doi.org/10.1037/0003-066X.56.3.218>
- Gavriel-Fried, B., & Ronen, T. (2016). Positive emotions as a moderator of the associations between self-control and social support among adolescents with risk behaviors. *International Journal of Mental Health and Addiction, 14*(2), 121–134. <https://doi.org/10.1007/s11469-015-9580-z>
- Hao, L., Peng, M. Y. P., Yang, M., & Chen, C. C. (2020). Exploring the influence of learning motivation and socioeconomic status on higher education students' learning outcomes using self-determination theory. *Frontiers in Psychology, 11*, 1–13. <https://doi.org/10.3389/fpsyg.2020.00849>
- Huebner, E. S., Hills, K. J., Jiang, X., Long, R. F., Kelly, R., & Lyons, M. D. (2014). Schooling and children's subjective well-being. In A. Ben-Arieh, F. Casas, I. Frønes, & J. E. Korbin

- (Eds.), *Handbook of child well-being: Theories, methods and policies in global perspective* (pp. 797–819). Springer. https://doi.org/10.1007/978-90-481-9063-8_26
- Kaufman, P., Bradbury, D., & Owings, J. (1992). *National education longitudinal 1998 characteristics of at-risk students in NELS:88*. U.S. Department of Education: Office of Education Research and Improvement. NCES-92-042.
- Keys, S. G., Bemak, F., & Lockhart, E. J. (1998). Transforming school counseling to serve the mental health needs of at-risk youth. *Journal of Counseling & Development*, 76(4), 381–388.
- Keyes, C. L. M. (2006). The subjective well-being of America's youth: Toward a comprehensive assessment. *Adolescent & Family Health*, 4(1), 3–11.
- Kremer, K. P., Maynard, B. R., Polanin, J. R., Vaughn, M. G., & Sarteschi, C. M. (2015). Effects of after-school programs with at-risk youth on attendance and externalizing behaviors: A systematic review and meta-analysis. *Journal of Youth and Adolescence*, 44, 616–636.
- Longo, Y., Gunz, A., Curtis, G. J., & Farsides, T. (2016). Measuring need satisfaction and frustration in educational and work contexts: The Need Satisfaction and Frustration Scale (NSFS). *Journal of Happiness Studies*, 17, 295–317. <https://doi.org/10.1007/s10902-014-9595-3>
- López-Pérez, B., Sánchez, J., & Gummerum, M. (2016). Children's and adolescents' conceptions of happiness. *Journal of Happiness Studies*, 17(6), 2431–2455. <https://doi.org/10.1007/s10902-015-9701-1>
- Marquez, J., & Long, E. (2021). A global decline in adolescents' subjective well-being: A comparative study exploring patterns of change in the life satisfaction of 15-year-old students in 46 countries. *Child Indicators Research*, 14, 1251–1292. <https://doi.org/10.1007/s12187-020-09788-8>
- Martin, A. J., & Marsh, H. W. (2009). Academic resilience and academic buoyancy: Multidimensional and hierarchical conceptual framing of causes, correlates and cognate constructs. *Oxford Review of Education*, 35(3), 353–370. <https://doi.org/10.1080/03054980902934639>
- Masten, A. S., & Coatsworth, J. D. (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. *American Psychologist*, 53(2), 205–220. <https://doi.org/10.1037/0003-066X.53.2.205>
- Nagpaul, T., & Chen, J. (2019). Self-determination theory as a framework for understanding needs of youth at-risk: Perspectives of social service professionals and the youth themselves. *Children and Youth Services Review*, 99, 328–342. <https://doi.org/10.1016/j.childyouth.2019.02.015>
- National Institute for Health and Clinical Excellence. (2009). *National Institute for Health and Clinical Excellence (special health authority) annual report and accounts 2008/9*. Stationery Office.
- Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and Research in Education*, 7(2), 133–144. <https://doi.org/10.1177/1477878509104318>
- Noddings, N. (2003). *Happiness and education*. Cambridge University Press.
- Rodrigues, F., Macedo, R., Teixeira, D. S., Cid, L., Travassos, B., Neiva, H., & Monteiro, D. (2021). The co-occurrence of satisfaction and frustration of basic psychological needs and its relationship with exercisers' motivation. *The Journal of Psychology*, 155(2), 165–185. <https://doi.org/10.1080/00223980.2020.1862738>
- Rodríguez-Meirinhos, A., Antolín-Suárez, L., Brenning, K., Vansteenkiste, M., & Oliva, A. (2020). A bright and a dark path to adolescents' functioning: The role of need satisfaction and need frustration across gender, age, and socioeconomic status. *Journal of Happiness Studies*, 21, 95–116. <https://doi.org/10.1007/s10902-018-00072-9>
- Rouse, P. C., Turner, P. J. F., Siddall, A. G., Schmid, J., Standage, M., & Bilzon, J. L. J. (2020). The interplay between psychological need satisfaction and psychological need frustration within a work context: A variable and person-oriented approach. *Motivation and Emotion*, 44, 175–189. <https://doi.org/10.1007/s11031-019-09816-3>
- Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality*, 63, 397–427. <https://doi.org/10.1111/j.1467-6494.1995.tb00501.x>
- Ryan, R. (2009). Self determination theory and well being. *Social Psychology*, 84(822), 848.

- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Publishing.
- Ryan, R. M., Deci, E. L., & Vansteenkiste, M. (2016). Autonomy and autonomy disturbances in self-development and psychopathology: Research on motivation, attachment, and clinical process. *Developmental Psychopathology, 1*, 385–438. <https://doi.org/10.1002/9781119125556.devpsy109>
- Shiota, M. N., Campos, B., Keltner, D., & Hertenstien, M. J. (2004). Positive emotion and the regulation of interpersonal relationships. In P. Philippot & R. S. Feldman (Eds.), *The regulation of emotion* (pp. 127–155). Erlbaum.
- Stifter, C., Augustine, M., & Dollar, J. (2020). The role of positive emotions in child development: A developmental treatment of the broaden and build theory. *The Journal of Positive Psychology, 15*(1), 89–94. <https://doi.org/10.1080/17439760.2019.1695877>
- Tay, L., & Diener, E. (2011). Needs and subjective well-being around the world. *Journal of Personality and Social Psychology, 101*(2), 354–365.
- Tillmann, S., Tobin, D., Avison, W., & Gilliland, J. (2018). Mental health benefits of interactions with nature in children and teenagers: A systematic review. *Journal of Epidemiology and Community Health, 72*(10), 958–966.
- Vandenkerckhove, B., Brenning, K., Vansteenkiste, M., Luyten, P., & Soenens, B. (2019). The explanatory role of basic psychological needs experiences in the relation between dependency, self-criticism, and psychopathology in adolescence. *Journal of Psychopathology and Behavioral Assessment, 41*, 574–588.
- Vansteenkiste, M., & Ryan, R. M. (2013). On psychological growth and vulnerability: Basic psychological need satisfaction and need frustration as a unifying principle. *Journal of Psychotherapy Integration, 3*, 263–280. <https://doi.org/10.1037/a0032359>
- Vansteenkiste, M., Ryan, R. M., & Soenens, B. (2020). Basic psychological need theory: Advancements, critical themes, and future directions. *Motivation and Emotion, 44*, 1–31.
- Waterschoot, J., van der Kaap-Deeder, J., & Vansteenkiste, M. (2020). The role of competence-related attentional bias and resilience in restoring thwarted feelings of competence. *Motivation and Emotion, 44*, 82–98.

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Chapter 8

Adolescents' Future Career Preparation and Socioemotional Competencies: A Self-Determination Theory Perspective



Esther Anwuzia

Abstract Deciding on a future career is central during adolescence. Besides investigating the nature of adolescents' future career choices, considering the social and psychological experiences during career preparation is crucial. Adolescents' perceptions of their preferred discipline, the teachers assigned to teach them, and relationship with their peers, influence the evaluation of their career choice and future career development. These aspects of the school context during mid-late adolescence are also critical in assessing the satisfaction or not of the basic needs of autonomy, competence, and relatedness. Using self-determination theory (SDT) and the Collaborative for Academic, Social, and Emotional Learning framework (CASEL), this chapter will show how the perceived roles of teachers and peers in satisfying adolescents' basic psychological needs facilitate their career preparation and, in turn, promote the following socioemotional competencies: self-awareness, self-management, relationship and responsible decision-making skills, necessary for effective career decision-making and socioemotional adjustment in secondary school. Adolescents may, as such, experience low self-confidence, indecisiveness, poor socioemotional adjustment, and career distress when their basic psychological needs are threatened. Based on an empirical study among secondary school adolescents in Nigeria, this chapter is guided by two research questions: How do adolescents perceive their teachers' and peers' behaviors as (less) supportive of the basic needs of autonomy, competence, and relatedness during their career preparation? and in what way can these perceived behaviors influence adolescents' cultivation of socioemotional competencies? This chapter enhances the understanding of developmental tasks like career preparation as socioemotional learning (SEL) pathways.

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Introduction

Career preparation and career decision-making (CDM) during adolescence is not simply choosing a career; it is a *process* involving different motivational antecedents, vital players, barriers and enablers, and changes in degrees of certainty (Anwuzia & McLellan, 2022; Creed et al., 2004; Katz et al., 2018; Pesch et al., 2018). Compared to childhood, CDM during adolescence is better understood from the process perspective, which suggests that deciding on a career at this stage coincides with other emerging developmental needs, like individuation, peer relationships, academic achievement and engagement, and grappling with a sense of purpose and social expectations (Damon et al., 2003; Hill et al., 2018b; Shaha et al., 2003).

Career preparation consists of three elements: CDM, involving choosing and committing to a career choice; career planning, referring to the resources and strategies adolescents employ to pursue their future career goals; and career confidence, relating to how confident or optimistic adolescents are about realizing their future careers (Seginer et al., 2004; Stringer et al., 2011, 2012). Therefore, a primary focus on just the career choice ignores how CDM overlaps with adolescents' contextual resources and sense of self, suggesting that the career development process is intricately linked with adolescents' social and emotional adjustment (Stringer et al., 2012).

Concepts like future orientation, possible selves, and vocational identity imply that the self and future goals are less separable during adolescence (Hatala et al., 2017; Laughland-Booy et al., 2017; Marshall et al., 2008; Seginer et al., 2004; Zhu et al., 2014). Evaluating adolescents' personal development and socioemotional learning (SEL) from within the career domain is, as such, developmentally appropriate.

This chapter examines the social and psychological perspective of adolescents' career preparation. Specifically, the relationship between the career preparation process and adolescents' perceived autonomy, competence, and relatedness support from teachers and peers. However, it does not ignore other considerations like the labor market relevance and outcomes of adolescents' careers or the effect of family structure patterns and socioeconomic status (SES) on adolescents' CDM, which point to the macroeconomic and sociological perspectives of adolescents' career preparation (Caspi et al., 1998; Dooley, 2003; Howard et al., 2011; Kim et al., 2019; Staff & Mortimer, 2008).

The present study is based on the author's Ph.D. research conducted among mid-late adolescents in Nigeria. The study contextualized adolescents' career preparation within senior or upper secondary school, where adolescents are required to choose an academic major or specific field of study and the corresponding core subjects. This chapter applies self-determination theory (SDT) to explain how adolescents' interactions in school, with teachers and peers, foster or impede their career development and, in the process, result in the cultivation or suppression of essential socioemotional competencies.

Literature Review

SDT and Adolescents' Future Career Development

According to SDT, the three fundamental psychological needs of autonomy, competence, and relatedness must be satisfied for individuals to experience wellbeing (Ryan & Deci, 2017; Ryan et al., 2008). Wellbeing in SDT, however, is beyond “feeling happy” but entails a feeling of self-actualization and living purposefully, otherwise known as psychological wellbeing (Deci & Ryan, 2008; Ryff & Singer, 2008).

The extension of SDT to adolescents' career development is limited (Guay et al., 2003; Katz et al., 2018). Following its roots in positive psychology, SDT, in the career context, examines how the basic needs of autonomy, competence, and relatedness can enhance adolescents' career development and, in doing so, promote optimal functioning (Guay et al., 2006; Soenens & Vansteenkiste, 2005). For example, Katz et al., (2018) found that parental autonomy support improved adolescents' perceived autonomy in making career decisions, that is, choosing a career that is congruent with adolescents' interests and values. The same study also found that, unlike controlled motivation, autonomous motivation to choose a career was positively related to adolescents' wellbeing, perceived self-efficacy, and high performance in their chosen major a year after the career decision was made. Other studies have found that parental and teacher autonomy support predicted adolescents' career exploration, career commitment, career wellbeing, and career indecision (Guay et al., 2003; Pesch et al., 2018; Soenens & Vansteenkiste, 2005).

Within the career context, *autonomy* refers to adolescents' perceived degree of volition or pressure to choose a career and whether it matches their interests and values. *Competence* concerns adolescents' perceived ability to satisfy the requirements of their chosen career, defined in the current study as the perceived ability to excel at core subject areas. *Relatedness* refers to a sense of belonging in school and how this influences adolescents' career interests and preparation (Guay et al., 2003; Pesch et al., 2018; Soenens & Vansteenkiste, 2005). Therefore, perceived autonomy, competence, and relatedness support point to how the dynamics and resources in the social environment, like parental, teacher, and peer support, influence adolescents' needs satisfaction during the career preparation process.

Within the school context, teacher and peer support have been studied as critical antecedents of adolescents' academic development and the satisfaction of the basic psychological needs (Davidson et al., 2010; Niemiec & Ryan, 2009; Yu et al., 2018a, 2018b). Guay et al., (2003), described autonomy-supportive behaviors as considering another's perspective and feelings, giving information readily, allowing choice, and reducing the use of pressure and control to achieve one's ends. Teacher autonomy support (TAS) refers to whether teachers encourage students' agency and classroom participation and communicate the significance of and rationale behind the learning content (Reeve, 2006). TAS style and behaviors allow students to express their feelings (positive or negative) about schoolwork, which provides feedback to the teacher

on the impact of school activities (Assor et al., 2002). The opposite of TAS is psychological control, whereby teachers restrict students' perspectives and contributions in class, impose learning goals and adopt a reward-punishment and deadline-inducing approach to encourage performance (Assor et al., 2005; Mageau et al., 2015). While TAS inspires students' engagement and intrinsic motivation to learn, psychological control threatens students' intrinsic motivation and self-regulation (Ljubin-Golub et al., 2020; Vansteenkiste et al., 2012).

Although peer autonomy support has been understudied compared to TAS (Bakadorova & Raufelder, 2018; Guay et al., 2003), it maintains the same underlying principle of desisting from obsessive and controlling influence over friends' choices and behavior and instead stimulating secure attachment, which recognizes individuality together with friendship ties (Bakadorova & Raufelder, 2018; Felsman & Blustein, 1999). Studies on how peer support affects adolescents' motivational and competency beliefs are limited (Wentzel et al., 2017).

The basic needs of autonomy and competence are correlated in SDT (Deci & Ryan, 2000). Hence, TAS and competency support aim to facilitate students' inner drive, self-directed learning, and self-confidence. Teachers and peers display competency support when they reassure students and friends, respectively, of their abilities and talents and promote growth rather than a fixed mindset. Lastly, teachers and peers foster relatedness when they create and contribute to a warm and inclusive classroom atmosphere and are emotionally supportive (Malecki & Demaray, 2003; Wentzel et al., 2010).

Previous studies have shown associations between teacher and peer support, increased academic self-efficacy, intrinsic motivation and efforts to learn, and academic and emotional adjustment during adolescence (Chirkov & Ryan, 2001; Murray-Harvey & Slee, 2007; Schuitema et al., 2016; Wentzel et al., 2017). However, the effect of teacher and peer support on adolescents' career preparation is not well understood (Kracke, 2002; Musset & Kurekova, 2018; Zhang et al., 2018). While Metheny et al., (2008) found that adolescents' perception of their teachers as emotionally supportive and invested in their futures was highly correlated with adolescents' CDM self-efficacy and beliefs about their career success, Anwuzia and McLellan (2022) found a positive effect of teacher invested support, teacher autonomy support, and teacher expectations on adolescents' career exploration and intrinsic motivation in choosing their careers. Although limited and infrequent in adolescents' literature, the few studies on peer support and adolescents' career development found a positive effect of high levels of perceived peer support on adolescents' CDM, career exploration, career commitment, and career adaptability¹ (Felsman & Blustein, 1999; Guay et al., 2003; Kracke, 2002; Kvasková et al., 2023).

The influence of teachers and peers on motivational and wellbeing outcomes affirms Reeve (2006)'s position that "classroom surroundings feature a host of influences that affect students' daily motivations and longer-term motivational development" (p. 226) and imply that teachers and peers' can transcend their descriptive roles

¹ Career adaptability refers to psychosocial resources like decision making skills and coping mechanisms that facilitate career development tasks (Kvasková et al., 2023; Savickas, 2002).

as academic and relational partners respectively, into other developmental domains like the career domain.

A burgeoning area, existing studies on SDT and career development are primarily quantitative and have focused more on autonomy and competence as antecedents of CDM outcomes like reduced career indecision and career distress and greater satisfaction with career choice (Guay et al., 2003; Katz et al., 2018; Pesch et al., 2016). The need for relatedness in the career domain has so far been likened to autonomy-supportive environments for adolescents' career outcomes (Guay et al., 2003; Katz et al., 2018; Pesch et al., 2016), not as a unique condition for positive career development.

The current study attempted to narrow the methodological and theoretical gaps by conducting a qualitative investigation of how adolescents perceive and describe their teachers and peers as supportive of their autonomy, competence, and relatedness needs and how this perceived support influences adolescents' career preparation.

SEL Among Adolescents

The importance of schooling to adolescents' technical and cognitive knowledge and skills is mostly accepted. Less acknowledged, however, is how the school context and education system also shape adolescents' perceptions of self, socioemotional competencies, and future opportunities. In the interest of maintaining the hegemonic structure of schools and the classroom, students' autonomous learning, socioemotional competencies, and social connectedness could be compromised, particularly among senior secondary students for whom the relevance of education to personal adjustment and school-to-work transition is pressing.

The self during adolescence is emerging (Laughland-Booÿ et al., 2017). A coherent sense of self occurs when the individual experiences less internal conflict, implying a degree of stability and acceptance of who one is across various domains, for example, work and family (Guardia, 2009). Although the search for what one considers a coherent, meaningful, or purposeful self arguably continues throughout one's life span (Hartung, 2013; Nurmi & Salmela-Aro, 2002; Sokol, 2009), the imminent developmental tasks during adolescence, such as deciding on core subject areas, a future career, and post-secondary options (Kracke, 2002; Porfeli & Lee, 2012; Skorikov & Vondracek, 1998), heightens the urgency of the classic identity question, "Who am I?". This inclination toward self-definition and future orientation suggests that active and meaningful engagement in learning activities is expected to occur when adolescents can associate these activities with whom they aspire to be and the realization of their future goals.

Several studies agree on the sensitivity of adolescence as a transitory period between childhood and adulthood and the need to pay close attention to the various occurrences that make adolescents vulnerable to maladjustment and mental health problems (Barker et al., 2023). However, a consensus regarding best practices for

building adolescents' capacity to navigate developmental tasks and challenges is needed. Hence the relevance of SEL.

SEL recognizes that schools should not only prepare students for a qualification, evidenced by intellectual knowledge and grades but should also prepare them for *life* (Green et al., 2021). One of the most established and applied frameworks for understanding SEL is the Collaborative for Academic, Social, and Emotional Learning framework (CASEL), comprising five core socioemotional competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. The CASEL framework has, however, been mostly applied to pre and early school years with a limited understanding of its relevance to adolescence (Mondi et al., 2021; Ross & Tolan, 2018). Strategies targeting the SEL of adolescents are scarce or a bolt-on to secondary schools' curriculum and teaching, not school-wide or classroom-embedded (Yeager, 2017). The increased teacher and student workload and the pertinence of academic performance and specialization to post-secondary school transition pathways could explain why SEL is likely understudied in the secondary school context and adolescence years (Bakadorova & Raufelder, 2018; Hill et al., 2018b). While investments in SEL during early school years contribute to children's positive development, ignoring its importance during adolescence perverts any accumulated gains. This is because adolescence is more task-demanding and socioemotionally volatile concerning biological and hormonal changes, identity exploration, CDM, and building relationships (Blakemore & Mills, 2014; Denham, 2018; Yeager, 2017).

Human capital development today should go beyond preparing adolescents for a particular industry. What is also important is helping them develop competencies that are relevant to diverse industries and that enable them to actualize their potential and participate actively in society (Jayaram & Engmann, 2014). This explains the growing importance of such competencies as proposed by the CASEL framework, including others like creativity, resilience, and self-directed learning. The importance of these skills aside, there remains the puzzle of *how* to transmit these skills among adolescents. The Organization for Economic Cooperation and Development (OECD)'s large-scale international study (OECD, 2021) on the prevalence of and barriers to socioemotional skills among children and adolescents found that although socioemotional skills generally improve psychological wellbeing and optimism, and increase resistance to stress, most 15-year-old students regardless of gender and family SES reported lower socioemotional skills than the younger age groups in the sample (minimum 10 years old).

The few studies on SEL among adolescents in secondary school have sought to help schools understand how to develop and implement SEL programs that are developmentally suitable and effective for adolescents (Green et al., 2021; Johansen & Schanke, 2013). The challenge is that these interventions are often determined by available funding and curriculum redesign of schools or education systems (Jayaram & Engmann, 2014; Malhotra et al., 2021) and may, therefore, not be accessible or generalizable to every school or classroom setting. The current study argues that in the absence of tailored SEL school programs, fostering adolescents' career development through classroom and school contexts that support adolescents'

autonomy, competence, and relatedness can equally transmit SEL and is adaptable to adolescents in different school contexts.

Purpose of the Study

The present study examined how adolescents' perceptions of (1) their subject area, (2) the teachers assigned to teach them, and (3) their peers and classmates in the senior secondary school phase influence their experiences and evaluation of their career choices. This study presents these three aspects of the school context during mid-late adolescence as critical to assessing the satisfaction or not of the basic needs of autonomy, competence, and relatedness during adolescents' career preparation and the knock-on effect of SDT on adolescents' SEL.

The current study centered on understanding adolescents' career preparation, viz., their CDM (how they arrived at and evaluated their career decision), level of confidence to accomplish career-related goals, and the planning resources (psychological and social) at their disposal to accomplish these goals. The selected excerpts explaining autonomy, competence, and relatedness support will be interpreted as buttressing or undermining one or more of these three aspects of adolescents' career preparation.

Methodology

Participants and Procedures

Using a qualitative approach, the current study examined SDT within the school context to explore adolescents' experiences of the learning environment relating to teaching practices and peer relationships. The aim was to understand how adolescents perceive the school context as supportive of their need for autonomy, competence, and relatedness and how these perceptions facilitate or impede their career development.

Secondary school education in Nigeria is divided into junior and senior secondary school. In junior secondary school, students are taught the same subjects while in senior secondary school (Years 10–12), students specialize in core and relatively advanced subject areas relevant to their individual career choices or preferred fields of study. Students in the current study chose from three broad subject areas: Arts, Science, and Business studies. The subjects taken by students interested in a business-related course or track differed from those interested in a career in the natural sciences. As such, students were expected to have *decided* on a career or have an idea of their preferred subject discipline at the start of or by the second year of senior secondary school. This is to ensure clarity about their subject choices for their final secondary school certificate examination.

Respondents were 31 senior secondary school students in Lagos, Nigeria, in Years 10–11, aged 13–18. The author conducted 1–1 semi-structured interviews within the school environment during students' free lesson periods. Students who volunteered to be interviewed signed an informed consent form, and the purpose of the interview and assurance of confidentiality was reiterated before each interview. The interviews were audio-recorded with students' consent and transcribed for analysis using NVivo.

During the interview, students often referred to specific subject teachers when reflecting on the perceived relationship with their teachers. Teacher subject areas have, however, been excluded from the interview data presented in this chapter to avoid any inferences or bias about teachers of certain school subjects (den Brok et al., 2010; Telli, 2016). The next section will discuss the findings from the interviews.

Findings and Discussion

Perceived Autonomy Support and Adolescents' Future Career Development

Adolescents' career choices are autonomous if self-driven and not imposed and based on internalized values (Guay, 2005). However, feeling autonomous is a *capacity* that can be nurtured or constrained based on adolescents' interaction with agents in their mesosystem like parents, teachers, and peers (Deci & Ryan, 2000; Ibrahim & El Zaatari, 2020; Young, 1983).

Data from the current study corroborated previous studies' findings on the positive relationship between TAS and adolescents' autonomous motivation by revealing some forms of teacher dispositions that influenced adolescents' autonomous motivation, namely, permitting students to ask questions in class, being calm or stern, and using cynical or derogatory language. Within the career development context of the current study, instances of TAS cited below represent adolescents' evaluation of their career choices based on their perceptions of the behavior and practices of teachers in their subject discipline. This section will therefore show how autonomy-supportive teachers and classrooms are a litmus test of adolescents' career certainty or decidedness.

TAS in adolescents' literature is mainly understood as allowing students' choices and perspectives exemplified by encouraging class participation and questions (Niemiec & Ryan, 2009; Reeve et al., 2004). Students perceived the opportunity to ask questions during a class as indicative of teachers' recognition of their views and opinions, whether right or wrong.

I prefer classes that I'm allowed to ask questions, not shunning me. Because once they shun me, they discourage me not to ask questions in their class again.

For most students in this study, teachers perceived as calm are those who encourage students to ask questions or create an atmosphere where students feel comfortable and confident to do so, different from teachers perceived as stern and unapproachable. For example:

Some of the teachers are very strict, they make you feel more afraid than free to ask questions. The calm one helps me a lot. It helps me based on the subject... if I'm lagging behind in a subject or I look confused in class, he just notices my face in class and tells me that if I don't understand, I should feel free to ask questions.

The above quotes reflect the most common understanding of TAS, allowing students' perspectives (Yu et al., 2018a, 2018b). The exploratory approach of the current study highlighted an additional yet often unacknowledged dimension of TAS, namely teachers' communication style and language. According to the seminal studies on TAS (see Reeve, 2004, 2006, 2009), "pressure-inducing language" contradicts autonomy-supportive behaviors by restraining students' perspectives and inner drive and instead forcing the performance of expected behavior. Some students indicated that some teachers used abusive remarks when they did not answer a question correctly or performed poorly in their exams. For example:

In (specifies subject), the teacher could ask us a question now, and maybe, I got the answer, but I'll be scared because if you do not get it, he'll start abusing you, and I don't want anybody to abuse me so I will just keep quiet. Anytime that we collect our results and they're not really impressed about it, they'll just come and abuse everybody. It makes me feel bad, and I try to do more so that I can impress them.

One implication from the above excerpt is that teachers' derogatory remarks could induce introjected motivation among students (Vansteenkiste et al., 2018), compelling them to study and perform well to avoid shame and embarrassment. Such performance orientation is output-focused and could have a negative effect on adolescents' career development by limiting their ability to be future-oriented, to construct future career goals, and associate present academic learning with a sense of purpose and their future selves and careers (Creed et al., 2013).

Perceived Competence Support and Adolescents' Future Career Development

Besides feeling demoralized and dampening their engagement in class, most students affirmed that their teachers' communication style also influenced their competency feelings. Competence support, as evidenced in this section, relates to adolescents' perceived confidence to excel in their chosen disciplines, thus strengthening the belief that they made the right choice for themselves and enhancing their hope for future

success in their respective professions. The interviews showed that teachers' use of abusive language made students feel inadequate and less competent.

Most of the time, they (teachers) like to insult you, basic things like if you get it wrong, they insult you. Let's say you repeated, they insult you about you repeating, not being smart, that can...just demoralize you.

Different from such a cynical disposition toward students' performance, an example of perceived teacher competence support was:

Our class teacher is always coming to talk to us, that we have to stay focused. Even though our results are not good, he will still call us and ask us why. He advises us on what to do.

When asked how such supportive behaviors from teachers benefitted them, students referred to their willingness to persevere despite struggling with the subject. Within SDT, supporting students' competence implies boosting their self-confidence, self-efficacy, and efforts and less about the eventual success or otherwise of the said task.

She's (a teacher) just like a mother to me; anytime I feel bad, I usually go and meet her. She tells me what to do and what not to do...She tells me that I should always be determined. Anytime I'm stuck, and I'm saying this subject is really hard, I will just remember her advice... I'll just try.

Students gave more accounts of peer support as relevant to their perceived competence. For example:

Most times, we discuss it together, and I say that this chemistry of a thing, I'm becoming tired, and they say you don't have to get tired. This is just the beginning, so their words of encouragement usually push me to move forward.

Students expressed feeling inspired to work hard from observing their friends' earnest efforts toward their studies.

My friends encourage me because they are eager to learn...when we are asked to do projects and assignments, they are always eager to do it. That's what really encourages me.

In some cases, students confirmed they preferred their friends' guidance, assistance, and encouragement to their teachers or felt more at ease to consult their friends for help in a subject if they felt less confident about meeting the teacher. Peers' competence support was mainly related to perceived subject difficulty.

The current study supports previous studies that found close peer relationships and support made adolescents feel secure to express any concerns and was positively related to adolescents' academic self-efficacy and school engagement (Freeman & Brown, 2001; Guay et al., 2003; Li et al., 2011; Wentzel et al., 2017). Perceived peer competence support reiterates the salience of peer influence during adolescence (Bagci, 2018; Li et al., 2011; Wentzel, 1998) and that adolescents rely on peer

interrelationships and support in constructing and realizing personal goals (Wentzel et al., 2010).

Adolescents' gradual transition to adulthood suggests that as they spend less time with their parents and attempt to individuate from them, they grow more attached to their peers (Lohman et al., 2007; Marion et al., 2013) whom they perceive as sharing in everyday experiences, struggles, and aspirations. One such shared experience or struggle, as identified in this study, is the process of career preparation regarding settling into a chosen field of study and its attendant challenges.

Perceived Relatedness Support and Adolescents' Future Career Development

Not much is known about how feelings of belonging in school bolster or undermine students' career decisions. Data from this study indicated that students could be optimistic about their career choice if they perceived teachers as caring and emotionally supportive and may feel discouraged or regret their career choice if they perceived an unfriendly teacher–student relationship. For example:

I love agricultural science because I like the subject and because the teachers are encouraging. They are teachers that I like, so it has always given me an interest in agricultural science.

The following excerpt indicates how students' intrinsic motivation and interest in a subject can be linked to their perceptions of the teacher. Most students in the current study indicated how their fondness for a teacher(s) reinforced their career choices.

Interviewer: *Do you enjoy science class?*

Student: *Yes, I enjoy science class a lot. Especially when (specifies two different subject teachers) come inside the class. Those are my best two teachers. Because of the way they teach, they made me like the subject.*

Studies like Telli (2016) have examined and found a relationship between teacher behavior and students' attitude to school subjects. The attribute of *teacher affiliation*, which involves collaboration between teachers and students as opposed to *teacher control*, positively influenced adolescents' positive attitudes toward a range of subject areas, namely: science, social science, language, arts, and sports. Satisfying adolescents' need for relatedness can therefore predict beneficial intrapersonal variables like feeling intrinsically motivated to study.

The importance of relatedness during adolescence is linked to adolescents' desire for their teachers to see them more as individuals than just students and to show concern for their developmental milestones and challenges (Yu et al., 2018a, 2018b). Teachers could achieve this by finding ways to connect and bond with students in a different way other than academically.

Referring to students by name has been found to be an effective relatedness strategy (Yu et al., 2018a, 2018b). The current study found that, in addition, teachers showing an overt interest in adolescents' future goals and careers can foster a greater sense of teacher–student relationships.

Interviewer: Do you think your teachers are interested in your future?

Student: Yes. Sometimes, my (specifies subject) teacher will not just teach; that day is just for advising everybody. But I think some people say it's boring, something like that. But I like what he's doing. He's trying to help us to have confidence in ourselves and make us focused on our future. He likes doing it a lot, and I like it.

Many students used expressions like: “they advise us” and “ask us to stay focused” to depict their perceptions of teachers' interest in and care for their lives and future. Other perceived instances included: taking extra steps outside the classroom to ensure that students are clear about a topic and when teachers share their personal career stories and university experience.

Some students mentioned that their teachers, having attended higher education, are in a good position (better than parents in some cases) to help them with their CDM and entry requirements into university.

You know they are teachers...they have already gone to school; they can tell me about university life. It makes me more interested that I can do it.

Like perceived competence support, another barrier to perceived relatedness support from teachers was teachers' tone and disposition. Students expressed a desire and expectation for their teachers to also guide and prepare them for their future, not just teach and prepare them for examinations. Adolescents in this study also acknowledged that, in reality, this desired support depends on teachers' disposition.

Interviewer: How would you prefer your teachers to be?

Student: Happy and approachable because some teachers are very intelligent. So, if they are approachable, you can go to them at any time; feel free to ask any question...you can actually gain a lot more than what you got in class.

In all, most students valued teachers whom they perceived as allies involved in their academic adjustment and future career preparation.

The next section will discuss how the above findings on perceived teacher and peer support during adolescents' career preparation are related to socioemotional competencies.

Applying the CASEL Framework to SDT-Based Career Development

In applying the CASEL framework to this study, Fig. 8.1 shows which competencies can be inferred from SDT's effect on SEL through adolescents' career development. The author proposes that the following three broad SEL competencies: self-awareness, self-management, and relationship skills, can be inferred from the perceived satisfaction of autonomy, competence, and relatedness, respectively, during adolescents' career preparation. This study classifies responsible decision-making as the fourth and intersecting socioemotional competence resulting from satisfying all three psychological needs. Within the SDT-SEL career framework as developed in this study, responsible decision-making is considered the psychological wellbeing equivalent of the SDT framework, implying that perceived teachers' and peers' satisfaction of the need for autonomy, competence, and relatedness regarding adolescents' future career preparation can culminate in responsible CDM and general decision-making skills.

CDM is a form of decision-making and a crucial one during adolescence. Therefore, adolescents need optimal decision-making skills during the process of career preparation, which will help them assess, refine, and commit to their career and other

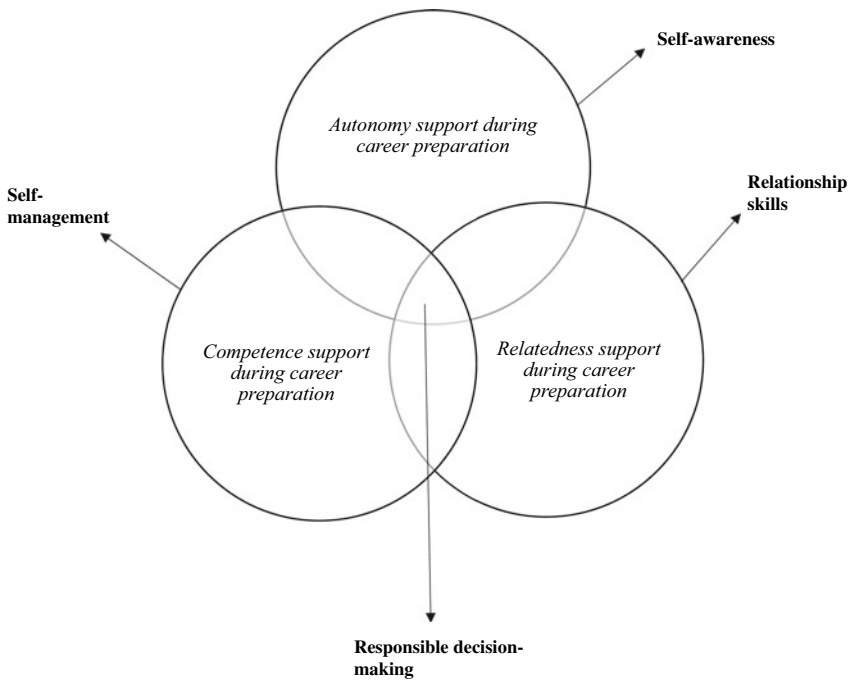


Fig. 8.1 SDT-SEL career framework for adolescents

life decisions. The SDT-SEL career framework presents a viable approach for them to achieve this.

Perceived Autonomy Support and Self-awareness

Most students in this study expressed a positive attitude toward teachers encouraging behavioral engagement—involving active participation through asking and answering questions (Pietarinen et al., 2014; van Rooij et al., 2017). Students mentioned that they were less concerned about being correct in class and more interested in being able to express themselves. They disapproved of teachers and classrooms where they felt restricted, or teachers ridiculed their opinions and attempts to ask or answer questions. The chance and freedom for students to express their views and concerns about a topic in class symbolize co-participation and/or shared authority between teachers and students, which could boost adolescents' belief in themselves as individuals capable of independent thinking and worthy of being seen and heard (Hill et al., 2018a). The more teachers allow class participation, the more adolescents are likely to feel motivated and confident to be expressive within identity domains like careers and friendships and in future work environments.

Perceived autonomy support by encouraging self-expression can enhance adolescents' identified motivation regarding their chosen career path (Katz et al., 2018). This could positively influence their self-awareness through curiosity about and exploration of their abilities, interests, and values. Being self-aware is a valuable life and employability skill that can help adolescents withstand peer or social pressure and consciously develop and pursue a clear vision for their future.

Perceived Competence Support and Self-management

The developmental transition into senior secondary school and taking practical steps that can shape the future self, such as deciding on a future career and post-secondary plans (Bolat & Odaci, 2017; Germeijs et al., 2012) could be seen by some adolescents as a positive sign of maturity or emerging adulthood or by others as an unprecedented burden, potentially resulting in anxiety and stress for the adolescent (Borgen & Hiebert, 2006; Jo et al., 2016; Strauser et al., 2008). Further, schools' emphasis on academic performance and achievement and adolescents' desire to prove their intellectual abilities and enjoy learning simultaneously may be at odds with one another (Creed et al., 2004; Lent et al., 2002), intensifying emotional tension among adolescents. Perceived competence support from teachers and peers through constructive feedback and reassurance can mitigate maladaptive social and emotional adjustment during senior secondary school by helping adolescents develop healthy coping strategies and approaches and finding a middle ground that works for them amid what may seem like conflicting personal and developmental expectations.

This study found that among adolescents, a recurrent source of worry and disturbance regarding their career choice was their judgment of certain disciplinary subjects as difficult. Adolescents' perceived subject difficulty can be likened to a proximal barrier, which according to Lent et al. (2000)'s seminal study on career barriers, occurs during actualizing one's chosen career and could sometimes be unanticipated. The present study argues that although adolescents in secondary school do not yet work in their chosen industry, they may perceive specializing in core disciplinary subjects as foreshadowing the nature of future industry jobs. Hence, despite adolescents' passion or interest in their chosen subject area, struggling with these advanced subjects during senior secondary school without adequate competence support could dampen their perceived self-efficacy toward their future careers and stir up distress and self-doubt about being suited for their chosen career (Porfeli et al., 2011). Competence support from teachers and peers is therefore crucial for adolescents to cope effectively during their career preparation, potentially enhancing their self-management skills and ability to manage stress.

Perceived Relatedness Support and Relationship Skills

Unlike in primary school, where teacher–student interaction is limited to one or few teachers, the subject specialism in upper secondary school requires different expertise and, as such different teachers. Adolescents also experience a reshuffling of their former classmates. Both scenarios necessitate contact and interactions with new teachers and peers and possible social awkwardness.

Findings from this study suggest that teachers can help adolescents readjust to senior secondary school by maintaining an accessible disposition, an interactive classroom climate, and showing interest in students' future selves and goals. Students have limited opportunities to meet with their teachers outside school and classroom, and some adolescents have even more limited opportunities to interact with someone they perceive as experienced or an “expert” in their field. Teachers can help adolescents develop interpersonal and networking skills with present and prospective social and professional contacts outside their peer groups by being deliberate about their disposition and communication style.

Peers can be instrumental in one another's adjustment during senior secondary school by being open about their experiences and offering emotional support where possible. Connecting on the basis of planning for their future careers could foster the perceived *quality* of peer relationships and increase adolescents' capacity to develop empathy and meaningful relationships.

Psychological Needs Satisfaction and Responsible Decision-Making

The salience of identity construction during adolescence can result in indecisiveness, an acute form of indecision where adolescents struggle to make a choice in one or more identity domains (Ferrari et al., 2010; Guay et al., 2006; Santos et al., 2014). Developing the capacity for responsible decision-making is not just the ability to decide but *how* one arrives at a decision, reiterating this study's emphasis on the career preparation process of adolescents and not just their career choice. Realizing autonomy, competence, and relatedness satisfaction during adolescents' career preparation and identity formation can translate into *healthy* decision-making skills that allow adolescents to take ownership of their decisions, trust their initiative, and be conscious of the effects of their decisions on others and the world around them.

With responsible decision-making skills, adolescents can assess the far-reaching implications of their career decisions on present and future outcomes. Studies have shown that adolescents' construction of their future occupational and educational goals influences the kinds of behaviors they adopt in the present, like reduced risk-taking or anti-social behaviors, increased academic engagement and involvement in extra-curricular activities, which can predict future educational and career attainment as adults (Beal & Crockett, 2010; Caspi et al., 1998; Hirschi, 2011; Nurmi, 1991). This does not imply that adolescents' future career success is determined by individual-level factors alone, like their degree of motivation toward future goals or behavioral choices. This study acknowledges that system-level or structural factors like high unemployment rates and family or political instability, among others, are also influential. What this study posits instead is that the satisfaction of adolescents' psychological needs during their career preparation empowers them to adopt an intentional and planful attitude toward their future selves, not a lackadaisical or negligent one, prompting responsible decision-making styles like gathering and analyzing relevant information and limiting procrastination (Gati et al., 2010).

Conclusion

The position of this study is that an effective way for adolescents to develop socioemotional competencies is to help them make a connection between the self, their learning environment, and their future career goals (Negru-Subtirica & Pop, 2018). Hence, besides being an academic environment, the school is a social one and a preparatory ground for life (Murray-Harvey & Slee, 2007). Adolescents should, therefore, be viewed beyond their designation as "students" but also as persons engaged in self-discovery, self-awareness, and life goal-setting (Davids et al., 2017; Kaplan & Maehr, 1999; Lokes et al., 2010). Based on the application of SDT to adolescents' career preparation, this study proposed a theoretical framework linking SDT to SEL

outcomes during adolescence. Future studies could develop quantitative measures to test the SDT-SEL career framework among mid-late adolescence.

The present study underscores the transition to senior secondary school and the consequent subject specialization as central to adolescents' career preparation. More so, adolescents' perceived teacher–student and peer-to-peer relationship influence their evaluation of key aspects of their career preparation, like how firmly they commit to their career choice and perceived confidence level in their chosen future careers. Findings from this study showed synergy between perceived autonomy, competence, and relatedness support during career preparation, thereby presenting a viable and adaptive substructure for schools to support adolescents during senior secondary school and suggesting that these psychological needs should be seen as a whole and not in isolation, for the full benefits to accrue.

Classrooms and school environments that support adolescents' need to feel autonomous, competent, and connected to their teachers and peers, boost adolescents' motivation and perseverance toward their future career goals and equip them with socioemotional resources like self-awareness, self-management, relationship skills, and responsible decision-making necessary for the school-to-work transition and sociopsychological adjustment of adolescents.

References

- Anwuzia, E., & McLellan, R. (2022). The role of teachers in adolescents' career-specific future orientation. *Cambridge Educational Research e-Journal*, 9, 258–270. <https://doi.org/10.17863/CAM.90565>
- Assor, A., Kaplan, H., Kanat-Maymon, Y., & Roth, G. (2005). Directly controlling teacher behaviors as predictors of poor motivation and engagement in girls and boys: The role of anger and anxiety. *Learning and Instruction*, 15(5), 397–413. <https://doi.org/10.1016/j.learninstruc.2005.07.008>
- Bagci, S. C. (2018). Does everyone benefit equally from self-efficacy beliefs? The moderating role of perceived social support on motivation. *The Journal of Early Adolescence*, 38(2), 204–219.
- Bakadorova, O., & Raufelder, D. (2018). The essential role of the teacher-student relationship in students' need satisfaction during adolescence. *Journal of Applied Developmental Psychology*, 58, 57–65. <https://doi.org/10.1016/j.appdev.2018.08.004>
- Barker, R., Hartwell, G., Egan, M., & Lock, K. (2023). The importance of school culture in supporting student mental health in secondary schools. Insights from a qualitative study. *British Educational Research Journal*.
- Beal, S. J., & Crockett, L. J. (2010). Adolescents' occupational and educational aspirations and expectations: Links to high school activities and adult educational attainment. *Developmental Psychology*, 46(1), 258.
- Blakemore, S.-J., & Mills, K. L. (2014). Is adolescence a sensitive period for sociocultural processing? *Annual Review of Psychology*, 65(1), 187–207. <https://doi.org/10.1146/annurev-psych-010213-115202>
- Bolat, N., & Odaci, H. (2017). High school final year students' career decision-making self-efficacy, attachment styles and gender role orientations. *Current Psychology*, 36, 252–259.
- Borgen, W., & Hiebert, B. (2006). Career guidance and counselling for youth: What adolescents and young adults are telling us. *International Journal for the Advancement of Counselling*, 28, 389–400.

- Caspi, A., Wright, B. R. E., Moffitt, T. E., & Silva, P. A. (1998). Early failure in the labor market: Childhood and adolescent predictors of unemployment in the transition to adulthood. *American Sociological Review*, 424–451.
- Chirkov, V. I., & Ryan, R. M. (2001). Parent and teacher autonomy-support in Russian and US adolescents: Common effects on well-being and academic motivation. *Journal of Cross-Cultural Psychology*, 32(5), 618–635.
- Creed, P. A., Patton, W., & Bartrum, D. (2004). Internal and external barriers, cognitive style, and the career development variables of focus and indecision. *Journal of Career Development*, 30(4), 277–294.
- Creed, P., Buys, N., Tilbury, C., & Crawford, M. (2013). The relationship between goal orientation and career striving in young adolescents. *Journal of Applied Social Psychology*, 43(7), 1480–1490. <https://doi.org/10.1111/jasp.12108>
- Damon, W., Menon, J., & Cotton Bronk, K. (2003). The development of purpose during adolescence. *Applied Developmental Science*, 7(3), 119–128.
- Davids, E. L., Roman, N. V., & Kerchhoff, L. J. (2017). Adolescent goals and aspirations in search of psychological well-being: From the perspective of self-determination theory. *South African Journal of Psychology*, 47(1), 121–132. <https://doi.org/10.1177/0081246316653744>
- Davidson, A. J., Gest, S. D., & Welsh, J. A. (2010). Relatedness with teachers and peers during early adolescence: An integrated variable-oriented and person-oriented approach. *Journal of School Psychology*, 48(6), 483–510. <https://doi.org/10.1016/j.jsp.2010.08.002>
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268.
- Deci, E. L., & Ryan, R. M. (2008). Hedonia, eudaimonia, and well-being: An introduction. *Journal of Happiness Studies*, 9(1), 1–11.
- den Brok, P., Taconis, R., & Fisher, D. (2010). How well do science teachers do? Differences in teacher-student interpersonal behavior between science teachers and teachers of other (school) subjects. *The Open Education Journal*, 3(1).
- Denham, S. A. (2018). Keeping SEL developmental: The importance of a developmental lens for fostering and assessing SEL competencies. *Frameworks Briefs*, 1(2), 127–152.
- Dooley, D. (2003). Unemployment, underemployment, and mental health: Conceptualizing employment status as a continuum. *American Journal of Community Psychology*, 32(1–2), 9–20.
- Felsman, D. E., & Blustein, D. L. (1999). The role of peer relatedness in late adolescent career development. *Journal of Vocational Behavior*, 54(2), 279–295. <https://doi.org/10.1006/jvbe.1998.1664>
- Ferrari, L., Nota, L., & Soresi, S. (2010). Time perspective and indecision in young and older adolescents. *British journal of guidance & counselling*, 38(1), 61–82.
- Freeman, H., & Brown, B. B. (2001). Primary attachment to parents and peers during adolescence: Differences by attachment style. *Journal of Youth and Adolescence*, 30(6), 653–674. <https://doi.org/10.1023/A:1012200511045>
- Gati, I., Landman, S., Davidovitch, S., Asulin-Peretz, L., & Gadassi, R. (2010). From career decision-making styles to career decision-making profiles: A multidimensional approach. *Journal of Vocational Behavior*, 76(2), 277–291.
- Germeijs, V., Luyckx, K., Notelaers, G., Goossens, L., & Verschuere, K. (2012). Choosing a major in higher education: Profiles of students’ decision-making process. *Contemporary Educational Psychology*, 37(3), 229–239.
- Green, A. L., Ferrante, S., Boaz, T. L., Kutash, K., & Wheeldon-Reece, B. (2021). Social and emotional learning during early adolescence: Effectiveness of a classroom-based SEL program for middle school students. *Psychology in the Schools*, 58(6), 1056–1069. <https://doi.org/10.1002/pits.22487>
- Guardia, J. (2009). Developing who I am: A self-determination theory approach to the establishment of healthy identities. *Educational Psychologist*, 44(2), 90–104. <https://doi.org/10.1080/00461520902832350>

- Guay, F. (2005). Motivations underlying career decision-making activities: The career decision-making autonomy scale (CDMAS). *Journal of Career Assessment, 13*(1), 77–97.
- Guay, F., Ratelle, C. F., Senécal, C., Larose, S., & Deschênes, A. (2006). Distinguishing developmental from chronic career indecision: Self-efficacy, autonomy, and social support. *Journal of Career Assessment, 14*(2), 235–251.
- Guay, F., Senécal, C., Gauthier, L., & Fernet, C. (2003). Predicting career indecision: A self-determination theory perspective. *Journal of Counseling Psychology, 50*(2), 165.
- Hartung, P. J. (2013). The life-span, life-space theory of careers. *Career Development and Counseling: Putting Theory and Research to Work, 2*, 83–113.
- Hatala, A. R., Pearl, T., Bird-Naytowhow, K., Judge, A., Sjoblom, E., & Liebenberg, L. (2017). “I have strong hopes for the future”: Time orientations and resilience among Canadian indigenous youth. *Qualitative Health Research, 27*(9), 1330–1344.
- Hill, N. E., Witherspoon, D. P., & Bartz, D. (2018a). Parental involvement in education during middle school: Perspectives of ethnically diverse parents, teachers, and students. *The Journal of Educational Research, 111*(1), 12–27.
- Hill, N. E., Liang, B., Price, M., Polk, W., Perella, J., & Savitz-Romer, M. (2018b). Envisioning a meaningful future and academic engagement: The role of parenting practices and school-based relationships. *Psychology in the Schools, 55*(6), 595–608.
- Hirschi, A. (2011). Vocational identity as a mediator of the relationship between core self-evaluations and life and job satisfaction. *Applied Psychology, 60*(4), 622–644.
- Howard, K. A. S., Carlstrom, A. H., Katz, A. D., Chew, A. Y., Ray, G. C., Laine, L., & Caulum, D. (2011). Career aspirations of youth: Untangling race/ethnicity, SES, and gender. *Journal of Vocational Behavior, 79*(1), 98–109. <https://doi.org/10.1016/j.jvb.2010.12.002>
- Ibrahim, A., & El Zaatari, W. (2020). The teacher–student relationship and adolescents’ sense of school belonging. *International Journal of Adolescence and Youth, 25*(1), 382–395.
- Jayaram, S., & Engmann, M. (2014). Developing skills for employability at the secondary level: Effective models for Asia. *Prospects, 44*(2), 221–233. <https://doi.org/10.1007/s11125-014-9302-5>
- Jo, H., Ra, Y. A., Lee, J., & Kim, W. H. (2016). Impact of dysfunctional career thoughts on career decision self-efficacy and vocational identity. *The Career Development Quarterly, 64*(4), 333–344.
- Johansen, V., & Schanke, T. (2013). Entrepreneurship education in secondary education and training. *Scandinavian Journal of Educational Research, 57*(4), 357–368. <https://doi.org/10.1080/00313831.2012.656280>
- Kaplan, A., & Maehr, M. L. (1999). Achievement goals and student well-Being. *Contemporary Educational Psychology, 24*(4), 330–358. <https://doi.org/10.1006/ceps.1999.0993>
- Katz, I., Cohen, R., Green-Cohen, M., & Morsiano-davidpur, S. (2018). Parental support for adolescents’ autonomy while making a first career decision. *Learning and Individual Differences, 65*, 12–19. <https://doi.org/10.1016/j.lindif.2018.05.006>
- Kim, S., Klager, C., & Schneider, B. (2019). The effects of alignment of educational expectations and occupational aspirations on labor market outcomes: Evidence from NLSY79. *The Journal of Higher Education, 90*(6), 992–1015. <https://doi.org/10.1080/00221546.2019.1615333>
- Kracke, B. (2002). The role of personality, parents and peers in adolescents career exploration. *Journal of Adolescence, 25*(1), 19–30. <https://doi.org/10.1006/jado.2001.0446>
- Kvasková, L., Hlado, P., Juhaňák, L., & Macek, P. (2023). Self-esteem and career adaptability: Moderating roles of parental and peer support. *The Career Development Quarterly*.
- Laughland-Booÿ, J., Newcombe, P., & Skrbiš, Z. (2017). Looking forward: Career identity formation and the temporal orientations of young Australians. *Journal of Vocational Behavior, 101*, 43–56.
- Lekes, N., Gingras, I., Philippe, F. L., Koestner, R., & Fang, J. (2010). Parental autonomy-support, intrinsic life goals, and well-Being among adolescents in China and North America. *Journal of Youth and Adolescence, 39*(8), 858–869.
- Lent, R. W., Brown, S. D., & Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counseling Psychology, 47*(1), 36.

- Lent, R. W., Brown, S. D., Talleyrand, R., McPartland, E. B., Davis, T., Chopra, S. B., Alexander, M. S., Suthakaran, V., & Chai, C.-M. (2002). Career choice barriers, supports, and coping strategies: College students' experiences. *Journal of Vocational Behavior, 60*(1), 61–72.
- Li, Y., Doyle Lynch, A., Kalvin, C., Liu, J., & Lerner, R. M. (2011). Peer relationships as a context for the development of school engagement during early adolescence. *International Journal of Behavioral Development, 35*(4), 329–342.
- Ljubini-Golub, T., Rijavec, M., & Olčar, D. (2020). Student flow and burnout: The role of teacher autonomy support and student autonomous motivation. *Psychological Studies, 65*(2), 145–156.
- Lohman, B. J., Kaura, S. A., & Newman, B. M. (2007). Matched or mismatched environments? The relationship of family and school differentiation to adolescents' psychosocial adjustment. *Youth & Society, 39*(1), 3–32.
- Mageau, G. A., Ranger, F., Joussemet, M., Koestner, R., Moreau, E., & Forest, J. (2015). Validation of the perceived parental autonomy support scale (P-PASS). *Canadian Journal of Behavioral Science/revue Canadienne Des Sciences Du Comportement, 47*(3), 251.
- Malecki, C. K., & Demaray, M. K. (2003). What type of support do they need? Investigating student adjustment as related to emotional, informational, appraisal, and instrumental support. *School Psychology Quarterly, 18*(3), 231.
- Malhotra, N., Ayele, Z. E., Zheng, D., & Ben Amor, Y. (2021). Improving social and emotional learning for schoolgirls: An impact study of curriculum-based socio-emotional education in rural Uganda. *International Journal of Educational Research, 108*, 101778. <https://doi.org/10.1016/j.ijer.2021.101778>
- Marion, D., Laursen, B., Zettergren, P., & Bergman, L. R. (2013). Predicting life satisfaction during middle adulthood from peer relationships during mid-adolescence. *Journal of Youth and Adolescence, 42*, 1299–1307.
- Marshall, S. K., Young, R. A., Domene, J. F., & Zaidman-Zait, A. (2008). Adolescent possible selves as jointly constructed in parent-adolescent career conversations and related activities. *Identity: An International Journal of Theory and Research, 8*(3), 185–204.
- Metheny, J., McWhirter, E. H., & O'Neil, M. E. (2008). Measuring perceived teacher support and its influence on adolescent career development. *Journal of Career Assessment, 16*(2), 218–237.
- Mondi, C. F., Giovanelli, A., & Reynolds, A. J. (2021). Fostering socio-emotional learning through early childhood intervention. *International Journal of Child Care and Education Policy, 15*(1), 6. <https://doi.org/10.1186/s40723-021-00084-8>
- Murray-Harvey, R., & Slee, P. T. (2007). Supportive and stressful relationships with teachers, peers and family and their influence on students' social/emotional and academic experience of school. *Journal of Psychologists and Counsellors in Schools, 17*(2), 126–147. <https://doi.org/10.1375/ajgc.17.2.126>
- Musset, P., & Kurekova, L. M. (2018). Working it out: Career guidance and employer engagement. *OECD Education Working Papers, 175*, 1–91.
- Negru-Subtirica, O., & Pop, E. I. (2018). Reciprocal associations between educational identity and vocational identity in adolescence: A three-wave longitudinal investigation. *Journal of Youth and Adolescence, 47*(4), 703–716. <https://doi.org/10.1007/s10964-017-0789-y>
- Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and Research in Education, 7*(2), 133–144.
- Nurmi, J.-E. (1991). How do adolescents see their future? A review of the development of future orientation and planning. *Developmental Review, 11*(1), 1–59. [https://doi.org/10.1016/0273-2297\(91\)90002-6](https://doi.org/10.1016/0273-2297(91)90002-6)
- Nurmi, J.-E., & Salmela-Aro, K. (2002). Goal construction, reconstruction and depressive symptoms in a life-span context: The transition from school to work. *Journal of Personality, 70*(3), 385–420.
- OECD. (2021). *Beyond academic learning: First results from the survey of social and emotional skills*. OECD Publishing. <https://doi.org/10.1787/92a11084-en>

- Pesch, K. M., Larson, L. M., & Seipel, M. T. (2018). Career certainty and major satisfaction: The roles of information-seeking and occupational knowledge. *Journal of Career Assessment*, 26(4), 583–598.
- Pesch, K. M., Larson, L. M., & Surapaneni, S. (2016). Parental autonomy support and career well-being: Mediating effects of perceived academic competence and volitional autonomy. *Journal of Career Assessment*, 24(3), 497–512.
- Pietarinen, J., Soini, T., & Pyhältö, K. (2014). Students' emotional and cognitive engagement as the determinants of well-being and achievement in school. *International Journal of Educational Research*, 67, 40–51. <https://doi.org/10.1016/j.ijer.2014.05.001>
- Porfeli, E. J., & Lee, B. (2012). Career development during childhood and adolescence. *New Directions for Youth Development*, 2012(134), 11–22.
- Porfeli, E. J., Lee, B., Vondracek, F. W., & Weigold, I. K. (2011). A multi-dimensional measure of vocational identity status. *Journal of Adolescence*, 34(5), 853–871. <https://doi.org/10.1016/j.adolescence.2011.02.001>
- Reeve, J. (2006). Teachers as facilitators: What autonomy-supportive teachers do and why their students benefit. *The Elementary School Journal*, 106(3), 225–236.
- Reeve, J. (2009). Why teachers adopt a controlling motivating style toward students and how they can become more autonomy supportive. *Educational Psychologist*, 44(3), 159–175.
- Reeve, J., Jang, H., Carrell, D., Jeon, S., & Barch, J. (2004). Enhancing students' engagement by increasing teachers' autonomy support. *Motivation and Emotion*, 28(2), 147–169.
- Ross, K. M., & Tolan, P. (2018). Social and emotional learning in adolescence: Testing the CASEL model in a normative sample. *The Journal of Early Adolescence*, 38(8), 1170–1199.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Publications.
- Ryan, R. M., Huta, V., & Deci, E. L. (2008). Living well: A self-determination theory perspective on eudaimonia. *Journal of Happiness Studies*, 9(1), 139–170.
- Ryff, C. D., & Singer, B. H. (2008). Know thyself and become what you are: A eudaimonic approach to psychological well-being. *Journal of Happiness Studies*, 9(1), 13–39.
- Santos, P. J., Ferreira, J. A., & Gonçalves, C. M. (2014). Indecisiveness and career indecision: A test of a theoretical model. *Journal of Vocational Behavior*, 85(1), 106–114.
- Savickas, M. L. (2002). Career construction. *Career Choice and Development*, 149, 205.
- Schuitema, J., Peetsma, T., & van der Veen, I. (2016). Longitudinal relations between perceived autonomy and social support from teachers and students' self-regulated learning and achievement. *Learning and Individual Differences*, 49, 32–45. <https://doi.org/10.1016/j.lindif.2016.05.006>
- Seginer, R., Vermulst, A., & Shoyer, S. (2004). The indirect link between perceived parenting and adolescent future orientation: A multiple-step model. *International Journal of Behavioral Development*, 28(4), 365–378.
- Shahar, G., Henrich, C. C., Blatt, S. J., Ryan, R., & Little, T. D. (2003). Interpersonal relatedness, self-definition, and their motivational orientation during adolescence: A theoretical and empirical integration. *Developmental Psychology*, 39(3), 470.
- Skorikov, V., & Vondracek, F. W. (1998). Vocational identity development: Its relationship to other identity domains and to overall identity development. *Journal of Career Assessment*, 6(1), 13–35. <https://doi.org/10.1177/106907279800600102>
- Soenens, B., & Vansteenkiste, M. (2005). Antecedents and outcomes of self-determination in 3 life domains: The role of parents' and teachers' autonomy support. *Journal of Youth and Adolescence*, 34(6), 589–604.
- Sokol, J. T. (2009). Identity development throughout the lifetime: An examination of Eriksonian theory. *Graduate Journal of Counseling Psychology*, 1(2), 14. <https://publications.marquette.edu/gjcp/vol1/iss2/14>
- Staff, J., & Mortimer, J. T. (2008). Social class background and the school-to-work transition. *New Directions for Child and Adolescent Development*, 2008(119), 55–69.

- Strauser, D. R., Lustig, D. C., & Çiftçi, A. (2008). Psychological well-being: Its relation to work personality, vocational identity, and career thoughts. *The Journal of Psychology, 142*(1), 21–35.
- Stringer, K., Kerpelman, J., & Skorikov, V. (2011). Career preparation: A longitudinal, process-oriented examination. *Journal of Vocational Behavior, 79*(1), 158–169.
- Stringer, K., Kerpelman, J., & Skorikov, V. (2012). A longitudinal examination of career preparation and adjustment during the transition from high school. *Developmental Psychology, 48*(5), 1343.
- Telli, S. (2016). Students' perceptions of teachers' interpersonal behavior across four different school subjects: Control is good but affiliation is better. *Teachers and Teaching, 22*(6), 729–744.
- van Rooij, E. C., Jansen, E. P., & van de Grift, W. J. (2017). Secondary school students' engagement profiles and their relationship with academic adjustment and achievement in university. *Learning and Individual Differences, 54*, 9–19.
- Vansteenkiste, M., Aelterman, N., De Muynck, G.-J., Haerens, L., Patall, E., & Reeve, J. (2018). Fostering personal meaning and self-relevance: A self-determination theory perspective on internalization. *The Journal of Experimental Education, 86*(1), 30–49.
- Vansteenkiste, M., Sierens, E., Goossens, L., Soenens, B., Dochy, F., Mouratidis, A., Aelterman, N., Haerens, L., & Beyers, W. (2012). Identifying configurations of perceived teacher autonomy support and structure: Associations with self-regulated learning, motivation and problem behavior. *Learning and Instruction, 22*(6), 431–439. <https://doi.org/10.1016/j.learninstruc.2012.04.002>
- Wentzel, K. R. (1998). Social relationships and motivation in middle school: The role of parents, teachers, and peers. *Journal of Educational Psychology, 90*(2), 202.
- Wentzel, K. R., Battle, A., Russell, S. L., & Looney, L. B. (2010). Social supports from teachers and peers as predictors of academic and social motivation. *Contemporary Educational Psychology, 35*(3), 193–202.
- Wentzel, K. R., Muenks, K., McNeish, D., & Russell, S. (2017). Peer and teacher supports in relation to motivation and effort: A multi-level study. *Contemporary Educational Psychology, 49*, 32–45. <https://doi.org/10.1016/j.cedpsych.2016.11.002>
- Yeager, D. S. (2017). Social and emotional learning programs for adolescents. *The Future of Children, 27*(1), 73–94.
- Young, R. A. (1983). Career development of adolescents: An ecological perspective. *Journal of Youth and Adolescence, 12*(5), 401–417.
- Yu, M. V. B., Johnson, H. E., Deutsch, N. L., & Varga, S. M. (2018a). “She calls me by my last name”: Exploring adolescent perceptions of positive teacher-student relationships. *Journal of Adolescent Research, 33*(3), 332–362.
- Yu, S., Traynor, A., & Levesque-Bristol, C. (2018b). Psychometric examination of the short version of the learning climate questionnaire using item response theory. *Motivation and Emotion, 42*(6), 795–803. <https://doi.org/10.1007/s11031-018-9704-4>
- Zhang, J., Yuen, M., & Chen, G. (2018). Teacher support for career development: An integrative review and research agenda. *Career Development International, 18*(1), 1–15. <https://doi.org/10.1108/CDI-09-2016-0155>
- Zhu, S., Tse, S., Cheung, S.-H., & Oyserman, D. (2014). Will I get there? Effects of parental support on children's possible selves. *British Journal of Educational Psychology, 84*(3), 435–453.

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Chapter 9

Self-Determination and Social & Emotional Learning for Students with Special Educational Needs



Leng Chee Kong

Abstract Educators have often referenced the Collective for Academic, Social and Emotional Learning (CASEL) framework as their guide on social-emotional learning (SEL). The CASEL framework suggests five broad areas that educators can focus on in teaching SEL competence—self-awareness, self-management, social-awareness, relationship skills and responsible decision-making (CASEL, 2022). Emerging evidence suggests that students who were explicitly taught SEL can acquire SEL skills and experience a wide range of benefits. Students have also reported being motivated in SEL and in their application of SEL skills. While there are some evidence to suggest that students in the general population can benefit from SEL, little is known about the efficacy of SEL among students with special educational needs (SEN) and even less is known about the motivation of students with SEN in SEL. In this review paper, I examined empirical evidence on the association between self-determination and SEL among K-12 students with SEN, through the lens of the Self-Determination Theory (SDT) and its associated Functional Model of Self-Determination (FMSD). In reviewing the empirical papers, I sought to answer the following question: Can self-determination support students with special educational needs in social-emotional learning? This paper provides useful information on the teaching and learning of SEL in students with SEN, and it hopes to empower educators in supporting students with SEN in their SEL.

Introduction

Social and Emotional Learning

Educators have often referenced the Collective for Academic, Social and Emotional Learning (CASEL) framework as their guide on social and emotional learning (SEL). The CASEL framework recommends five broad areas that educators can focus on in

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the teaching and learning of social and emotional competence—self-awareness, self-management, social-awareness, relationship skills and responsible decision-making (CASEL, 2022). To detail the constructs, self-awareness includes the identification and comprehension of one's own emotions, thoughts, strengths, weaknesses, needs, interests, values and goals; self-management involves the self-regulation of one's own emotions, thought processes and behaviors; social-awareness refers to the understanding and appreciation of diversity among people and sociocultural norms including the ability for empathy and perspective-taking; relationship skills comprise the ability to manage conflicts, establish and sustain healthy relationships with others; and responsible decision-making concerns choice-making that is grounded in sound moral and ethical values and reasonings, in matters regarding the self, others and the community (CASEL, 2022).

In alignment with international standards such as the CASEL, the Ministry of Education (MOE, Singapore) outlined a 21st Century Competencies Framework (21CC; MOE, 2022) which spells out the values, competencies and skills that educators in Singapore believe are essential for students to have as they navigate the volatile, uncertain, complex and ambiguous terrains of the twenty-first century. Incorporated into the 21CC framework are the social and emotional competencies as mentioned above. Besides providing a guide and setting an expectation on the teaching and learning of SEL, the 21CC framework also conveys the importance of nurturing SEL knowledge and skills, which are to be taught alongside the core academic curriculum. Consequently, educators are giving greater emphasis to the teaching and learning of SEL in schools.

Increasing evidence suggests that SEL can contribute to students' development in numerous educationally important ways. Students who partook in SEL had been found to have better self-concept (Durlak et al., 2011; Sklad et al., 2012), social skills (Raimundo et al., 2013; Sklad et al., 2012), resilience (Castro-Olivo, 2014; Cramer & Castro-Olivo, 2016; LaBelle, 2019) and better academic achievement (Ashdown & Bernard, 2012; Durlak et al., 2011; Sklad et al., 2012); fewer conduct problems (Ashdown & Bernard, 2012; Wong et al., 2014) such as aggression (Durlak et al., 2011; Raimundo et al., 2013), bullying (Durlak et al., 2011) and antisocial behaviors (Sklad et al., 2012); and reduced emotional distress such stress (Durlak et al., 2011; Valosek et al., 2019), anxiety (Wang et al., 2016), depression (Durlak et al., 2011) and social withdrawal (Durlak et al., 2011) relative to students who did not participate in SEL. Taken together, the studies show that SEL can have beneficial impacts on students' development.

Social and Emotional Learning for Students with Special Educational Needs

With this clarity on the benefits of SEL with students in the general education, educators are now exploring further and deeper into understanding which specific

groups of students can benefit from SEL. One oft-overlooked group of students which is slowly gaining attention is the students with special educational needs (SEN).

Students with Special Educational Needs

The conceptualization of SEN is underpinned by the assumptions of normality and abnormality. Statisticians assume that the human attributes can be represented by a normal distribution curve with these attributes generally clustering around the measure of central tendency—the mean which is deemed as the norm(al). When these attributes deviate away from the mean—the norm, typically more than two standard deviations above or below the mean, the students are deemed to be “exceptional” or “abnormal” (Dudley-Marling & Burns, 2014). A student is considered to have SEN(s) when his/her learning attribute(s) is/are situated on both tails of the normal distribution curve.

Students with SENs require special interventions to help them realize their potentials. This is especially so for students assessed to be on the lower tail of the curve as they would have deficits in one or more learning attributes likely caused by a personal disability or disabilities. They would need special interventions to help them acquire the abilities and skills they would need to function as normally as possible in an environment designed for typically developing people.

Social and Emotional Learning for Students with Special Educational Needs

Educators around the world are recognizing that for students with SEN, the acquisition of SEL knowledge and skills cannot be left to chance, and that the teaching and learning of SEL knowledge and skills must be made intentional and explicit for it to benefit the students. With this realization on the importance of SEL, it has been made mandatory in many places around the world. For example, in the recent 87th session of the Texas Legislature, Texas passed a bill (Senate Bill 123) to ensure that all students get to learn skills related to SEL (Texas A&M University, 2022). In the UK, the Every Child Matters agenda following the Children’s Act of 2004 also sought to ensure that SEL is made available to all students (HMTreasury, 2003).

Locally in Singapore, the MOE, the National Council of Social Services and the special education schools jointly developed a Special Education Curriculum Framework titled “Living, Learning and Working in the 21st Century” (MOE, 2018) to set the direction for excellence in teaching and learning across the special education schools. While not legislated, in the framework, the MOE spells out her expectations of a holistic education for students with SEN and articulates six “Living, Learning and Working” learning outcomes in the domains of academic learning, social-emotional learning, daily living, vocational learning, the arts, physical education and sports for students with SEN. Cognizant of the diverse and unique learning needs of the students, the framework also provides space and flexibility for the special education

schools to customize their curriculum amidst meeting national standards. Of interest in this paper is the recognition on the importance of SEL in the curriculum for students with SEN and with this framework as a guide, educators are entrusted with the mission to support students with SEN in their SEL.

This paper serves to support educators in their endeavors. It aims to provide educators with information on the teaching and learning of SEL in students with SEN. It seeks to explore further by examining if students with SEN can be self-determined in SEL. This brings us to the discussion on the concept of self-determination and a motivation theory—the Self-Determination Theory (SDT).

Self-determination

The concept of self-determination is no stranger in the literature of disability. In the 1990s, the United States Department of Education called for and funded projects to promote self-determination in youth with disabilities. This initiative fueled several ground-up efforts in fostering self-determination in students with SEN. It also brought about several attempts at conceptualizing and defining the construct of self-determination.

A literature scan showed that self-determination has been defined in a number of ways such as a basic human right (i.e., self-advocacy and self-governance), a specific response class (i.e., a set of behaviors) or a function of a response class (i.e., the purpose of the behaviors) (Ackerman, 2006; Wehmeyer, 1999). This paper focuses on self-determination as a function of a response class. In this perspective, “determinism” refers to the proposition that all events, including thought and behavior, are caused by events that occurred before the latter event. Thus, self-determined behavior means behavior that is caused by the individual him/herself with the individual as the causal agent, as opposed to being caused by someone or something else. In this vein, an individual who is self-determined is someone who causes things to happen in his/her own life. Having had clarity of his/her needs, values, interests, preferences and choices, he/she acts volitionally, instead of being coerced by others or circumstances to act in certain ways (Wehmeyer et al., 2010).

In alignment with the objective of this book, this chapter focuses on reviewing empirical papers grounded on the SDT (Ryan & Deci, 2000) and because few papers framed using the SDT surfaced from the search, this review is supplemented with studies conducted using the Functional Model of Self-Determination (FMSD) (Wehmeyer, 1999) which was built on the theoretical underpinnings of the SDT (Wehmeyer, 1999). Both theories—SDT and FMSD, will be elaborated in the sections below.

Self-determination Theory (SDT)

Deci and Ryan (1980) were one of the first researchers to explore the psychology of self-determination. They proposed the SDT (Deci & Ryan, 1980; Ryan & Deci, 2000a, 2000b) to explain the reasons behind self-determined behaviors. Within the theory are two tenets—motivational regulations and basic psychological needs, which can help us understand motivations in learning.

Motivational Regulations

In the SDT, motivational regulations are conceptualized to occur in a continuum of relative autonomy, with amotivation, external regulation, introjection, identification, integration and intrinsic motivation occurring in increasing level of autonomy. Among these motivational regulations, amotivation has the lowest level of autonomy and it represents non-regulation of activity. A student is likely to experience amotivation toward an activity when he/she does not value the activity, does not feel competent to carry out the activity or does not believe that his/her effort will lead to meaningful outcomes.

In between amotivation and intrinsic motivation are what Ryan and Deci (2000a, 2000b, 2000c) coined the extrinsically motivated regulations—external regulation, introjection, identification and integration. Of these extrinsically motivated regulations, external regulation has the lowest level of autonomy. A student is likely to experience external regulation when his/her action is driven by external rewards or punishments or the need to comply to some external rules. Occurring in higher level of autonomy to external regulation is introjection. A student is likely to experience introjection when his/her action is driven by internal rewards or punishments or the desire to enhance his/her ego. Somewhat more autonomous than introjection is identification. A student is likely to experience identification when he/she understands the importance of the learning activity and accepts it. The most autonomous form of extrinsically motivated regulation is integration. A student is likely to experience integration toward a learning activity when he/she has thoroughly examined the activity, grasped its meaning and worth and assessed the regulation to be in congruence with his/her values, needs and interests.

The regulation with the highest level of autonomy is intrinsic motivation. Behaviors that are intrinsically motivated are totally self-determined (Ryan & Deci, 2000a, 2000b, 2000c).

Basic Psychological Needs

Another key tenet of the SDT is the concept of basic psychological needs of autonomy, competence and relatedness, which Ryan and Deci (2000a, 2000b, 2000c) professed are essential nutrients for optimal functioning and growth. Autonomy

is the motive for self-organized behaviors. Competence is the motive for mastery in one's endeavors. Relatedness is the motive for meaningful relationship with people (Ryan & Deci, 2000a, 2000b, 2000c). According to Ryan and Deci (2000a, 2000b, 2000c), these three needs are inner motivational resources and when satisfied, can energize and motivate an individual.

Of importance is that self-determination via basic psychological needs satisfaction and autonomous motivational regulation can foster adaptive SEL outcomes. Empirically, psychological needs satisfaction has been associated positively with social-emotional competencies (Maior et al., 2020), problem-solving confidence (Dost-Gözkan, 2021), self-esteem/self-efficacy (Erturan-Ilker, 2014), self-control (Mills & Allen, 2020); and to associate negatively with perceived stress (Quested et al., 2011; Raufelder et al., 2014), academic burnout (Shih, 2015), anxiety (Dost-Gözkan, 2021; Quested et al., 2011) and emotional exhaustion (Maior et al., 2020). Similarly, autonomous motivational regulation such as intrinsic regulation has been reported to positively predict self-esteem (Erturan-Ilker, 2014), persistence (Rottensteiner et al., 2015) and greater effort (León et al., 2015); and to negatively predict anxiety (Navarro et al., 2021) and burnout (Harris & Watson, 2014); whereas students' controlled motivational regulation such as extrinsic regulation predicted burnout (Harris & Watson, 2014), anxiety and anger (Ruiz et al., 2017); and negatively predicted self-esteem (Erturan-Ilker, 2014). Additionally, SDT-based intervention could enhance students' self-control (Muraven, 2008; Muraven et al., 2008) and reduce perceived stress (Cantarero et al., 2021; Shannon et al., 2019). When taken together, the studies suggested that the more self-determined regulations can facilitate SEL outcomes.

Functional Model of Self-determination (FMSD)

In an effort to link theory and practice, Wehmeyer (1999) deconstructed the SDT and using the tenets of the SDT, designed the FMSD specifically for use in the educational context (O'Brien, 2018). The FMSD assumes four characteristics of self-determined behaviors. First, the student acts autonomously. Second, the behaviors are self-regulated. Third, the student responds in a psychologically empowered manner. And fourth, the student behaves with self-awareness and self-realization. In the FMSD, self-determination is viewed as a function of a behavior wherein self-determination is a dispositional characteristic and antecedent to educational outcomes.

Purpose of the Present Study

While SEL has been widely explored and its impacts on educational outcomes examined with students in the general population, little is known about the efficacy of SEL among students with SEN, and even less is known about the motivation of students

with SEN in SEL. Through this review paper, I seek to examine empirical evidence and provide information and insight on the value of SEL among K-12 students with SEN, through the lens of the SDT and its associated FMSD. Specifically, I seek to understand whether self-determination can support students with SEN in SEL. My research question is: Can self-determination support students with special educational needs in social-emotional learning?

Method

In this review paper, I adopted Burke’s (2010) approach in reviewing empirical studies on SEL with students with SEN, that are grounded on the SDT. In reviewing the empirical studies, a search was conducted via Scholar’s Portal, EBSCOhost, ERIC and PsycINFO. Search terms included “Self-Determination Theory”; “motivation”; “basic psychological needs”; “social and emotional learning”; “social-emotional learning”; “socioemotional learning”; “self-awareness”; “self-management”; “social awareness”; “relationship skills”; “responsible decision-making”; “K-12”; “children”; “adolescents”; “youth”; “students”; “special educational needs”; “schools”; “general education”; “special education”; “disability”; “disabled”. Boolean connectors (AND, OR) were used to combine search terms. Dissertations, theses and conference papers were not accessed. Only empirical studies written in English were reviewed. Both quantitative (cross-sectional, longitudinal and intervention) and qualitative studies were included. From the search, 17 empirical studies that met the criteria were reviewed. Table 9.1 presents the inclusion and exclusion criteria for the selection of relevant studies, and Table 9.2 presents a summary of the reviewed studies.

Table 9.1 Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Peer-reviewed publications and journals in English	Non-English publications
Full paper	Only abstract accessible, dissertations, theses and conference papers
Study sample of K-12 students with SEN, including students with SEN in general education primary and secondary schools and students with SEN in special education schools	Study sample of early childhood, and higher education students, including college and university students; and gifted students
Quantitative studies including cross-sectional, longitudinal and intervention studies	–
Qualitative studies	–

Table 9.2 Self-determination and social & emotional learning for students with special educational needs—quantitative studies

Study	N	Sample	Age	Research design	Dependent variables	Relationship(s) between SD, SEL and outcomes	Effect size/data reported
Carter et al. (2010) (FMSD-based)	<ul style="list-style-type: none"> 196 high school students 119 teachers 	<ul style="list-style-type: none"> High school students (64.8% male) with mild/moderate Cognitive Disabilities ($n = 49$), Emotional and Behavioral Disorders ($n = 50$), Learning Disabilities ($n = 97$) Teachers (67.2% female) Participants were from 33 high schools located within 26 rural, suburban, and urban school districts in Midwestern state in USA 	<ul style="list-style-type: none"> For students, $M_{age} = 17.3$ years ($range = 14.5\text{--}20.8$ years) For teachers, $M_{age} = 13.8$ years ($SD = 9.7$ years) 	<ul style="list-style-type: none"> Correlational, student and teacher self-reported measures 	<ul style="list-style-type: none"> AIR self-determination scale (Wolman et al., 1994)—measures self-determination Social Skills Rating System—Secondary Teachers (Gresham & Elliott, 1990)—measures social skills, problem behaviors and academic competence 	<ul style="list-style-type: none"> From teachers' report, EHD students' capacity for self-determination was significantly lower than those of students with LD but higher than youth with CD From students' report, social skills and problem behaviors were significant predictors of students' capacity for self-determination; but were not associated with the opportunities for self-determination Teachers generally evaluated students' capacity for self-determination lower than the students themselves 	<ul style="list-style-type: none"> ANOVAs were used to evaluate: (i) teachers' perception of students' (EBD, LD, CD) self-determination, (ii) teachers' and students' perception of students' self-determination Standardized correlational data between self-determination and dependent variables were reported

(continued)

Table 9.2 (continued)

Study	N	Sample	Age	Research design	Dependent variables	Relationship(s) between SD, SEL and outcomes	Effect size/data reported
Chou (2020) (SDT-based)	<ul style="list-style-type: none"> • 44 youths with Autism Spectrum Disorders • Special education teachers 	<ul style="list-style-type: none"> • Youths with Autism Spectrum Disorders (ASD) from junior high schools in northern part of Taiwan, 84.1% male, all had social and behavioral problems 	<ul style="list-style-type: none"> • $M_{age} = 13.42$ years (SD = 0.70) 	<ul style="list-style-type: none"> • 2 (experiment, $n = 24$ vs control, $n = 20$) × 2 (pre- and post-test) design, controlling for students' cognitive functioning • Intervention program involves the Navigation of Social Engagement (NOSE) model which teaches self-directed strategies associated with promoting self-determination, to improve the social problem-solving ability of students with ASD 	<ul style="list-style-type: none"> • Researcher developed study-specific teacher- and student-rated social problem-solving questionnaires—measures students' awareness and self-directed problem-solving • School-Age Students Self-Determination Scale (Chao, 2011)—measures students' self-determination (self-awareness, self-efficacy, self-regulation, autonomous functioning) 	<ul style="list-style-type: none"> • Students in the experimental group were rated as having significantly greater awareness and self-directedness in problem-solving than students in the control group 	<ul style="list-style-type: none"> • Independent-samples <i>t</i>-test was used to evaluate difference between the two groups • Cohen's <i>d</i> reported
Dubois et al. (2023) (SDT-based)	<ul style="list-style-type: none"> • 218 students 	<ul style="list-style-type: none"> • Transition youths with special needs (ADHD, learning disorder, developmental language disorder, dyslexia; 63% male; 80% Caucasians; French-speaking) 	<ul style="list-style-type: none"> • $M_{age} = 17.00$ years, range = 15–21 years old 	<ul style="list-style-type: none"> • Correlational, student self-reported measures 	<ul style="list-style-type: none"> • Perceived Parental Autonomy-Support Scale (Mageau et al., 2015)—choice, rationale, acknowledgment (students responded on their perceived mothers', fathers', teachers' and friends' autonomy-support in the context of their upcoming job search) • Career Decision-Making Autonomy Scale (Guay, 2005)—measures job search controlled and autonomous motivations • Warwick-Edinburgh Mental Well-being Scale (Clarke et al., 2011; Tennant et al., 2007)—measures well-being 	<ul style="list-style-type: none"> • Perceived fathers' autonomy-support predicted students' autonomous motivation in school-to-work transition and well-being 	<ul style="list-style-type: none"> • Standardized correlational data were reported

(continued)

Table 9.2 (continued)

Study	N	Sample	Age	Research design	Dependent variables	Relationship(s) between SD, SEL and outcomes	Effect size/data reported
Hatfield et al. (2017) (SDT-based)	<ul style="list-style-type: none"> 94 students (intervention = 49, control = 45) 	<ul style="list-style-type: none"> Youths with autism spectrum disorder; mostly male (intervention 79.6%, control 71.7%) enrolled in years 8 to 11 in Australian schools 	<ul style="list-style-type: none"> M_{age} (Intervention) = 14.8 years M_{age} (Control) = 15.1 years (SD = 1.64) 	<ul style="list-style-type: none"> A quasi-randomized controlled trial Intervention group experienced the BOOST-A™ for 12 months, control group had practice as usual Data collected from parents and youths 	<ul style="list-style-type: none"> AIR Self-Determination Scale (Wolman et al., 1994)—measures self-determination Career Development Inventory-Australia-Short Form (Thompson et al., 1981)—measures career planning and exploration Personal Well-being Index (Cummins & Lau, 2005)—measures children quality of life Learning Climate Questionnaire (Williams & Deci, 1996)—measures environmental support Transition Planning Objectives Scale (designed for this trial)—evaluates transition planning such as exploration of interests and strengths, goal setting, work experience, mentoring and part-time work 	<ul style="list-style-type: none"> There were significant differences in favor of the intervention group: (i) opportunity for self-determination at home as reported by parents, (ii) career exploration as reported by parents and adolescents, (iii) transition-specific self-determination as reported by parents 	<ul style="list-style-type: none"> Independent-samples t-test and/or Mann-Whitney U-test Effect size not reported
Kausik and Hussain (2020) (SDT-based)	<ul style="list-style-type: none"> 7 students 	<ul style="list-style-type: none"> Students with Learning Disability (LD) receiving education in a special school in Chennai, India LD students have difficulty in specific academic areas, organizational skills, information processing, memory and social skills 6 male, 1 female 	10–16 years old	<ul style="list-style-type: none"> Pre- and post-test design without control Intervention was The Nurtured Heart Approach (Glasser & Block, 2011) underpinned by SDT aimed at nurturing the three needs 	<ul style="list-style-type: none"> Self-Regulation Questionnaire Academic (Deci et al., 1992)—measures students' external, introjected, identified and intrinsic regulations Children's Self-Efficacy Scale (Bandura, 2006)—measures students' perceived confidence Personal Well-being Index School Children (Cummins & Lau, 2005)—measures students' perceived well-being Basic Need Satisfaction Scale (Cagné, 2003)—measures students' basic psychological needs satisfaction 	<ul style="list-style-type: none"> There were significant pre- and post-test differences in basic needs satisfaction, all four academic motivations and academic self-efficacy 	<ul style="list-style-type: none"> Effect sizes <i>r</i> reported/Wilcoxon Matched-Pairs Sign Ranks

(continued)

Table 9.2 (continued)

Study	N	Sample	Age	Research design	Dependent variables	Relationship(s) between SD, SEL and outcomes	Effect size/data reported
Rogers and Tannock (2018-based)	• 117 students	• Students with ADHD; 48% male, 52% female; English or French speaking	• $M_{age} = 7.94$ years (SD = 1.03)	• 2 (bottom 25% ADHD symptoms versus top 25% ADHD symptoms) × 1 research design	<ul style="list-style-type: none"> Strengths and Weaknesses of ADHD Symptoms and Normal Behavior Scale-Teacher Form (SWAN-T) (Swanson et al., 2005)—to screen for ADHD symptoms The Classroom Environment Scale (CES) (McTaggart, 2009)—to evaluate children's perceptions of autonomy-support, relatedness and competence Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997)—to measure conduct problems Woodcock-Johnson-III Test of Achievement (WJ-III) (Woodcock et al., 2007)—to measure word reading ability 	<ul style="list-style-type: none"> Students with high levels of ADHD symptoms reported feeling less support for their autonomy, less related to their teachers, less competent and significantly lower total needs satisfaction, after controlling for the effects of child age, conduct problems and reading ability 	<ul style="list-style-type: none"> Comparative statistics (ADHD versus non-ADHD) from one-way ANCOVAs on teacher-student relatedness, competence and total needs satisfaction were reported r^2 reported
Pierson et al. (2008) (FMSD-based)	• 90 students	• Secondary school students with high-incidence disabilities (43 with Emotional Disability, 47 with Learning Disability); USA; 66.7% male	• $M_{age} = 16$ years (range: 14–19 years old)	• Correlational, special education teachers' report of students	<ul style="list-style-type: none"> AIR Self-Determination Scale (Wolman et al., 1994)—measures students' capacity and opportunity to engage in self-determined behaviors The Social Skills Rating System-Secondary Teachers Version (Gresham & Elliott, 1990)—measures Social Skills, Problem Behaviors, Academic Competence 	<ul style="list-style-type: none"> Social skills significantly predicted teachers' ratings of youth's self-determination capacity 	<ul style="list-style-type: none"> Correlational data between self-determination and dependent variables were reported

(continued)

Table 9.2 (continued)

Study	<i>N</i>	Sample	Age	Research design	Dependent variables	Relationship(s) between SD, SEL and outcomes	Effect size/data reported
Shogren et al. (2012) (FMSD-based)	<ul style="list-style-type: none"> • 312 students 	<ul style="list-style-type: none"> • High school students with disabilities (30% intellectual disability, 70% learning disability) from USA 	<ul style="list-style-type: none"> • (Treatment: $n = 173$, $M_{age} = 16.3$ years old, $SD = 1.4$, 56% male; Control: $n = 139$, $M_{age} = 16.6$ years old, $SD = 1.34$, 56% male) 	<ul style="list-style-type: none"> • 2 (treatment versus control) \times 1 (randomized at the school level) • Intervention was The Self-Determined Learning Model of Instruction 	<ul style="list-style-type: none"> • Goal Attainment Scaling (GAS) (Carr, 1979)—measures student progress on academic and transition-related goals 	<ul style="list-style-type: none"> • The intervention led to significant changes in goal attainment and access to general education curriculum of students with intellectual disability and learning disabilities; however, there were differential impacts on the two groups of students 	<ul style="list-style-type: none"> • Effect size not reported

(continued)

Table 9.2 (continued)

Study	N	Sample	Age	Research design	Dependent variables	Relationship(s) between SD, SEL and outcomes	Effect size/data reported
Solberg et al. (2012) (SDT-based)	• 135 students	• Students with high-incidence disabilities (learning disabilities, emotional and behavioral disabilities, other health impairments) involved in Individualized Learning Program in 14 special education schools in USA • 38.5% females, 61.5% males	• 10th and 12th grade students (Mean age not reported)	• Correlational, student self-reported measures	<ul style="list-style-type: none"> • Quality Learning Experiences Scale (Solberg et al., 2010)—measures the students' perceived quality learning experiences • Career-Search Self-Efficacy Scale (Solberg et al., 1994)—measures perceived confidence in performing career-search-related tasks • Goal Setting Scale (Howard et al., 2009)—measures the degree to which students actively select and establish goals • Motivation to Attend School Scale (Close & Solberg, 2008)—assesses the reasons why students attend school • Academic Self-Efficacy Scale (Solberg et al., 1998)—measures academic self-efficacy • Ideas and Attitudes on Academic-Career Future Scale (Nota et al., 2005)—measures whether a student is engaged in making educational and career decisions • Well-Being Scale (Solberg et al., 1998)—assesses emotional/psychological and physical health-related concerns • Academic Stress Scale (Solberg et al., 1998)—assesses student's difficulties in completing academic-related tasks • Academic performance/GPA—obtain from the students' GPA 	<ul style="list-style-type: none"> • Students with better quality learning experiences demonstrated increased career-search self-efficacy • Students with greater career-search self-efficacy were more highly engaged in goal setting, which further predicted their motivation to attend school and academic self-efficacy • Students with higher academic self-efficacy had higher grades 	<ul style="list-style-type: none"> • Standardized correlational data between self-determination and dependent variables were reported

(continued)

Table 9.2 (continued)

Study	<i>N</i>	Sample	Age	Research design	Dependent variables	Relationship(s) between SD, SEL and outcomes	Effect size/data reported
Stormont et al. (2021) (SDT-based)	• 37 students	• Students identified with a learning disability (<i>n</i> = 23) or an emotional disturbance (<i>n</i> = 14), elementary schools in a Mid-Atlantic, Urban community • 58% male	• $M_{\text{age}} = 10.4$ years ($SD = 0.53$)	• 2 (pre- and post-intervention) × 2 (experimental, <i>n</i> = 17 vs. control, <i>n</i> = 20) randomized controlled design • Intervention program STARS was an autonomy-supportive self-management or self-monitoring training program that promotes relationship and social competency skills	• Social Behavior at School Scales of the Elementary School Success Profile (ESSP)—Teacher Version (Webber et al., 2012); Teacher-rated social skills, sociability, learning behavior and peaceful interactions	• There was improved social skills post-intervention	• Univariate analyses; <i>d</i> reported
Tomaszewski et al. (2022) (FMSD-based)	• 237 students	• Autistic youths without ID, USA • 76% male	• $M_{\text{age}} = 18.36$ years ($SD = 1.64$)	• Correlational, parent-and self-reported measures	• AIR Self-Determination Scale (AIR-SDS) (Wolman et al., 1994) • Social Responsiveness Scale (SRS) (Constantino, & Gruber, 2012) • Behavior Rating Inventory of Executive Function (BRIEF-2) (Gioia et al., 2015) or the Behavior Rating Inventory of Executive Function (BRIEF-A) (Roth et al., 2004) • Center for Epidemiologic Studies Depression Scale (CESD) (Radloff, 1977) or the CESD-R (Eaton et al., 2004)	• Self-reported capacity for self-determination was associated with lower depression and fewer executive functioning problems • Parent-reported capacity for self-determination was associated with lower parent-reported social communication difficulties, fewer parent-reported EF problems	• Relevant to the topic in this paper, standardized correlational data between self-determination and dependent variables were reported

(continued)

Table 9.2 (continued)

Study	N	Sample	Age	Research design	Dependent variables	Relationship(s) between SD, SEL and outcomes	Effect size/data reported
Wehmeyer and Lawrence (1995) (FMSD-based)	<ul style="list-style-type: none"> 53 students 	<ul style="list-style-type: none"> High school students with learning disability ($n = 27$), mild mental retardation ($n = 16$), other health impaired ($n = 3$), emotional disorder ($n = 1$), no diagnosis ($n = 6$); 47% males; USA 	<ul style="list-style-type: none"> $M_{age} = 16.91$ years, $SD = 1.60$, range = 15–21 years old 	<ul style="list-style-type: none"> One group pre- and post-experimental design 	<ul style="list-style-type: none"> The Arc's Self-Determination Scale (Wehmeyer, 1995)—measures students' (a) autonomy, (b) self-regulation, (c) psychological empowerment and (d) self-realization Adult version of the Nowicki–Strickland Internal–External Scale (ANS-IE) (Nowicki & Duke, 1974)—measures locus of control Self-Efficacy Scale (SES) (Sherer et al., 1982)—measures a general belief in one's competence 	<ul style="list-style-type: none"> There was significant whole group difference in pre- and post-intervention self-efficacy There was no significant difference in pre- and post-intervention in any of the items for males There was significant difference in pre- and post-intervention in locus of control for females Multiple regression analyses showed that students' pre-intervention self-realization, autonomy and locus of control contributed 21% of the variance of post-intervention self-efficacy score and the changes were primarily among young women with disabilities 	<ul style="list-style-type: none"> Repeated measures ANOVA was used to evaluate pre- and post-intervention measures Effect size not reported

(continued)

Table 9.2 (continued)

Study	<i>N</i>	Sample	Age	Research design	Dependent variables	Relationship(s) between SD, SEL and outcomes	Effect size/data reported
Wehmyer et al. (2011) (FMSD-based)	<ul style="list-style-type: none"> 493 students 	<ul style="list-style-type: none"> Middle or high school students receiving special education services; learning disability (31%), mental retardation (27%); 35.9% female; USA 	<ul style="list-style-type: none"> $M_{\text{age}} = 16.02$ years, $SD = 2.21$, range = 11.3 to 21.8 years old 	<ul style="list-style-type: none"> Random control trial; intervention consists of 36 sessions related to (a) self-and disability-awareness, (b) making decisions about transition-related outcomes, (c) identifying and securing community resources to support transition services, (d) writing and evaluating transition goals and objectives, (e) communicating effectively in small groups and (f) developing skills to become an effective leader or self-advocate 	<ul style="list-style-type: none"> The Arc's Self-Determination Scale (Wehmyer, 1995)—measures students' (a) autonomy, (b) self-regulation, (c) psychological empowerment and (d) self-realization AIR Self-Determination Scale (Wolman et al., 1994)—measures self-determination Transition knowledge and skills—measures knowledge about transition planning and the degree to which students benefited from the intervention 	<ul style="list-style-type: none"> Students in the WFA group scored significantly more positively on AIR and transition knowledge & skills than did students in the control group 	<ul style="list-style-type: none"> MANCOVA was conducted to determine the differences between groups (treatment vs. control) on AIR-Student and SDS Effect sizes, partial η^2 were reported

(continued)

Table 9.2 (continued)

Study	<i>N</i>	Sample	Age	Research design	Dependent variables	Relationship(s) between SD, SEL and outcomes	Effect size/data reported
Wehmeyer et al. (2012) (FMSD-based)	<ul style="list-style-type: none"> • 312 students 	<ul style="list-style-type: none"> • Students with intellectual disability (<i>n</i> = 94) or learning disabilities (<i>n</i> = 218), schools in Kansas, Missouri, and Texas (<i>n</i> = 130; 42%; 44% female) 	<ul style="list-style-type: none"> • $M_{\text{age}} = 16.5$ years ($SD = 1.40$) 	<ul style="list-style-type: none"> • 3 (3 time-points) × 2 (experimental vs control) randomized controlled design • Intervention was the Self-Determined Learning Model of Instruction 	<ul style="list-style-type: none"> • The Arc's Self-Determination Scale (SDS) (Wehmeyer, 1995)—measures students' (a) autonomy, (b) self-regulation, (c) psychological empowerment and (d) self-realization • AIR Self-Determination Scale (AIR-SDS) (Wolman et al., 1994)—measures self-determination 	<ul style="list-style-type: none"> • There were significant differences in the latent means across measurement occasions for both measures of self-determination for the treatment and control group • Within the treatment group, there were significant increases in self-determination scores on both the AIR and the SDS between T1 and T2; increases were not found for the control group which actually experienced a reduction in self-determination from T1 to T2 	<ul style="list-style-type: none"> • Structural equation modeling, multi-level modeling; Cohen's <i>d</i> reported

(continued)

Table 9.2 (continued)

Study	N	Sample	Age	Research design	Dependent variables	Relationship(s) between SD, SEL and outcomes	Effect size/data reported
Yang et al. (2022) (SDT-based)	<ul style="list-style-type: none"> • 118 students (77 males, 34 females, 7 missing gender information) 	<ul style="list-style-type: none"> • Students with special needs (36% dyslexia; 18.6% ADHD; rest multiple special needs), Chinese Hong Kong 	<ul style="list-style-type: none"> • $M_{age} = 14.98$ years (SD = 1.93) 	<ul style="list-style-type: none"> • Correlational, student self-reported measures 	<ul style="list-style-type: none"> • AIR Self-Determination Scale (AIR-SDS) (Wolman et al., 1994) • School Engagement Scale (SES) (Fredricks et al., 2005) • Multidimensional Scale of Perceived Social Support (Peer support) (MSPSS) (Zimet et al., 1988) • Delaware School Climate Survey (School support) (Bear et al., 2011) 	<ul style="list-style-type: none"> • 43% variance of school engagement explained by peer support, school support and self-determination • Self-determination significantly predicted school engagement, after controlling for school and peer supports • School support significantly predicted school engagement via self-determination • Peer support did not have a significant direct effect on school engagement 	<ul style="list-style-type: none"> • Standardized correlational data between self-determination and dependent variables were reported
Zheng et al. (2014) (FMSD-based)	<ul style="list-style-type: none"> • 560 students 	<ul style="list-style-type: none"> • Students with learning disability (68% male, 63% White, 18% African American, 15% Hispanic) from USA 	<ul style="list-style-type: none"> • $M_{age} =$ not reported, range = 16–18 years old 	<ul style="list-style-type: none"> • Correlational, student self-reported measures 	<ul style="list-style-type: none"> • Woodcock–Johnson III Tests of Achievement (Woodcock et al., 2007)—measures academic achievement in math, reading and content areas • ARC’s Self-Determination Scale (Wehmeyer, 1995)—measures students’ self-determination • Student Self-Concept Scale (Gresham, 1995)—measures self-confidence, importance and outcome confidence 	<ul style="list-style-type: none"> • Significant correlations among self-determination, self-concept and academic achievement • Self-determination predicted academic achievement for students with learning disabilities 	<ul style="list-style-type: none"> • Standardized correlational data between self-determination and dependent variables were reported

Results

This section presents the findings from the review. The discussion will be organized as follows: overview of the findings (countries of study, categories of SEN, contexts under which the studies were conducted), descriptive study, correlational studies, quasi-experimental or experimental studies and finally, the qualitative study.

A total of 17 studies were reviewed. Of the 17 studies, 10 (Carter et al., 2010; Pierson et al., 2008; Shogren et al., 2012; Solberg et al., 2012; Stormont et al., 2021; Tomaszewski et al., 2022; Wehmeyer & Lawrence, 1995; Wehmeyer et al., 2011, 2012; Zheng et al., 2014) were conducted in the USA, 2 were conducted in France (Dubois et al., 2023; Rogers & Tannock, 2018), 1 conducted in England (Friedman et al., 2022), 1 conducted in Australia (Hatfield et al., 2017), 1 conducted in India (Kausik & Hussain, 2020), 1 conducted in Hong Kong (Yang et al., 2022), and 1 conducted in Taiwan (Chou, 2020).

The SEN of the students were varied with some studies involving students with multiple SENs. As an overview, the studies were conducted with students with Learning Disabilities (9 of 17 studies) (Carter et al., 2010; Dubois et al., 2023; Kausik & Hussain, 2020; Pierson et al., 2008; Shogren et al., 2012; Solberg et al., 2012; Stormont et al., 2021; Wehmeyer et al., 2012; Zheng et al., 2014), Emotional and Behavioral Disorders (5 of 17 studies) (Carter et al., 2010; Pierson et al., 2008; Solberg et al., 2012; Stormont et al., 2021; Wehmeyer & Lawrence, 1995), Autism Spectrum Disorder (4 of 17 studies) (Chou, 2020; Friedman et al., 2022; Hatfield et al., 2017; Tomaszewski et al., 2022), Intellectual Disability (4 of 17 studies) (Shogren et al., 2012; Wehmeyer & Lawrence, 1995; Wehmeyer et al., 2011; Wehmeyer et al., 2012), Attention Deficit Hyperactivity Disorder (3 of 17 studies) (Dubois et al., 2023; Rogers & Tannock, 2018; Yang et al., 2022), Mental Retardation (2 of 17 studies) (Wehmeyer & Lawrence, 1995; Wehmeyer et al., 2011), Developmental Language Disorder including Dyslexia (2 of 17 studies) (Dubois et al., 2023; Yang et al., 2022) and Cognitive Disabilities (1 of 17 studies) (Carter et al., 2010).

Interestingly, while the learning outcomes were related to SEL, most SEL skills were taught within the context of transition education programs (10 of 17 studies) (Carter et al., 2010; Dubois et al., 2023; Hatfield et al., 2017; Pierson et al., 2008; Shogren et al., 2012; Solberg et al., 2012; Tomaszewski et al., 2022; Wehmeyer & Lawrence, 1995; Wehmeyer et al., 2011; Wehmeyer et al., 2012); and 7 of the 17 studies (Chou, 2020; Friedman et al., 2022; Kausik & Hussain, 2020; Rogers & Tannock, 2018; Stormont et al., 2021; Yang et al., 2022; Zheng et al., 2014) were conducted within the life skills context with the aim to improve students' SEL such as self-determination and social skills.

Descriptive Study

Within each group/population, students with SEN may differ in their basic psychological needs satisfaction and self-determination. For instance, Rogers and Tannock (2018) whose study was framed using the SDT surveyed 117 ($M_{\text{age}} = 7.94$ years, $SD = 1.03$, 48% male) English and/or French speaking students with ADHD and compared the responses between the students grouped at the bottom 25% versus top 25% in ADHD symptoms, to find that students with higher levels of ADHD symptoms reported feeling less support for their autonomy, less related to their teachers, less competent and significantly lower total needs satisfaction, after controlling for the effects of child age, conduct problems and reading ability, as compared to their counterparts with less ADHD symptoms. This suggests that students with more severe SEN may need more support in terms of fostering their basic psychological needs and self-determination (Rogers & Tannock, 2018).

Correlational Studies

Of the seventeen studies, seven were correlational studies associating self-determination with various SEL skills.

First, Carter et al. (2010) who examined the responses of 196 ($M_{\text{age}} = 17.3$ years, 64.8% male) high school students with mild/moderate Cognitive Disabilities (CD), Emotional and Behavioral Disorders (EBD) and Learning Disabilities (LD) from the USA found that students with EBD reported lower capacity for self-determination (tenet of FMSD) than students with LD but higher capacity than students with CD. Also found was that the teachers generally evaluated students' capacity for self-determination lower than the students' themselves and that social skills ($\beta = 0.44$) and problem behaviors were significant predictors of students' capacity for self-determination.

Next, Solberg et al. (2012) explored the relationships between perceived quality learning experiences (defined as active engagement in the Individualized Education Program), perceived confidence in performing career-search-related tasks, goal setting, motivation to attend school (tenet of SDT), academic self-efficacy, well-being, academic stress and academic performance among 135 (10th and 12th grades, mean age not reported, 38.5% females) students with high-incidence disabilities (learning disabilities, emotional and behavioral disabilities, other health impairments) for transition education in 14 special education schools in the USA. Relevant to the topics of this review, they found that students with better quality learning experiences demonstrated increased career-search self-efficacy; students with greater career-search self-efficacy were more highly engaged in goal setting, which further predicted their motivation to attend school ($\beta = 0.602$) and academic self-efficacy; and that students with higher academic self-efficacy had higher grades.

In another study, Tomaszewski et al. (2022) who investigated the relationships between self-determination (tenet of FMSD), depression, executive functioning and social communication from the perspectives of 237 youth with autism ($M_{\text{age}} = 18.36$ years, $SD = 1.64$, 76% male) and their parents residing in the USA and in the context of transition education, found students' capacity for self-determination to associate with lower depression ($\beta = -0.17$) and fewer executive functioning problems ($\beta = -0.63$) and parent-evaluated students' capacity for self-determination to associate with fewer social communication difficulties ($\beta = -0.30$) and executive functioning problems ($\beta = -0.56$).

In yet another study, Yang et al. (2022) who surveyed 118 students (Chinese Hong Kong, $M_{\text{age}} = 14.98$ years, $SD = 1.93$, 77 males, 34 females, 7 missing information) with special needs (36% dyslexia; 18.6% ADHD; rest multiple special needs) found that (a) self-determination (tenet of SDT) significantly predicted school engagement ($\beta = 0.61$), after controlling for school and peer supports, (b) school support significantly predicted school engagement via self-determination and that (c) peer support, school support and self-determination together contributed 43% variance of school engagement.

Further, Zheng et al. (2014) who conducted a survey on 560 students (USA, 16–18 years old, 68% male) with learning disability found (a) significant correlations among self-determination (tenet of FMSD), self-concept and academic achievement, and that (b) self-determination predicted academic achievement ($\beta = 0.139$) for students with learning disabilities.

While not antecedent to SEL skills, Pierson et al. (2008) found students' capacity for self-determination (tenet of FMSD) to associate with their social skills ($B = 0.77$). In their study, they surveyed the special education teachers of 90 (USA, $M_{\text{age}} = 16$ years, range = 14–19 years old, 66.7% male) secondary school students with high-incidence disabilities (43 with Emotional Disability, 47 with Learning Disability) in the context of transition education and found that teachers who perceived their students to demonstrate better social skills also tended to rate these students as having higher capacity for self-determination.

And finally, related to the SDT and conducted in the context of transition education, Dubois et al. (2023) who surveyed 218 ($M_{\text{age}} = 17.00$ years, range = 15 to 21 years old, 63% male, French-speaking) youth with special needs (ADHD, learning disorder, developmental language disorder, dyslexia) found the students' perceived fathers' autonomy-support to predict the students' autonomous motivation ($\beta = 0.306$) in school-to-work transition and general well-being ($B = 0.26$).

Taken together, self-determination has the potential to facilitate the SEL outcomes of school engagement (Yang et al., 2022), self-concept (Zheng et al., 2014), academic achievement (Zheng et al., 2014), better social skills (Carter et al., 2010; Pierson et al., 2008), goal setting (Solberg et al., 2012), lower depression (Tomaszewski et al., 2022), fewer executive functioning problems (Tomaszewski et al., 2022) and fewer social communication difficulties (Tomaszewski et al., 2022) in students with SEN. Finally, students' perceived parental autonomy-support can predict the students' autonomous motivation in school-to-work transition and general well-being (Dubois et al., 2023).

Quasi-experimental or Experimental Studies

Out of the seventeen studies, eight involved experimental or quasi-experimental research design.

Grounded on the SDT, Kausik and Hussain (2020) conducted an intervention using The Nurtured Heart Approach (Glasser & Block, 2011) aimed at nurturing the three basic psychological needs of autonomy, competence and relatedness, on 7 (6 males, 1 female, 10–16 years old) students with Learning Disability (LD) receiving education in a special school in Chennai, India. Their quasi-experiment (without control) found significant pre- and post-test differences in basic needs satisfaction (autonomy, competence, relatedness), all four academic motivations (external, introjected, identified, intrinsic regulations) and academic self-efficacy. However, there was no significant difference in the scores of subjective well-being. Effect sizes were all greater than 0.5, which indicated large changes in the respective variables.

Also based on the SDT, Stormont et al. (2021) explored the effect of an intervention program (STARS) aimed at supporting autonomy in self-monitoring or self-management of relationship and social competency skills. Their participants were 37 ($M_{\text{age}} = 10.4$ years, $SD = 0.53$, 58% male) students identified with a learning disability or an emotional disturbance in a Mid-Atlantic, urban community elementary schools. The 2 (pre- and post-intervention) \times 2 (experimental versus control) random control trial found the students to demonstrate improved social skills with large effect size ($d = 0.68$) at post-intervention, as reported by their special education teachers.

In another study based on the SDT on fostering self-determination, Hatfield et al. (2017) utilizing the BOOST-A™, had 94 (Intervention: $n = 49$, $M_{\text{age}} = 14.8$ years, 79.6% male; Control: $n = 45$, $M_{\text{age}} = 15.1$ years, 71.7% male) Australian youth with autism spectrum disorder attended a 12 months intervention program on transition planning. Outcome evaluations by the students and their parents showed significant differences in favor of the intervention group in (i) opportunity for self-determination at home as reported by parents, (ii) career exploration as reported by parents and adolescents and (iii) transition-specific self-determination as reported by parents. Effect sizes were not reported.

In another study drawing on the tenets of the SDT, Chou (2020) investigated the effect of an intervention program based on the Navigation of Social Engagement (NOSE) model which teaches self-directed strategies associated with promoting self-determination, to improve the social problem-solving ability of 44 students ($M_{\text{age}} = 13.42$ years old, $SD = 0.70$, 84.1% male) with autism spectrum disorders (ASD) from junior high schools in northern part of Taiwan. Analyses performed on their 2 (experiment, $n = 24$ vs control, $n = 20$) \times 2 (pre- and post-test) design, controlling for students' cognitive functioning found students in the experimental group to have significantly greater awareness ($d = 0.78$) and self-directedness in problem-solving ($d = 1.06$) than students in the control group.

Designed using the FMSD and using a 2 (treatment versus control) \times 1 random control trial, Shogren et al. (2012) experimented with The Self-Determined Learning

Model (SDLM) of Instruction in the context of transition education on 312 (Treatment: $n = 173$, $M_{\text{age}} = 16.3$ years old, $SD = 1.4$, 56% male; Control: $n = 139$, $M_{\text{age}} = 16.6$ years old, $SD = 1.34$, 56% male) US high school students with disabilities (intellectual and learning disability) to examine if the intervention had an effect on students' academic and transition-related goals. The study found that the SDLM could lead to significant changes in goal attainment (effect size not reported) and access to general education curriculum for students with intellectual disability and learning disabilities.

In another study based on the FMSD, Wehmeyer and Lawrence (1995), utilizing a one group pre- and post-experimental design, investigated the effect of a transition education intervention program on 53 ($M_{\text{age}} = 16.91$ years, $SD = 1.60$, 15 to 21 years old, 47% males) high school students with learning disability ($n = 27$), mild mental retardation ($n = 16$), other health impaired ($n = 3$), emotional disorder ($n = 1$), no diagnosis ($n = 6$). Their analyses found significant whole group difference in pre- and post-intervention self-efficacy, significant difference in pre- and post-intervention locus of control for females, but no significant difference in pre- and post-intervention in any of the measures for males. Their further analysis using multiple regression showed that students' pre-intervention self-realization, autonomy and locus of control contributed 21% of the variance of post-intervention self-efficacy score and the changes were primarily among young women with disabilities. Effect sizes were not reported in this study.

Also based on the FMSD and conducted in the context of transition education, Wehmeyer et al. (2011) implemented a random control trial with an intervention involving 493 ($M_{\text{age}} = 16.02$ years, $SD = 2.21$, 35.9% female) middle or high school students with learning disability or mental retardation. Their results showed that students in the intervention group scored significantly more positively on self-determination (partial $\eta^2 = 0.013$) and transition knowledge and skills than did students in the control group.

In another similar study also framed using the FMSD, Wehmeyer et al. (2012) conducted a 3 (3 time-points) \times 2 (experimental vs control) randomized controlled trial on 312 ($M_{\text{age}} = 16.5$ years, $SD = 1.40$, 44% female) students with intellectual disability ($n = 94$) or learning disabilities ($n = 218$) in schools in Kansas, Missouri and Texas. The study reported significant increases in self-determination between Time1 and Time2 measures, and the increases were not found for the control group which actually experienced a reduction in self-determination from Time1 to Time2. At Time3, there were significant group differences in the self-determination scores with d ranging from 0.14 to 0.23.

Together, the findings from the experimental studies suggest that interventions designed based on the principles of self-determination may nurture the basic psychological needs of autonomy, competence and relatedness (Kausik & Hussain, 2020), encourage more autonomous motivation and greater self-determination (Hatfield et al., 2017; Kausik & Hussain, 2020; Wehmeyer et al., 2011, 2012), promote self-efficacy (Kausik & Hussain, 2020; Wehmeyer & Lawrence, 1995), foster greater internal locus of control (Wehmeyer & Lawrence, 1995), improve social skills (Storment et al., 2021), greater awareness (Chou, 2020), greater self-directedness in

problem-solving (Chou, 2020) and higher goal attainment (Shogren et al., 2012) in students with SEN.

Qualitative Study

In addition, literature search surfaced one qualitative study (Friedman et al., 2022) relating self-determination (basic needs of competence, autonomy and relatedness) to SEL. Set in the context of outdoor education and grounded in the theoretical underpinnings of the SDT, Friedman et al. (2022) explored if the Forest School (FS) program can nurture well-being in a group of students with autism in a special school in England. Through three months of observation and interviews with the 24 students ($M_{\text{age}} = 9.8$ years old) and 10 parents, Friedman et al. (2022) concluded that in alignment with the SDT, the FS was need-supportive in that it allowed the students with autism to be autonomous within a structured environment as illustrated under the theme “Rituals are important for all but must be tailored” and that the adults in school wielded great influence in creating an autonomy-supportive environment or not, as reflected in the theme “attitudes of adults help or hinder sessions”. Through the FS’s affordance of “opportunities for positive development” (theme), students got to learn survival and social skills through play and interactions with their peers. They also learnt to regulate their emotions and overcome their fears through understanding that their “feelings regarding nature and FS are conditional and subject to change” (theme). And through these activities, they built up their competence in their SEL skills. Next, under the theme “excitement and freedom of being beyond four walls”, the students shared that the FS provided them with the opportunities to exercise their autonomy through choosing their activities including those that allowed them to develop their SEL skills within a trusting environment. Finally, as captured in the theme “opportunities for positive development”, the students experienced relatedness and developed their social skills through play and interaction with their peers (Table 9.3).

General Discussion

In this review, I adopted a maximally inclusive definition on the SEL outcomes and in alignment with the objective of this book, “self-determination” referenced the tenets of the SDT (Ryan & Deci, 2000a, 2000b). Because few empirical papers framed within the SDT surfaced from the search, literature scan was extended to papers grounded in the FMSD (Wehmeyer, 1999) which was developed based on the underpinnings of the SDT (Wehmeyer, 1999).

When reviewing the studies, an interesting observation was made. While countries around the world such as France, England, Australia, India, Hong Kong and Taiwan have gained some interest in studying self-determination and self-determined SEL,

the USA remains in the forefront of such cutting-edge pursuit. It is to be pointed out that in the USA, the government had intervened in the life outcomes of students with SEN through the provision of funding support for research into the knowledge, skills and attitudes needed for self-determination and the development of curricula models for teaching the knowledge, skills and attitudes needed for self-determined SEL (Ackerman, 2006; Wehmeyer & Sands, 1996). What we can learn from this is the importance of systemic and systematic effort through the education system in nurturing students with SEN. More specifically, in the fostering of self-determination in SEL if it is one of the desired outcomes in the education of students with SEN.

Another interesting observation is that where self-determined SEL was encouraged was when the general or special education schools were preparing and launching the students with SEN into the next phase of their life journey, as evident in the SEL activities incorporated into the transition programs. Indeed, when left to their own devices post-school, these youths with SEN would need to harness on their own social and emotional competences to navigate through the abyss called life. It is thus pertinent that while still in schools, these students are motivated in their SEL, gaining knowledge and skills in mastering themselves and not being helpless to their own social and emotional situations. This finding also presents a learning point for education system keen to improve the life outcomes of students with SEN. Specifically, SEL can be incorporated into the curriculum of transition programs.

Notably, Heller et al. (2011) pointed out that self-determination and SEL should begin when the students with SEN are young. It should be part of the students' repertoire to be able to demonstrate self-determination and the social and emotional competences (Heller et al., 2011). I note from the review that some studies (6 of 17) were conducted outside the domain of transition education, within the context of improving students' SEL outcomes in K-12 education. Collectively, these studies (conducted in the context of transition education or SEL) provide useful information in helping us understand self-determination and SEL in students with SEN.

In answering the research question "Can self-determination support students with special educational needs in social-emotional learning?", first, it is to be pointed out that the studies reviewed do suggest a trend, that is, students with varied SENs are capable of self-determination and being self-determined in SEL.

Second, within each group of students with similar type but different severity of SEN, they may differ in their capacity and readiness for self-determination and SEL. For example, students with more severe SEN may need more support in terms of fostering their basic psychological needs and self-determination (Rogers & Tannock, 2018). Hence, there is no one-size-fits-all in the education of students with SEN in self-determination and SEL.

Third, given the statistical associations between self-determination and various SEL outcomes, it is probable that self-determination has some potential in facilitating SEL. Evidently, self-determination may foster school engagement (Yang et al., 2022), self-concept (Zheng et al., 2014), academic achievement (Zheng et al., 2014), better social skills (Carter et al., 2010; Pierson et al., 2008), goal setting (Solberg et al., 2012), lower depression (Tomaszewski et al., 2022), fewer executive functioning problems (Tomaszewski et al., 2022) and fewer social communication difficulties

(Tomaszewski et al., 2022). Also found is that students' perceived parental autonomy-support can predict the students' autonomous motivation in school-to-work transition and general well-being (Dubois et al., 2023), among the students with SEN.

Fourth, the results from quantitative and qualitative intervention studies designed based on the principles of self-determination (using the tenets of the SDT or FMST) show that self-determination intervention may foster SEL. More specifically, self-determination intervention can nurture the basic psychological needs of autonomy, competence and relatedness (Kausik & Hussain, 2020), encourage more autonomous motivation and greater self-determination (Friedman et al., 2022; Hatfield et al., 2017; Kausik & Hussain, 2020; Wehmeyer et al., 2011, 2012), promote self-efficacy (Kausik & Hussain, 2020; Wehmeyer & Lawrence, 1995), foster greater internal locus of control (Wehmeyer & Lawrence, 1995), improve social skills (Friedman et al., 2022; Stormont et al., 2021), greater awareness (Chou, 2020), better emotional regulation (Friedman et al., 2022), greater self-directedness in problem-solving (Chou, 2020) and higher goal attainment (Shogren et al., 2012).

However, across the 17 studies reviewed, while there are some evidence to suggest an association between self-determination and SEL outcomes, some of the studies also presented several methodological issues such as having samples with a mix of SENs rendering it difficult to specifically identify and conclude for which SEN and of what level of severity is self-determination more or less useful in facilitating SEL. Additionally, some of the quasi-experimental or experimental studies involved small sample sizes, with no control group to check against possible confounds, and did not report the effect sizes of the intervention studies. These methodological issues and insufficient statistical information thus present limitations to concluding that self-determination is indeed a precursor to facilitating SEL.

Implications for Teaching and Learning

Nevertheless, the trends glimpsed from this review do have their values and have implications for the teaching and learning of SEL in students with SEN.

At the student level, we now have some understanding that students with varied SEN and of varied severity can be capable of self-determination and SEL. However, given the diversity in their learning abilities, the teaching of self-determination and SEL-related knowledge and skills have to be customized to suit their SENs. Next, there is an association between self-determination and SEL and that self-determination can enhance SEL and the application of SEL knowledge and skills. Informatively, both self-determination and SEL skills are teachable. They can be modeled or explicitly instructed and are generalizable or transferable across educational and life settings. Hence, for the benefits of students with SEN, general and special education schools can consider incorporating self-determination and SEL knowledge and skills in their curriculum.

At the school level, there can be intentional curation of SEL programs for the teaching and learning of self-determination and social and emotional competencies.

Schools have traditionally found a good fit for the teaching of such skills in their transition education programs (Carter et al., 2010; Dubois et al., 2023; Hatfield et al., 2017; Pierson et al., 2008; Shogren et al., 2012; Solberg et al., 2012; Tomaszewski et al., 2022; Wehmeyer & Lawrence, 1995; Wehmeyer et al., 2011, 2012). Notably, opportunities for the teaching and learning of such skills are aplenty and can be incorporated across the total curriculum including the domains of academic learning, social-emotional learning, daily living, vocational learning, the arts, physical education and sports (MOE, 2018). This means that self-determination and SEL can become an integral part of the school curriculum for students with SEN, beginning in K-12 education (Malian & Nevin, 2002). Also at the school level, to nurture self-determination and SEL, special educators can tap on SDT's recommendation on being autonomy-supportive (Reeve, 1998; Reeve & Jang, 2006). For example, special educators can provide opportunities for students with SEN to make their own choices where appropriate and accord them the time to think through the choices available to them and to take ownership of their own choices. SDT researchers (Froiland et al., 2012; Reeve, 2016; Reeve & Jang, 2006) had proposed that autonomy-supportive school and classroom environments can nurture the basic psychological needs and foster more autonomous motivation. Individuals with higher levels of self-determination can readily muster inner motivational and social and emotional resources for autonomous action and the accomplishment of personal goals. The teaching and learning of self-determination and SEL is thus an important endeavor recognized by many such as the Organization for Economic Co-operation and Development (OECD, 2011) which had called for the explicit and systematic teaching of self-determination and life skills to students with SEN and the provision of structured opportunities for them to develop these knowledge and skills.

Limitations and Recommendations

The limitations of this review pertain to the generalization of the findings due to the nature of the SEN and the research design. Research studies in the domain of special education have always presented challenges on generalization. This is because of the diverse SENs and their numerous permutations which present unique challenges for each form/combination of SEN(s) and that limit the generalizability of each research study. What this review has done is to surface the studies that had been completed which reveal to us the “who” (which groups of students with SEN), “what” (which contexts and which learning outcomes) and “how” (which interventions) plausible in studies on self-determination and SEL. It is to be pointed out that few studies relating to SDT and SEL in students with SEN emerged from the literature scan. As evident from the studies reviewed, empirical information on the efficacy of self-determination in SEL for students with SEN is scant. While there is some evidence to suggest an association between self-determination and SEL outcomes, it is also important to highlight that of the studies reviewed, only 9 of 17 studies were conducted using the theoretical underpinnings of the SDT. The

application value of SDT in fostering social and emotional learning in students with SEN is by far, inconclusive and warrants further investigations. Future studies can consider exploring the tenets and tapping on the vast knowledge (such as nurturing the basic psychological needs of autonomy, competence and relatedness, autonomous motivation and promoting an autonomy-supportive learning climate) presented by the SDT in the promotion of SEL among students with SEN. If typically developing students can benefit from SEL (Durlak et al., 2011; Raimundo et al., 2013), more so would students with SEN who historically have been disadvantaged by their special needs and their lack of social and emotional competences to help them find their ways through life. To this end, it would be helpful to step up research in this area to support students with SEN in their SEL.

The next limitation relates to the research design. It is observed that the quasi-experimental or experimental studies involved small sample sizes and the boundaries arising from these sampling constraints present a limitation to the generalization of the findings. In addition to the small sample sizes involved in the studies, it is also noted that few of the intervention studies reported effect sizes. An effect size presents information on the strength of a phenomenon, viz. the intervention. Future quasi-or experimental studies can consider reporting the effect sizes which would provide useful information on the practical significance of the intervention programs.

To conclude, through this review, I provided some information on the role of self-determination in promoting SEL among students with SEN. For the special education community, I hope this review has provided some information and insights for teaching and learning. For the research community, I hope this review has highlighted the lack of SDT research in the area of SEL in students with SEN and surfaced areas in need of further explorations and investigations.

Table 9.3 Self-determination and social & emotional learning for students with special educational needs—qualitative study

Study	N	Sample	Age	Research design	Dependent variables/themes	Relationship(s) between SD, SEL and outcomes	Effect size/data reported/frequency count
Friedman et al. (2022) (SDT-based)	<ul style="list-style-type: none"> • 24 students • 10 parents 	<ul style="list-style-type: none"> • Students with autism in a specialist school in the east of England 	<ul style="list-style-type: none"> • $M_{age} = 9.8$ years old 	<ul style="list-style-type: none"> • Case study approach to investigate the experience of students in a Forest School program • Data sources include: (a) three months of narrative observation notes, (b) transcripts of interviews with 10 parents and 24 children 	<p>The themes that emerged were:</p> <ul style="list-style-type: none"> • excitement and freedom of being beyond four walls • opportunities for positive development regarding nature and Forest School are conditional and subject to change • rituals are important for all but must be tailored • attitudes of adults help or hinder sessions 	<ul style="list-style-type: none"> • Grounded in the SDT, the contributions of the Forest School (FS) nurturing SEL in relation to the basic needs of autonomy, competence and relatedness were discussed. • First, FS provided a need-supportive environment. The routine of each session, illustrated by <i>“rituals are important for all but must be tailored”</i>, enabled autistic children to be autonomous within a structured environment. The influence of adults in creating an autonomy-supportive environment is important and is reflected in <i>“attitudes of adults help or hinder sessions”</i>. • Second, in <i>“FS affords opportunities for positive development”</i>, students’ competence was nurtured—they learnt survival, building and social skills through play and other interactions with peers; they learnt to overcome their fears through <i>“feelings regarding nature and FS are conditional and subject to change”</i>. • Third, in <i>“excitement and freedom of being beyond four walls”</i>, students utilized their autonomy to choose certain activities, including those that helped to develop a wide range of skills within a trusting environment. • Finally, relatedness was evident in child play, their interactions with different peers, and in parents commenting that their children were developing their social skills, captured in <i>“opportunities for positive development”</i>; and in connection with their FS leaders elaborated under <i>“attitudes of adults help or hinder sessions”</i>. 	<ul style="list-style-type: none"> • Not applicable as it is a qualitative study

References

- Ackerman, B. (2006). Learning self-determination: Lessons from the literature for work with children and youth with emotional and behavioral disabilities. *Child and Youth Care Forum, 35*, 327–337. <https://doi.org/10.1007/s10566-006-9020-0>
- Ashdown, D. M., & Bernard, M. E. (2012). Can explicit instruction in social and emotional learning skills benefit the social-emotional development, well-being, and academic achievement of young children? *Early Childhood Education Journal, 39*, 397–405. <https://doi.org/10.1007/s10643-011-0481-x>
- Bandura, A. (2006). Guide for constructing self-efficacy scales. *Self-Efficacy Beliefs of Adolescents, 5*(1), 307–337.
- Bear, G. G., Gaskins, C., Blank, J., & Chen, F. F. (2011). Delaware school climate survey—Student: Its factor structure, concurrent validity, and reliability. *Journal of School Psychology, 49*(2), 157–174. <https://doi.org/10.1016/j.jsp.2011.01.001>
- Cantarero, K., Van Tilburg, W. A., & Smoktunowicz, E. (2021). Affirming basic psychological needs promotes mental well-being during the COVID-19 outbreak. *Social Psychological and Personality Science, 12*(5), 821–828. <https://doi.org/10.1177/1948550620942708>
- Carr, R. A. (1979). Goal attainment scaling as a useful tool for evaluating progress in special education. *Exceptional Children, 46*(2), 88–95. <https://doi.org/10.1177/001440297904600202>
- Carter, E. W., Trainor, A., Owens, L., Sweden, B., & Sun, Y. (2010). Self-determination prospects of youth with high-incidence disabilities: Divergent perspectives and related factors. *Journal of Emotional and Behavioral Disorders, 18*(2), 67–81. <https://doi.org/10.1177/1063426609332605>
- CASEL. (2022, July 15). *Fundamentals of SEL*. <https://casel.org/fundamentals-of-sel/>
- Castro-Olivo, S. M. (2014). Promoting social-emotional learning in adolescent Latino ELLs: A study of the culturally adapted Strong Teens program. *School Psychology Quarterly, 29*(4), 567. <https://doi.org/10.1037/spq0000055>
- Chao, P. (2011). The development of a self-determination scale for school-age students with disabilities. *Journal of Special Education-Taiwan, 34*, 99–132.
- Chou, Y. C. (2020). Navigation of social engagement (NOSE) project: Using a self-directed problem-solving model to enhance social problem-solving and self-determination in youth with autism spectrum disorders. *Education and Training in Autism and Developmental Disabilities, 55*(1), 101–114. <https://www.proquest.com/scholarly-journals/navigation-social-engagement-nose-project-using/docview/2367735963/se-2>
- Clarke, A., Friede, T., Putz, R., Ashdown, J., Martin, S., Blake, A., Adi, Y., Parkinson, J., Flynn, P., Platt, S., & Stewart-Brown, S. (2011). Warwick-Edinburgh Mental Well-being Scale (WEMWBS): Validated for teenage school students in England and Scotland. A mixed methods assessment. *BMC Public Health, 11*(1), 487. <https://doi.org/10.1186/1471-2458-11-487>
- Close, W., & Solberg, V. S. H. (2008). Predicting achievement, distress, and retention among lower income Latino youth. *Journal of Vocational Behavior, 72*, 31–42. <https://doi.org/10.1016/j.jvb.2007.08.007>
- Constantino, J. N., & Gruber, C. P. (2012). *Social responsiveness scale: SRS-2*. Western psychological services.
- Cramer, K. M., & Castro-Olivo, S. (2016). Effects of a culturally adapted social-emotional learning intervention program on students' mental health. *Contemporary School Psychology, 20*(2), 118–129. <https://doi.org/10.1007/s40688-015-0057-7>
- Cummins, R., & Lau, A. (2005). *Personal wellbeing index—school children*. Deakin University.
- Deci, E. L., Hodges, R., Pierson, L., & Tomassone, J. (1992). Autonomy and competence as motivational factors in students with learning disabilities and emotional handicaps. *Journal of Learning Disabilities, 25*, 457–471. <https://doi.org/10.1177/002221949202500706>
- Deci, E. L., & Ryan, R. M. (1980). Self-determination theory: When mind mediates behavior *The Journal of Mind and Behavior, 1*(1), 33–43.

- Dost-Gözkan, A. (2021). The gratification of psychological needs and well-being among Turkish adolescents: An examination of direct and indirect links. *Journal of Research on Adolescence*, 31(1), 52–70. <https://doi.org/10.1111/jora.12582>
- Dubois, P., Guay, F., & St-Pierre, M. C. (2023). School-to-Work Transition of Youth with Learning Difficulties: The Role of Motivation and Autonomy Support. *Exceptional Children*, 89(2), 216–232. <https://doi.org/10.1177/00144029221112285>
- Dudley-Marling, C., & Burns, M. B. (2014). Two perspectives on inclusion in the United States. *Global Education Review*, 1(1), 14–31. <https://files.eric.ed.gov/fulltext/EJ1055208.pdf>
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions *Child Development*, 82(1), 405–432. <https://doi.org/10.1111/j.1467-8624.2010.01564.x>
- Eaton, W. W., Muntaner, C., Smith, C., Tien, A., & Ybarra, M. (2004). Center for Epidemiologic Studies Depression Scale: Review and revision (CESD and CESD-R). In M. E. Maruish (Ed.), *The Use of Psychological Testing for Treatment Planning and Outcomes Assessment* (Vol. 3, pp. 363–377). Lawrence Erlbaum.
- Erturan-Ilker, G. (2014). Psychological well-being and motivation in a Turkish physical education context. *Educational Psychology in Practice*, 30(4), 365–379. <https://doi.org/10.1080/02667363.2014.949374>
- Fredricks, J. A., Blumenfeld, P. C., Friedel, J., & Paris, A. (2005). School engagement. In K. A. Moore & L. Lippman (Eds.), *Conceptualizing and measuring indicators of positive development: What do children need to flourish* (pp. 305–321). Kluwer Academic/Plenum Press.
- Friedman, S., Gibson, J., Jones, C., & Hughes, C. (2022). 'A new adventure': a case study of autistic children at Forest School. *Journal of Adventure Education and Outdoor Learning*, 1–17. <https://doi.org/10.1080/14729679.2022.2115522>
- Froiland, J. M., Oros, E., Smith, L., & Hirschert, T. (2012). Intrinsic motivation to learn: The nexus between psychological health and academic success. *Contemporary School Psychology: Formerly "The California School Psychologist"*, 16, 91–100. <https://doi.org/10.1007/BF03340978>
- Gagné, M. (2003). The role of autonomy support and autonomy orientation in prosocial behavior engagement. *Motivation and Emotion*, 27(3), 199–223. <https://doi.org/10.1023/A:1025007614869>
- Gioia, G. A., Isquith, P. K., Guy, S. C., & Kenworthy, L. (2015). *Behavior Rating Inventory of Executive Function (BRIEF 2)* (Vol. 2).
- Glasser, H., & Block, M. L. (2011). *Notching up: The nurtured heart approach: The new inner wealth initiative for educators*. Nurtured Heart.
- Goodman, R. (1997). The strengths and difficulties questionnaire: A research note. *Journal of Child Psychology and Psychiatry*, 38, 581–586. <https://doi.org/10.1111/j.1469-7610.1997.tb01545.x>
- Gresham, F. M. (1995). Student self-concept scale: Description and relevance to students with emotional and behavioral disorder. *Journal of Emotional and Behavioral Disorders*, 3(1), 19–27. <https://doi.org/10.1177/106342669500300103>
- Gresham, F. M., & Elliott, S. N. (1990). *Social skills rating system*. American Guidance Service.
- Guay, F. (2005). Motivations underlying career decision-making activities: The career decision-making autonomy scale (CDMAS). *Journal of Career Assessment*, 13(1), 77–97. <https://doi.org/10.1177/1069072704270297>
- Harris, B. S., & Watson, J. C. (2014). Developmental considerations in youth athlete burnout: A model for youth sport participants. *Journal of Clinical Sport Psychology*, 8(1), 1–18. <https://doi.org/10.1123/jcsp.2014-0009>
- Hatfield, M., Falkmer, M., Falkmer, T., & Ciccarelli, M. (2017). Effectiveness of the BOOST-A™ online transition planning program for adolescents on the autism spectrum: A quasi-randomized controlled trial. *Child and Adolescent Psychiatry and Mental Health*, 11(1), 1–12. <https://doi.org/10.1186/s13034-017-0191-2>

- Heller, T., Schindler, A., Palmer, S. B., Wehmeyer, M. L., Parent, W., Jenson, R., Abery, B. H., Geringer, W., Bacon, A., & O'Hara, D. M. (2011). Self-determination across the life span: Issues and gaps. *Exceptionality, 19*(1), 31–45. <https://doi.org/10.1080/09362835.2011.537228>
- HMTreasury. (2003). *Every child matters*. The Stationery Office Limited.
- Howard, K., Ferrari, L., Nota, L., Solberg, V., & Soresi, S. (2009). The relation of cultural context and social relationships to career development in middle school. *Journal of Vocational Behavior, 75*, 100–108. <https://doi.org/10.1016/j.jvb.2009.06.013>
- Kausik, N. H., & Hussain, D. (2020). Self-determination, nurtured heart approach, and motivation: Development and testing of an intervention strategy for students with learning disabilities. *Current Psychology, 39*(4), 1454–1465. <https://doi.org/10.1007/s12144-018-9848-0>
- LaBelle, B. (2019). Positive outcomes of a social-emotional learning program to promote student resiliency and address mental health. *Contemporary School Psychology, 1*–7. <https://doi.org/10.1007/s40688-019-00263-y>
- León, J., Núñez, J. L., & Liew, J. (2015). Self-determination and STEM education: Effects of autonomy, motivation, and self-regulated learning on high school math achievement. *Learning and Individual Differences, 43*, 156–163. <https://doi.org/10.1016/j.lindif.2015.08.017>
- Mageau, G. A., Ranger, F., Joussemet, M., Koestner, R., Moreau, E., & Forest, J. (2015). Validation of the perceived parental autonomy support scale (P-PASS). *Canadian Journal of Behavioral Science, 47*(3), 251–262. <https://doi.org/10.1037/a0039325>
- Maior, E., Dobrean, A., & Păsărelu, C. R. (2020). Teacher rationality, social-emotional competencies and basic needs satisfaction: Direct and indirect effects on teacher burnout. *Journal of Evidence-Based Psychotherapies, 20*(1), 135–152. <http://jebp.psychotherapy.ro/wp-content/uploads/2022/01/JEBP2020-04-013-PUBLISHED.pdf>
- Malian, I., & Nevin, A. (2002). A review of self-determination literature: Implications for practitioners. *Remedial and Special Education, 23*(2), 68–74. <https://doi.org/10.1177/07419325020300202>
- McTaggart, J. (2009). *Using a self-determination theory (SDT) framework to investigate the impact of motivational variables in a reading remediation program* University of Guelph, Ontario, Canada.
- Mills, D. J., & Allen, J. J. (2020). Self-determination theory, internet gaming disorder, and the mediating role of self-control. *Computers in Human Behavior, 105*, 106209. <https://doi.org/10.1016/j.chb.2019.106209>
- MOE. (2018). *Which school for my child: A parent's guide for children with special educational needs*. <https://www.moe.gov.sg/docs/default-source/document/education/special-education/files/parents-guide-children-special-educational-needs.pdf>
- MOE. (2022, January 8). *21st Century Competencies*. <https://www.moe.gov.sg/education-in-sg/21st-century-competencies>
- Muraven, M. (2008). Autonomous self-control is less depleting. *Journal of Research in Personality, 42*(3), 763–770. <https://doi.org/10.1016/j.jrp.2007.08.002>
- Muraven, M., Gagné, M., & Rosman, H. (2008). Helpful self-control: Autonomy support, vitality, and depletion. *Journal of Experimental Social Psychology, 44*(3), 573–585. <https://doi.org/10.1016/j.jesp.2007.10.008>
- Navarro, J., Escobar, P., Miragall, M., Cebolla, A., & Baños, R. M. (2021). Adolescent motivation toward physical exercise: The role of sex, age, enjoyment, and anxiety. *Psychological Reports, 124*(3), 1049–1069. <https://doi.org/10.1177/0033294120922490>
- Nota, L., Soresi, S., Solberg, S., & Ferrari, L. (2005). Promoting vocational development: Methods of intervention and techniques used in the Italian context. *International Journal for Educational and Vocational Guidance, 5*, 271–279. <https://doi.org/10.1007/s10775-005-3602-5>
- Nowicki, S., & Duke, M. P. (1974). A locus of control scale for non-college as well as college adults. *Journal of Personality Assessment, 38*, 136–137. <https://doi.org/10.1080/00223891.1974.10119950>

- O'Brien, P. (2018). Self-determination for primary school children: Theory and practice. *REACH: Journal of Inclusive Education in Ireland*, 31(2), 155–168. <https://www.reachjournal.ie/index.php/reach/article/view/21>
- OECD. (2011). Inclusion of students with disabilities in tertiary education and employment. <https://doi.org/10.1787/9789264097650-en>
- Pierson, M. R., Carter, E. W., Lane, K. L., & Glaeser, B. C. (2008). Factors influencing the self-determination of transition-age youth with high-incidence disabilities. *Career Development for Exceptional Individuals*, 31(2), 115–125. <https://doi.org/10.1177/0885728808317659>
- Quested, E., Bosch, J. A., Burns, V. E., Cumming, J., Ntoumanis, N., & Duda, J. L. (2011). Basic psychological need satisfaction, stress-related appraisals, and dancers' cortisol and anxiety responses. *Journal of Sport and Exercise Psychology*, 33(6), 828–846. <https://doi.org/10.1123/jsep.33.6.828>
- Radloff, L. (1977). The CED-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1(3), 385–401. <https://doi.org/10.1177/014662167700100306>
- Raimundo, R., Marques-Pinto, A., & Lima, M. L. (2013). The effects of a social-emotional learning program on elementary school children: The role of pupils' characteristics. *Psychology in the Schools*, 50(2), 165–180. <https://doi.org/10.1002/pits.21667>
- Raufelder, D., Kittler, F., Braun, S. R., Lätsch, A., Wilkinson, R. P., & Hoferichter, F. (2014). The interplay of perceived stress, self-determination and school engagement in adolescence. *School Psychology International*, 35(4), 405–420. <https://doi.org/10.1177/0143034313498953>
- Reeve, J. (1998). Autonomy support as an interpersonal motivating style: Is it teachable? *Contemporary Educational Psychology*, 23, 312–330. <https://doi.org/10.1006/ceps.1997.0975>
- Reeve, J. (2016). Autonomy-supportive teaching: What it is, how to do it. In W. C. Liu, J. C. K. Wang, & R. M. Ryan (Eds.), *Building autonomous learners: Perspectives from research and practice using self-determination theory* (pp. 129–152). Springer.
- Reeve, J., & Jang, H. (2006). What teachers say and do to support students' autonomy during a learning activity *Journal of Educational Psychology*, 98, 209–218. <https://doi.org/10.1037/0022-0663.98.1.209>
- Rogers, M., & Tannock, R. (2018). Are classrooms meeting the basic psychological needs of children with ADHD symptoms? A self-determination theory perspective. *Journal of Attention Disorders*, 22(14), 1354–1360. <https://doi.org/10.1177/1087054713508926>
- Roth, R. M., Baribeau, J., Milovan, D. L., & O'Connor, K. (2004). Speed and accuracy on tests of executive function in obsessive-compulsive disorder. *Brain and Cognition*, 54(3), 263–265. <https://doi.org/10.1016/j.bandc.2004.02.053>
- Rottensteiner, C., Tolvanen, A., Laakso, L., & Kontinen, N. (2015). Youth athletes' motivation, perceived competence, and persistence in organized team sports. *Journal of Sport Behavior*, 38(4), 1–18.
- Ruiz, M. C., Haapanen, S., Tolvanen, A., Robazza, C., & Duda, J. L. (2017). Predicting athletes' functional and dysfunctional emotions: The role of the motivational climate and motivation regulations. *Journal of Sports Sciences*, 35(16), 1598–1606. <https://doi.org/10.1080/02640414.2016.1225975>
- Ryan, R. M., & Deci, E. L. (2000a). The darker and brighter sides of human existence: Basic psychological needs as a unifying concept. *Psychological Inquiry*, 11(4), 319–338. https://doi.org/10.1207/S15327965PLI1104_03
- Ryan, R. M., & Deci, E. L. (2000b). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25, 54–67. <https://doi.org/10.1006/ceps.1999.1020>
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being *American Psychologist*, 55(1), 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>

- Shannon, S., Hanna, D., Haughey, T., Leavey, G., McGeown, C., & Breslin, G. (2019). Effects of a mental health intervention in athletes: Applying self-determination theory. *Frontiers in Psychology, 10*(1875). <https://doi.org/10.3389/fpsyg.2019.01875>
- Sherer, M., Maddox, J. E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. W. (1982). The self-efficacy scale: Construction and validation. *Psychological Reports, 51*(663–671). <https://doi.org/10.2466/pr0.1982.51.2.663>
- Shih, S. S. (2015). An investigation into academic burnout among Taiwanese adolescents from the self-determination theory perspective. *Social Psychology of Education, 18*(1), 201–219. <https://doi.org/10.1007/s11218-013-9214-x>
- Shogren, K. A., Palmer, S. B., Wehmeyer, M. L., Williams-Diehm, K., & Little, T. D. (2012). Effect of intervention with the self-determined learning model of instruction on access and goal attainment. *Remedial and Special Education, 33*(5), 320–330. <https://doi.org/10.1177/0741932511410072>
- Sklad, M., Diekstra, R., De Ritter, M., Ben, J., & Gravesteyn, C. (2012). Effectiveness of school-based universal social, emotional, and behavioral programs: Do they enhance students' development in the area of skill, behavior, and adjustment? *Psychology in the Schools, 49* (9), 892–909. <https://doi.org/10.1002/pits.21641>
- Solberg, V. S., Good, G., Nord, D., Holm, C., Hohner, R., Zima, N., Heffernan, M., & Malen, A. (1994). Assessing career search expectations: Development and validation of the career search efficacy scale. *Journal of Career Assessment, 2*, 111–123. <https://doi.org/10.1177/106907279400200202>
- Solberg, V. S., Gresham, S. L., & Phelps, L. A. (2010). *Validation report on instruments used to study effects of individualized learning plans*. <http://www.ncwd-youth.info/>
- Solberg, V. S., Gusavac, N., Hamann, T., Felch, J., Johnson, J., Lamborn, S., & Torres, J. (1998). The adaptive success identity plan (ASIP): A career intervention for college students. *Career Development Quarterly, 47*, 48–95. <https://doi.org/10.1002/j.2161-0045.1998.tb00728.x>
- Solberg, V. S., Howard, K., Gresham, S., & Carter, E. (2012). Quality learning experiences, self-determination, and academic success: A path analytic study among youth with disabilities. *Career Development and Transition for Exceptional Individuals, 35*(2), 85–96. <https://doi.org/10.1177/2165143412439887>
- Stormont, M. A., Thompson, A. M., & Elmore, R. (2021). The effect of STARS for students with high incidence disabilities: a randomized pilot study. *Preventing School Failure: Alternative Education for Children and Youth, 65*(1), 12–19. <https://doi.org/10.1080/1045988X.2020.1811625>
- Swanson, J., Schuck, S., Mann, M., Carlson, C., Hartman, K., & Sergeant, J. (2005). *Categorical and dimensional definitions and evaluations of symptoms of ADHD: The SNAP and the SWAN Ratings Scales*. www.adhd.net/SNAP_SWAN.pdf
- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., & Stewart-Brown, S. (2007). The Warwick-Edinburgh mental well-being scale (WEMWBS): Development and UK validation. *Health and Quality of Life Outcomes, 5*(1), 63. <https://doi.org/10.1186/1477-7525-5-63>
- Texas A&M University. (2022, July 30). *New legislation will provide resources for social-emotional learning in Texas*. <https://education.tamu.edu/new-legislation-will-provide-resources-for-social-emotional-learning-in-texas/>
- Thompson, A. S., Lindeman, R. H., Super, D. E., Jordaan, J. P., & Myers, R. A. (1981). *Career development inventory: User's manual* (Vol. 1).
- Tomaszewski, B., Klinger, L. G., & Pugliese, C. E. (2022). Self-determination in autistic transition-aged youth without intellectual disability. *Journal of Autism and Developmental Disorders, 52*, 4067–4078. <https://doi.org/10.1007/s10803-021-05280-6>
- Valosek, L., Nidich, S., Wendt, S., Grant, J., & Nidich, R. (2019). Effect of meditation on social-emotional learning in middle school students. *Education, 139*(3), 111–119.
- Wang, C. K. J., Ng, B. L. L., Liu, W. C., & Ryan, R. M. (2016). Can being autonomy-supportive in teaching improve students' self-regulation and performance? In W. C. Liu, J. C. K. Wang, & R.

- M. Ryan (Eds.), *Building autonomous learners: Perspectives from research and practice using self-determination theory* (pp. 227–243). Springer.
- Webber, K. C., Rizo, C. F., & Bowen, N. K. (2012). Confirmatory factor analysis of the ESSP for teachers. *Research on Social Work Practice, 22*(1), 77–84. <https://doi.org/10.1177/1049731514155549>
- Wehmeyer, M., & Lawrence, M. (1995). Whose future is it anyway? Promoting student involvement in transition planning. *Career Development for Exceptional Individuals, 18*(2), 69–83. <https://doi.org/10.1177/088572889501800202>
- Wehmeyer, M. L. (1995). *The Arc's self-determination scale: Procedural guidelines*. <https://files.eric.ed.gov/fulltext/ED441322.pdf>
- Wehmeyer, M. L. (1999). A functional model of self-determination: Describing development and implementing instruction. *Focus on Autism and other Developmental Disabilities, 14*(1), 53–61. <https://doi.org/10.1177/108835769901400107>
- Wehmeyer, M. L., Palmer, S. B., Lee, Y., Williams-Diehm, K., & Shogren, K. (2011). A randomized-trial evaluation of the effect of whose future is it anyway? On self-determination. *Career Development for Exceptional Individuals, 34*(1), 45–56. <https://doi.org/10.1177/0885728810383559>
- Wehmeyer, M. L., & Sands, D. J. (1996). *Self-determination across the life span: Independence and choice for people with disabilities*. Brookes Publishing Co.
- Wehmeyer, M. L., Shogren, K. A., Palmer, S. B., Williams-Diehm, K. L., Little, T. D., & Boulton, A. (2012). The impact of the self-determined learning model of instruction on student self-determination. *Exceptional Children, 78*(2), 135–153. <https://doi.org/10.1177/001440291207800201>
- Wehmeyer, M. L., Shogren, K. A., Zager, D., Smith, T. E., & Simpson, R. (2010). Research-based principles and practices for educating students with autism: Self-determination and social interactions. *Education and Training in Autism and Developmental Disabilities, 475–486*. <http://www.jstor.org/stable/23879754>
- Williams, G. C., & Deci, E. L. (1996). Internalization of biopsychosocial values by medical students: a test of self-determination theory. *Journal of Personality and Social Psychology, 70*(4), 767. <https://doi.org/10.1037/0022-3514.70.4.767>
- Wolman, J., Campeau, P., Dubois, P., Mithaug, D., & Stolarski, V. (1994). *AIR self-determination scale and user guide*. American Institute on Research.
- Wong, A. S., Li-Tsang, C. W., & Siu, A. M. (2014). Effect of a social emotional learning program for primary school students. *Hong Kong Journal of Occupational Therapy, 24*(2), 56–63. <https://doi.org/10.1016/j.hkjot.2014.11.001>
- Woodcock, R. W., McGrew, K. S., & Mather, N. (2007). *Woodcock-Johnson III Tests of Achievement*. Riverside.
- Yang, L., Chiu, H. M., Sin, K. F., & Lui, M. (2022). The effects of school support on school engagement with self-determination as a mediator in students with special needs. *International Journal of Disability, Development and Education, 69*(2), 399–414. <https://doi.org/10.1080/1034912X.2020.1719046>
- Zheng, C., Gaumer Erickson, A., Kingston, N. M., & Noonan, P. M. (2014). The relationship among self-determination, self-concept, and academic achievement for students with learning disabilities. *Journal of Learning Disabilities, 47*(5), 462–474. <https://doi.org/10.1177/0022219412469688>
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment, 52*(1), 30–41. https://doi.org/10.1207/s15327752jpa5201_2

Leng Chee Kong At the time of writing this paper, Dr. Leng Chee Kong was a researcher with the National Institute of Education, Nanyang Technological University (Singapore). Her research centers on motivation in learning. She is a strong believer of self-determination as the energizer, driver and staying power in the many things people do. She is curious about the application of the Self-Determination Theory in a myriad of situations such as social and emotional learning among typically developing students and students with special educational needs.

Part III
Socioemotional Learning Through
Mentoring

Chapter 10

Developing SEL in Student Teachers: The Role of Mentors



C. Y. Ethan Wong and Woon Chia Liu

Abstract This chapter discusses how Self-Determination Theory (SDT), an empirically proven theory about human motivation, development, and wellness, supports the principles of social and emotional learning (SEL) within the context of student teachers fulfilling their teaching practice. Based on the basic psychological needs for autonomy, competence, and relatedness, SDT views the satisfaction of the basic psychological needs as promoting growth, development, and overall wellness, and thwarting these needs will result in diminished growth and wellness. This view means that any social contexts that support the satisfaction of these basic needs can better promote and support positive development. In contrast, social contexts that hinder the satisfaction of these needs will most likely affect human functioning negatively. As part of a more extensive study to investigate the development of teacher professional identity in student teachers, interviews with 14 student teachers revealed the importance of need-supportive mentors in fostering the skills and competencies related to SEL in student teachers undergoing their teaching practice. It is put forth that more could be done to inform and educate mentors about the critical impact they have on fostering SEL competencies in student teachers through the support of their basic psychological needs.

Introduction

The importance and purpose of teaching practice have been widely researched (e.g., Benavides, 2013; Yuan, 2016). A common theme that emerges from these studies is how the teaching practice schools serve as a platform to socialize student teachers into the profession and help them become aware of and, thus, strengthen their knowledge, skills, and competencies. The teaching practice, while providing an authentic and natural setting for student teachers to develop their skills, knowledge, and identity through immersion and interactions with the various stakeholders in a school, has also been perceived as a stressful and challenging period for many where student teachers

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were shocked by the reality of teaching (Zhu, 2017). One of the key purposes of teaching practice to ascertain student teachers' readiness in terms of their competence as teachers tend to generate much anxiety and stress (Caires et al., 2012; Lamote & Engels, 2010) while these student teachers seek to showcase their level of competence and demonstrate to the practicum school that they are ready to become full-fledged teachers. Several studies have revealed that the teaching practice period has been perceived as an unsettling and stressful time, impacting the professional development of student teachers (Caires et al., 2012; Ruohotie-Lyhty, 2013; Teng, 2017).

It has been shown that stress affects teachers' health and well-being, job satisfaction, turnover, and student outcomes (Greenberg et al., 2016). It has also been shown that teachers' social-emotional competence and well-being have a strong influence on their students (Brackett et al., 2010; Schonert-Reichl, 2017). Teachers who can nurture positive teacher–student relationships are more able to support their students academically, socially, and emotionally by acting as positive role models and supporting autonomy and creativity (Becker et al., 2014; Schonert-Reichl, 2017). However, when teachers are not able to manage the social and emotional demands of teaching, their students would suffer academically, socially, and emotionally as well (Roorda et al., 2011; Schonert-Reichl, 2017). It is, therefore, essential to nurture an environment in which student teachers feel supported, empowered, able to collaborate effectively and build relational trust, and able to foster their social and emotional skills while undergoing the trying period of teaching practice.

Consequently, one of the most significant people whom student teachers need to interact with during teaching practice is their mentors. Timoštšuk and Ugaste (2010) found that among the various people student teachers need to interact with, mentors “were seen as the primary influencers in terms of professional development” (p. 1566). Studies have also highlighted the role of mentoring and reflection in enhancing learning and development during the teaching practice (Brown, 2009; Yuan, 2016). The quality of support that mentors provide has an impact on student teachers' motivation, subjective experiences, and perceived teaching competence as well (Ligadu, 2012; Paker, 2011; Rajuan et al., 2007). This chapter, therefore, explores the role of mentors in providing a need-supportive environment and their impact on the social-emotional learning (SEL) of these student teachers through the Self-Determination Theory (SDT) lens.

Literature Review

Self-determination Theory

SDT is an empirically proven theory that takes an organismic perspective toward human development. SDT was first and foremost developed as a broad theoretical framework to explain human motivation and behaviors in relation to individual

variations in interpersonal perceptions, contextual influences on motivation, and motivation orientations (Deci & Ryan, 2000).

According to Ryan and Deci (2017), SDT assumes that people are fundamentally social beings, having the natural tendencies to want to learn about, develop, and be involved in social groups. This phenomenon is first observed when people pursue their interests, discover, and gain mastery of their inner and outer worlds associated with their intrinsic motivation. Secondly, this phenomenon is seen when people begin to “assimilate social norms and regulations through active internalization and integration” (Ryan & Deci, 2017, p. 4). This process of internalization and integration deals with the degree to which people adopt practices and regulations that are initially seen as external to their social groups and transmute them into more autonomous behaviors.

Understanding SDT is to know how these two aspects of integrative developmental processes complement each other for healthy development and what social-contextual factors support or impede them. One critical idea within SDT is that these innate tendencies toward intrinsic motivation, internalization, and social integration are energized by the satisfaction of the three basic psychological needs (Deci & Ryan, 1985; Ryan & Deci, 2002). In other words, social environments that promote the satisfaction of the three basic needs can better facilitate the healthy development of individuals.

Basic Psychological Needs

As explained earlier, one key idea in SDT is that the satisfaction of the three basic psychological needs is essential for psychological well-being and development (Ryan & Deci, 2017; Ryan et al., 2019). The three basic psychological needs are the need for autonomy, competence, and relatedness.

First, the need for autonomy refers to the deep desire to feel that one has the control to make choices over the actions one needs to undertake to align with one’s interests and preferences (deCharms, 1968; Deci & Ryan, 1985). In other words, when someone has a sense of autonomy, he engages in activities that are in alignment with his values and interests and experiences regulation of behavior by the self. This sense of autonomy is perceived as originating from the self and is in accord with intrinsic or internalized values and interests. Next, the need for competence refers to the need to influence our environment actively and feel effective in realizing and attaining our desired outcomes (Deci, 1975; White, 1959). The need for competence causes people to seek challenges, enhance their skills and maintain a sense of effectiveness. This need does not mean the mere attainment of skills but a sense of efficacy in activities that are important to the person concerned. Ryan and Deci (2020) explained that the best conditions to meet this need would be environments that provide optimal challenges, constructive feedback, and avenues for growth. Third, the need for relatedness (Baumeister & Leary, 1995; Ryan, 1995) can be understood as how an individual feels the need to be connected to others and experience reciprocal care and concern in interpersonal relationships. By agreeing

with and accepting the values, beliefs, and behaviors of others, the individual gains a sense of being connected and feels that he or she belongs within the social order. The need for relatedness is best met through the experience of respect and care (Ryan & Deci, 2020).

Need Support and the Role of Social Environment

SDT views the satisfaction of the three basic psychological needs as promoting growth, development, and overall wellness, and thwarting these needs will result in diminished growth and wellness (Ryan & Deci, 2017). This view means that a social environment that supports the satisfaction of these basic needs is better able to promote and support positive development. In contrast, a social environment that hinders the satisfaction of these needs will most likely affect human functioning negatively. SDT proposes that by satisfying the three basic psychological needs or being in need-supportive conditions, people are more able to internalize extrinsic regulations and values (Deci & Ryan, 2000). Need support has therefore been theorized as vital for healthy adjustment, and in such supportive contexts, people can feel a sense of autonomy and congruence when engaging in various tasks and behaviors.

Studies conducted at initial teacher education have shown that perceived need satisfaction by student teachers had been found to contribute positively to psychological and emotional health (Hagenauer et al., 2018; Uzman, 2014), promoting teacher quality and professionalism (Kaplan & Madjar, 2017; Korthagen & Evelein, 2016), and is related to effecting change in beliefs, intention, and behaviors toward more supportive instructional approaches (Aelterman et al., 2016; Perlman, 2015). Other scholars have also found that autonomy-supportive approaches in the initial teacher institution enhanced self-perceived competencies and teacher self-efficacy in student teachers (Burger et al., 2021; González et al., 2018), and the student teachers are, in turn, more likely to adopt autonomy-supportive approaches as well (Martinek et al., 2020).

SDT specifies three nutritive dimensions (Grolnick, 2009; Grolnick & Ryan, 1989) that one could consider when thinking of providing a need-supportive environment. First is the dimension of being *autonomy supportive*, where there exists an active nurturing of a person's capacities to self-regulate through the provision of meaningful rationales and choices, the encouragement and support of self-initiation, and reduced usage of controlling language. Second is the provision of *structure* where opportunities exist to receive information and directions that support the development of competence. This provision could take the form of informational feedback, which enhances competence, rather than evaluative or controlling feedback. Third, the perceived *involvement* of significant others, where there exist the opportunities to experience dedicated time, attention, and resources, engaged care and support, which in turn make one feel relationally and emotionally connected and supported (Ryan & Deci, 2017).

Mentors and Mentoring

Mentoring during teaching practice typically involves an experienced teacher providing the student teacher with some form of systematic and continued guidance and is critical for the professional development of student teachers. In Singapore, mentoring was also implemented in schools to ensure that the student teachers were well supported with regard to their general well-being and teaching competencies (Ng, 2012). Also, officially appointed mentors allocated for student teachers in teaching practice are known as cooperating teachers (CTs) locally. This paper, therefore, refers to mentors and CTs interchangeably as the officially appointed teachers to support student teachers' learning and development during teaching practice.

There are many roles that mentors could perform (Ganser, 1996), and these include them playing roles like being a guide, provider of support and key information, adviser, trainer, partner, and assessor (Jones, 2000). However, the underlying assumption in this mentoring relationship and mentors playing multiple roles is the idea that the mentors provide support and guidance to the student teachers who are considered novices and would require support for their growth and development as teachers (Agudo, 2015; Aspfors & Fransson, 2015). How successfully mentors could play their roles in a supportive manner is therefore crucial in impacting outcomes like student teachers' motivation, affective outcomes, and perceived teaching competence.

For instance, Feiman-Nemser (2001) investigated the impact of mentoring on student teachers' professional growth during their teaching practice. They found that when mentors played an active role in providing guidance to student teachers and addressing their concerns and problems, student teachers would feel supported, which, in turn, would enhance their affective outcomes by meeting their emotional needs. Similarly, a study by Aspfors and Fransson (2015) revealed that when mentors were perceived as open, supportive, and willing to provide constructive feedback, student teachers would generally feel encouraged and supported for their initiatives and efforts, although they might still make mistakes occasionally. Agudo (2016) further affirmed that student teachers valued the importance and need for an open and respectful relationship with their mentors because such a relationship would help them feel relaxed, safe, and comfortable in the workplace. It is apparent from these studies that a supportive mentor not only enhances the skills and knowledge of the student teachers but also helps them to build up their social-emotional competencies to navigate through the challenging teaching practice more successful socially and emotionally.

On the other hand, when the mentors were perceived as more domineering and had little or no room for negotiation, student teachers tended to exhibit a higher degree of stress and anxiety since they had to accommodate the directives the mentors gave (Rajuan et al., 2008). In a separate study, Paker (2011) also found that when mentors were perceived as more evaluative in their approach and seen as less supportive, there was a detrimental effect on the level of anxiety experienced by the student teachers. Correspondingly, Gray et al. (2018) found that when mentors were perceived as less

encouraging and welcoming, the student teachers would suffer from a lack of a sense of belonging and became more susceptible to stress.

Overall, it is clear that mentors play a critical role not only in supporting student teachers in their learning of how to be a teacher but also in fostering the skills and competencies related to SEL to enhance the chance of these aspiring teachers to undergo their teaching practice more successfully. Mentoring has, therefore, been increasingly recognized as a critical strategy in professional training and development programs in education (Peiser et al., 2018). In the context of teaching practice, mentors also perform a crucial role in affecting the student teachers' learning experiences and affective outcomes during teaching practice.

Social-Emotional Competencies and Learning

The concept of social-emotional competencies (SECs) is usually used as an overarching term to refer to “a range of capabilities that enable individuals to express, regulate and understand their thoughts, emotions, behaviors in everyday situations and interactions with others, and to adjust to changing conditions” (Schoon, 2021, p. 2). A general agreement among the literature is that SECs refer to an individual's ability to (1) understand and accept oneself in negotiating everyday situations and (2) interact with others, deal with challenges, and adjust to changing conditions (Schoon, 2021).

A helpful approach to better understanding the development of SECs is based on the commonly adopted framework by Collaborative for Academic, Social-Emotional Learning (CASEL), which aims to enable the development of core social and emotional competencies in children and adults. Having its origins in theories of progressive education, developmental psychology, and emotional intelligence (Osher et al., 2016), the CASEL framework focused on promoting positive learning environments that support and foster the development of five broad and interrelated areas of competence, namely self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. Furthermore, each of the areas of competence is a set of related skills. For example, skills that develop self-awareness would include labeling and recognizing one's emotions, identifying personal strengths and areas for growth, and practicing self-compassion.

Broadly, SEL is the process by which people gain these SECs to achieve relevant social and developmental goals (Zins et al., 2007) and thus develop their capacity to manage their thoughts, emotions, and behaviors to accomplish desired social tasks. Scholars have also proposed that social environments experienced as supportive, safe, and caring and allowing opportunities to practice the relevant skills would better facilitate the development of SECs (Collie, 2020; Schonert-Reichl, 2017).

A quick literature search revealed that much of the research on SEL focuses on SEL outcomes in students, and when teachers are involved, they are usually seen as the key facilitators of fostering SEL learning in students. However, there has been increasing evidence that SEL also has an impact on teacher outcomes (Collie et al.,

2012). It is, therefore, important to look into the SEL of student teachers as they experience their teaching practice.

Since the CASEL framework focused on not only the development of competencies but also the social environment that could possibly support and foster the learning and development of such competencies, SDT becomes a fitting theory to explore further the role that need-supportive contexts play in facilitating the learning of SECs. SDT provides a clear framework when we talk about support through the basic psychological needs. SDT also emphasizes the role that the social environment plays in providing the support needed to satisfy the three basic psychological needs.

Purpose of the Present Study

As part of a more extensive study (Wong, 2022) to investigate the development of teacher professional identity in student teachers, a smaller study, which adopted an exploratory qualitative approach, was conducted to shed more light on the experience of student teachers during their teaching practice in relation to the experience of needs satisfaction. This chapter, therefore, sought to answer the question of how student teachers experience needs satisfaction during teaching practice in support of the fostering of SEL.

Method

Participants and Procedure

A purposive sampling approach was utilized to select participants for the interviews. Participants selected for the study came from diverse backgrounds, with representatives from both primary and secondary tracks and across the various teaching subjects. This study had fourteen participants.

Ethical clearance from the university's Institutional Review Board (IRB) was obtained before the collection of the qualitative data through the interviews. Willing participants received a consent form explaining the scope of the study and presented avenues available to them should they feel they wanted to find out more about the study. The participants, in turn, acknowledged the document and provided their informed consent to participate in the study.

Data Collection and Analysis

Since the voices of the student teachers and their real-life experiences were the essence of this smaller study in providing critical information to answer the research questions, a face-to-face semi-structured interview qualitative strategy was chosen to achieve the intent of this study. The adaptive nature of this approach also allowed for thick descriptions to help the researcher collect rich and meaningful narratives through probing and pursuing any new ideas generated (Sallee & Flood, 2012).

An interview protocol was developed to guide the interview process, with questions crafted based on literature relevant to the study. Broad questions, such as asking participants to recall the significant experiences, were posed to help participants reflect on their teaching practice. More probing followed-up questions were asked to elicit important people and emotions of the participants, for example, “Who was involved?”, “What did this person do?”, and “How did that make you feel?”. All the questions were asked, and probing questions were added along the way to obtain more comprehensive data. All interviewees were assigned pseudonyms to protect their anonymity.

Each interview was conducted in a location pre-arranged with each participant. The interviews were held for twenty-five to fifty-five minutes, with an average interview time of thirty-five minutes. A single researcher facilitated all interviews to ensure a standardized questioning procedure. Each interview was audio-recorded, transcribed, coded, and analyzed using the six-phase thematic analysis approach (Braun & Clarke, 2006).

The six-phase thematic analysis includes (1) being familiar with the data; (2) generating initial codes; (3) searching for themes based on the initial codes; (4) reviewing the themes; (5) defining the themes; and (6) producing the report. All transcripts were read multiple times in their entirety to ensure familiarization with the content in each transcript when analyzing the data. Next, initial codes for short phrases, ideas, and concepts were generated by organizing the data into meaningful groups as each transcript was being read. Codes and supporting quotes were marked on each transcript and then examined for patterns before being collated into themes. When reviewing and refining the themes, all extracts related to the codes were read through once more to verify their accuracy and relevance in depicting the themes. The deliberate and constant reference back to the transcripts ensured contextual accuracy when confirming relevant codes and themes.

Findings and Discussion

The results from the qualitative study showed that the teaching practice proved to be a stressful and challenging period for all participants, with many reflecting on the experience as “being in a rush” and feeling a “sense of pressure”. Although the teaching practice was perceived as stressful and challenging, the findings of

this study suggested that participants saw the teaching practice as a necessary and essential platform that served to challenge, refine, and put their initial ideals and philosophies regarding teaching and learning to the most stringent and valid test: a real classroom.

One of the key findings from this study was that a supportive community during teaching practice had a positive impact on the learning and development experience of the student teachers. In particular, the acts of care, concern, and encouragement from the CTs were perceived as signals that the student teachers were responded to, respected, and important to them. This perceived satisfaction of need generated a sense of belonging and motivation to keep going during the teaching practice and identification with the teaching profession. This section, therefore, sought to highlight the impact of need-supportive practices of CTs on student teachers' SEL.

Fostering SEL Through Involvement

Involvement of the CTs could be understood as the extent to which CTs showed interest in, developed an understanding of, and were actively engaged in the student teachers' daily activities during their teaching practice (Ryan & Deci, 2017). Most of the participants mentioned that the involvement of their CTs was perceived as very important in supporting their need for competence and relatedness. Participants were appreciative of the CTs' understanding, openness, and willingness to share their advice (e.g., "I felt like I could tell her anything"), which showed that the CTs were willing to spend time listening to and providing sound advice to the participants, thus meeting the need for relatedness and competence for the participants. This finding is very much aligned with previous studies (Agudo, 2016; Aspfors & Fransson, 2015; Feiman-Nemser, 2001) on the impact of mentors on the professional learning of student teachers.

Several participants also elaborated on how their CTs helped encourage them by recognizing their efforts and capabilities and helping them avoid attributing some of their mistakes during classes to their perceived inability to function as competent teachers. CTs would say things like, "Oh, it's okay. Please don't beat yourself up... it's not your fault. Please don't feel like that. It's fine, it's not you" and "this is something that we can work with" to help participants overcome the moments of doubts over their capabilities as teachers. These conversations with their CTs, which focused on supporting the participants' need for competence through clarifying the issues at hand and facilitating the student teachers' learning, helped participants regain their confidence and sense of self-efficacy regarding the challenges they were facing, and the participants, in the end, were more able to regulate their sense of anxiety by putting things into a more positive perspective (e.g., "makes me feel more supported in my decisions, makes me feel relieved sometimes" and "It gives you a bit like hope, that the situation is not as bad as you think. It's something that can be resolved much easier").

CTs' involvement by devoting time, investing attention and resources, and being caring and supportive not only provided a nurturing and need-supportive environment but also fostered the participants' ability to develop greater inner resources like self-awareness and self-regulation, some of the key SEL competencies. Through their need-supportive gestures, actions and conversations, participants were more able to identify their strengths and areas for growth meaningfully and create positive change. They were also more ready to practice exercising self-compassion (Neff, 2011) and not be too hard on themselves because they felt that there was someone else who could understand their circumstances. Overall, these interactions with their CTs helped them to cultivate a growth mindset and optimism, and they could look at their current challenge (i.e., the teaching practice) with confidence and assurance.

Fostering SEL Through Structure

The impact that CTs had on the student teachers was not limited to their involvement but also their provision of structure when they provided rich feedback and scaffolds to support the learning and development of the participants toward mastery and effectiveness. The feedback from CTs, in particular, was a significant source of input in providing guidance and directions to help participants overcome issues they were facing in the classroom and thus help build a sense of competence in the participants (e.g., "they kind of like prodded me in that direction to help me" and "my CT actually started to give me a bit more advice because I am not really sure what I can do. He said, "I observed when you did this, and they actually quietened down a bit, so maybe you can try to do that more". It's like a more specific type of feedback. I think they were really very good CTs"). Such instances of meaningful dialogue and feedback provided opportunities to clarify doubts regarding classroom processes, built a deeper understanding of the roles and responsibilities of a classroom teacher, and allowed participants to glean expert knowledge from a credible voice.

The provision of structure by the CTs facilitated and enhanced the participants' capacities to feel assured and confident to explore both their internal and external worlds in this crucial phase of learning to be a teacher. In particular, participants felt that their CTs provided the necessary structure in the form of "guidelines and effectance-relevant information" (Ryan & Deci, 2017, p. 321) and that they were improving as a teacher, helping them develop a sense of mastery and becoming more effective as a classroom teacher (e.g., "helped me to see that our responsibility as a teacher is also to set up that kind of safe environment and making sure that it remains that way for all the students" and "they focus a lot on making sure that we were improving on classroom management, more than just the content of executioner of the class, it was always about how can you engage the students more, how can you create positive noise"). Additionally, the responses from the participants showed that the informational feedback given by the CTs in a non-controlling manner helped foster the participants' self-management skills in navigating and shifting their thoughts, emotions, and behaviors in a productive way, which in turn helped them make better

decisions to achieve their learning goals. Evidently, with the provision of structure by their CTs, participants not only learned new skills that they could add to their repertoire of classroom practices through this process of receiving and acting upon the constructive feedback, but they also learned to take on challenges and appreciate changes positively, which enhanced their social and emotional competence. (e.g., “moving away from what I thought my style was and being a bit more organic with it. And I appreciated being able to adopt a different style”), leading to an overall more effective functioning.

Negative Impact on SEL When CT Was Perceived as not Need-Supportive

There was some evidence that when CTs were not exhibiting autonomy-supportive behaviors, the participants felt unsupported, and the need for competence, relatedness, and autonomy was thwarted. These negative experiences somewhat affected their sense of effectiveness and confidence as a teacher. This finding aligns with previous studies (Gray et al., 2018; Paker, 2011; Rajuan et al., 2008), which found the negative impact of mentors who are perceived as domineering and unsupportive. One example was the lack of the provision of structure where feedback was not given constructively or in a timely manner (e.g., “I feel like I didn’t really discuss my lesson plan beforehand. I don’t know whether I am okay or not okay” and “she never really gives me feedback”). The lack of connectedness with and feedback from their CTs made the participants feel somewhat helpless in not knowing how to improve, refine or rethink their classroom practices and made them feel that they were not as effective as they would want to be, thus not satisfying their need for competence as teachers (e.g., “if she gave me the feedback, then maybe I would have done more, something more”). The comment made by one of the participants seemed to indicate that the lack of involvement and support from her CT affected her willingness and openness to exercise her relationship skills to seek help when she needed to (i.e., “I don’t know how to ask my CT for help because she doesn’t give me much help during the pre-lesson observation meeting”). What was clear from these recounts was that when the environment was low in structure, there was a sense of unpredictability and uncertainty, resulting in the participants feeling a sense of loss or not being in control of the outcome.

Another participant had a more detrimental experience when the CT exhibited need-thwarting behavior through the way feedback was given. The feedback to this participant to not use group work but stick to the frontal teaching method was given in a controlling and undermining manner, causing this participant to lose her sense of confidence and diminish her sense of autonomy (e.g., “My CT told me, you don’t need to have an interactive lesson. You just do frontal (teaching) because we are pressed for time now. I caved and then, frontal (teaching)”). What was evident from

these recounts was that the behaviors of CTs directly impacted the way the participants perceived their social environment as need-supportive or not. When CTs were perceived as not being need-supportive, the energy and desire to inquire into their pedagogies, beliefs and values diminished, affecting the development of their sense of being a teacher (e.g., “that also hit my teacher identity quite hard”). In turn, the participants did not feel supported or compelled to make a more responsible decision in preparing lessons that might better benefit their students’ learning but to just follow the lead from their CTs. This response from the participant is somewhat understandable, especially during the teaching practice where the CTs function not only as mentors but also as assessors. Most participants would not want to be perceived as “opposing” the instructions or directions from their CTs, fearing that that might jeopardize their chances of passing their teaching practice (e.g., “to me, I just follow him first. I don’t want to argue”).

Need Support and SEL

The various recounts from the participants suggested that autonomy-supportive behaviors their CTs exhibited helped ease the participants’ feelings of anxiety, frustration, and sometimes ineffectiveness. The support from the CTs ensured that the participants’ sense of competence was not undermined when they experienced challenging situations and that they remained optimistic in their endeavor toward becoming a teacher, energizing them to continue the process of discovery and the quest toward their personal goal of becoming a teacher. Other studies have also found that CTs play a critical role in the development of student teachers because the support provided by these experienced teachers are viewed as more valuable (Schepens et al., 2009; Sutherland & Markauskaite, 2012). In addition, the caring responses from the various CTs went beyond just supporting the participants’ need for competence and developing their sense of efficacy in managing difficult situations. It was also clear that the CTs helped the participants feel “responded to, respected, and important to others” (Ryan & Deci, 2017, p. 96) and met their need for relatedness. The opportunities to talk openly and freely and receive constructive feedback in a need-supportive environment created by the CTs seemed to have helped the participants remain uplifted and more willing and open to further explore their beliefs and practices in the classrooms. Participants were more willing and able to engage in introspection activities (e.g., revisiting beliefs and practices) when the CTs provided a safe and open environment and thus developed a greater awareness of their inner and outer circumstances, which led to better decision-making and outcomes.

A critical understanding here is that the need-supportive environment facilitated by the CTs did not merely arouse a feeling of being motivated but became the source of energy for actions (Ryan & Deci, 2017). That is to say that a need-supportive environment functions like a psychological nutrient that provides the energy for participants to both remain optimistic and engage in various activities involved in this process. This point is also being clearly illustrated when we examined the negative

experiences of some participants in the earlier section, which revealed how the lack of a need-supportive environment depleted the level of energy of the participants concerned. Participants experienced a drop in their sense of motivation and desire to exercise responsible decision-making when their CTs did not support them by providing timely feedback or even perceived them as overly directive and dictated the teaching approaches they should adopt. The overly directive approaches resulted in the participants feeling a decline in their sense of autonomy. Participants in this situation did not feel energized to relook into their values, beliefs or classroom practices and were less likely to autonomously decide to accept or reject the various feedback given to them in an environment that was not need-supportive.

It was, therefore, clear that the CTs played a significant role in supporting (or thwarting) the need for competence and relatedness for these student teachers. When CTs provided encouragement, suggestions, advice, and timely feedback, they helped the participants develop and enhance their skills and understanding, and the participants felt supported in their advancement toward mastery as a teacher. Through the provision of a need-supportive environment, the CTs were also fostering the skills and competencies related to SEL in the participants, where the participants were more willing and able to demonstrate skills and competencies related to self-awareness (e.g., identifying personal strengths, practicing self-compassion, cultivating self-confidence), self-management (e.g., monitoring goals, using feedback constructively), and relationship building (e.g., cultivating connection and friendship, seeking help).

Implications for Enhancing Mentors' Practices

Autonomy support in the workplace has been described as the collective behavioral orientation of the work supervisor, promoting a climate of support and understanding within supervisor-supervisee relationships (Reeve, 2015). In addition, autonomy-supportive contexts are described as providing choices to people, promoting personal initiative, and supporting the need for competence and relatedness (Deci et al., 2001). Similarly, in the context of teaching practice, when mentors are supportive of the student teachers' desire to try new approaches and provide constructive feedback and positive regard, student teachers experience autonomy support. Similarly, when mentors communicate in an informational rather than a controlling manner, student teachers would also feel supported. Mentors who are perceived as welcoming to self-initiation and taking steps to nurture the inner motivational resources of these student teachers are also seen as more autonomy supportive. In such a need-supportive environment, the participants' ability to exercise their skills and competencies related to SEL when expressing, regulating, and understanding their thoughts, emotions and behaviors in their daily interactions with others are fostered. This condition, in turn, puts the student teachers in a better position to learn and perform in a more optimal manner socially and emotionally during their teaching practice.

However, when mentors do not endorse the teaching approaches of the student teachers and give them instructions to change their teaching approaches in a manner that is experienced as controlling, the student teachers feel a loss of control, which in turn disrupts their satisfaction of the need for autonomy. When mentors adopt a more controlling style of communication, they tend to put pressure on the student teachers to feel, think, or behave in a particular manner that would make the student teachers feel a loss of control to make more self-determined choices. This form of communication tends to thwart the need for autonomy and has a negative effect on self-motivation, persistence, and well-being (Chirkov & Ryan, 2001; Ryan & Deci, 2000), where student teachers would be less likely to internalize values, attitudes, and behaviors that are important to themselves and the profession. A prolonged experience of being under such a controlling environment would have a negative effect on their overall well-being and development (Ryan & Deci, 2017).

Considering the possible positive as well as negative impact on the SEL of student teachers through the mentors' actions and behaviors, it is therefore highly desirable that mentors be equipped with the knowledge of SDT, the skill of creating a need-supportive environment, and the understanding of the way their need-supportive or thwarting behaviors could impact the SEL of student teachers under their care. Professional development activities could be conducted for the mentors to expand their understanding of their role as mentors, the specific strategies and practices that would help them be perceived as more need-supportive, and the concepts of basic psychological needs. The introduction of the three nutritive dimensions (i.e., autonomy support, structure, and involvement) as a framework to think about what mentors could do to provide a need-supportive environment would be helpful. Some examples include (1) being encouraging and providing clear instructions when introducing learning tasks to promote a sense of competence and relatedness; (2) avoiding the use of controlling language (e.g., "must" or "should") or behaviors that would undermine one's sense of autonomy; (3) acknowledging the inputs and negative emotions during interactions to promote the sense of relatedness, and (4) providing choices and personally meaningful explanations for engaging in learning tasks to enhance the sense of autonomy.

Conclusion

One of the common ideas in both SDT and SEL is the significance of a supportive social environment where growth, learning, and development occur (Durlak et al., 2011; Ryan & Deci, 2017). Furthermore, SDT provides a well-established framework to understand the needs that our student teachers have (i.e., autonomy, competence & relatedness) and the approaches mentors could adopt to create a need-supportive environment to meet those needs. The understanding of the basic psychological needs according to SDT and the three nutritive dimensions (i.e., autonomy support, structure, and involvement) is, therefore, essential knowledge that we should equip our mentors with and thus enable them to nurture a more need-supportive environment

which in turn could help them to better facilitate the development of the five SEL core competence domains in our student teachers. With more mentors equipped with the skills and knowledge of autonomy-supportive approaches and fostering the skills and competencies related to SEL in student teachers, it is hoped that student teachers would be in a better position to set, focus on, and achieve their learning goals under the state of understanding and healthily managing their emotions and well-being.

References

- Aelterman, N., Vansteenkiste, M., Van Keer, H., & Haerens, L. (2016). Changing teachers' beliefs regarding autonomy support and structure: The role of experienced psychological need satisfaction in teacher training. *Psychology of Sport and Exercise*, 23, 64–72. <https://doi.org/10.1016/j.psychsport.2015.10.007>
- Agudo, J. D. M. (2016). What type of feedback do student teachers expect from their school mentors during practicum experience? The case of Spanish efl student teachers. *Australian Journal of Teacher Education*, 41(5), 36–51. <https://doi.org/10.14221/ajte.2016v41n5.3>
- Aspfors, J., & Fransson, G. (2015). Research on mentor education for mentors of newly qualified teachers: A qualitative meta-synthesis. *Teaching and Teacher Education*, 48, 75–86. <https://doi.org/10.1016/j.tate.2015.02.004>
- Baumeister, R., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497–529. <https://doi.org/10.4324/9781351153683-3>
- Becker, E. S., Goetz, T., Morger, V., & Ranellucci, J. (2014). The importance of teachers' emotions and instructional behavior for their students' emotions – an experience sampling analysis. *Teaching and Teacher Education*, 43, 15–26. <https://doi.org/10.1016/j.tate.2014.05.002>
- Benavides, D. M. D. (2013). The way student-teachers construct their identity at school. *HOW Journal*, 20(1), 36–50. <https://www.howjournalcolombia.org/index.php/how/article/view/22>
- Brackett, M., Palomera, R., Mojsa-Kaja, J., Reyes, M. R., & Salovey, P. (2010). Emotion-regulation ability, burnout, and job satisfaction among British secondary-school teachers. *Psychology in the Schools*, 47, 406–417. <https://doi.org/10.1002/pits.20478>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp0630a>
- Brown, A. (2009, June 28–July 1). Teacher interns, metacognition and identity formation [Conference session]. In *ATEA Conference 2009*, Albury, NSW, Australia. <https://files.eric.ed.gov/fulltext/ED524473.pdf>
- Burger, J., Bellhäuser, H., & Imhof, M. (2021). Mentoring styles and novice teachers' well-being: The role of basic need satisfaction. *Teaching and Teacher Education*, 103, 103345. <https://doi.org/10.1016/j.tate.2021.103345>
- Caires, S., Almeida, L., & Vieira, D. (2012). Becoming a teacher: Student teachers' experiences and perceptions about teaching practice. *European Journal of Teacher Education*, 35(2), 163–178. <https://doi.org/10.1080/02619768.2011.643395>
- Chirkov, V., & Ryan, R. M. (2001). Parent and teacher autonomy support in Russian and US adolescents: Common effects on well-being and academic motivation. *Journal of Cross-Cultural Psychology*, 32(5), 618–635. <https://doi.org/10.1177/0022022101032005006>
- Collie, R. J. (2020). The development of social and emotional competence at school: An integrated model. *International Journal of Behavioral Development*, 44(1), 76–87. <https://doi.org/10.1177/0165025419851864>

- Collie, R. J., Shapka, J. D., & Perry, N. E. (2012). School climate and social–emotional learning: Predicting teacher stress, job satisfaction, and teaching efficacy. *Journal of Educational Psychology, 104*(4), 1189–1204. <https://doi.org/10.1037/a0029356>
- deCharms, R. (1968). *Personal causation: The internal affective determinants of behavior*. Academic.
- Deci, E. L. (1975). *Intrinsic motivation*. Plenum Press.
- Deci, E. L., & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behavior. *Springer*. <https://doi.org/10.1007/978-1-4899-2271-7>
- Deci, E. L., & Ryan, R. M. (2000). The ‘what’ and ‘why’ of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227–268. https://doi.org/10.1207/s15327965pli1104_01
- Deci, E. L., Ryan, R. M., Gagné, M., Leone, D. R., Usunov, J., & Kornazheva, B. P. (2001). Need satisfaction, motivation, and well-being in the work organizations of a former eastern bloc country: A cross-cultural study of self-determination. *Personality and Social Psychology Bulletin, 27*(8), 930–942. <https://doi.org/10.1177/0146167201278002>
- Durlak, J. A., Dymnicki, A. B., Taylor, R. D., Weissberg, R. P., & Schellinger, K. B. (2011). The impact of enhancing students’ social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82*(1), 405–432. <https://doi.org/10.1111/j.1467-8624.2010.01564.x>
- Feiman-Nemser, S. (2001). Helping novices learn to teach. *Journal of Teacher Education, 52*(1), 17–30. <https://doi.org/10.1177/0022487101052001003>
- Ganser, T. (1996). The cooperating teacher role. *The Teacher Educator, 31*(4), 283–291. <https://doi.org/10.1080/08878739609555121>
- González, A., Conde, Á., Díaz, P., García, M., & Rico, C. (2018). Instructors’ teaching styles: Relation with competences, self-efficacy, and commitment in pre-service teachers. *Higher Education, 75*(4), 625–642. <https://doi.org/10.1007/s10734-017-0160-y>
- Gray, C., Wright, P., & Pascoe, R. (2018). “They made me feel like a teacher rather than a practice”: Sinking or swimming in pre-service drama education. *Asia-Pacific Journal of Teacher Education, 47*(2), 193–207. <https://doi.org/10.1080/1359866x.2018.1504279>
- Greenberg, M. T., Brown J. L., & Abenavoli, R. M. (2016). *Teacher stress and health effects on teachers, students, and schools*. University Park, PA: Edna Bennett Pierce Prevention Research Center, Pennsylvania State University. Retrieved from <http://prevention.psu.edu/uploads/files/rwjf430428.pdf>
- Grolnick, W. S. (2009). The role of parents in facilitating autonomous self-regulation for education. *Theory and Research in Education, 7*(2), 164–173. <https://doi.org/10.1177/1477878509104321>
- Grolnick, W. S., & Ryan, R. M. (1989). Parent styles associated with children’s self-regulation and competence in school. *Journal of Educational Psychology, 81*(2), 143–154. <https://doi.org/10.1037/0022-0663.81.2.143>
- Hagenauer, G., Gläser-Zikuda, M., & Moschner, B. (2018). University students’ emotions, life-satisfaction and study commitment: A self-determination theoretical perspective. *Journal of Further and Higher Education, 42*(6), 808–826. <https://doi.org/10.1080/0309877X.2017.1323189>
- Jones, M. (2000). Trainee teachers’ perceptions of school-based training in England and Germany with regard to their preparation for teaching, mentor support and assessment. *Mentoring and Tutoring, 8*(1), 63–80. <https://doi.org/10.1080/713685509>
- Kaplan, H., & Madjar, N. (2017). The motivational outcomes of psychological need support among pre-service teachers: Multicultural and self-determination theory perspectives. *Frontiers in Education, 2*, 42. <https://doi.org/10.3389/educ.2017.00042>
- Korthagen, F. A., & Evelein, F. G. (2016). Relations between student teachers’ basic needs fulfilment and their teaching behavior. *Teaching and Teacher Education, 60*, 234–244. <https://doi.org/10.1016/j.tate.2016.08.021>

- Lamote, C., & Engels, N. (2010). The development of student teachers' professional identity. *European Journal of Teacher Education*, 33(1), 3–18. <https://doi.org/10.1080/02619760903457735>
- Ligadu, C. P. (2012). The impact of the professional learning and psychological mentoring support for teacher trainees. *Journal of Social Sciences*, 8(3), 350–363. <https://doi.org/10.3844/jssp.2012.350.363>
- Martinek, D., Zumbach, J., & Carmignola, M. (2020). The impact of perceived autonomy support and autonomy orientation on orientations towards teaching and self-regulation at university. *International Journal of Educational Research*, 102, 101574. <https://doi.org/10.1016/j.ijer.2020.101574>
- Neff, K. D. (2011). Self-compassion, self-esteem, and well-being. *Social and Personality Psychology Compass*, 5(1), 1–12. <https://doi.org/10.1111/j.1751-9004.2010.00330.x>
- Ng, P. T. (2012). Mentoring and coaching educators in the Singapore education system. *International Journal of Mentoring and Coaching in Education*, 1(1), 24–35. <https://doi.org/10.1108/20466851211231602>
- Osher, D., Kidron, Y., Brackett, M., Dymnicki, A., Jones, S., & Weissberg, R. P. (2016). Advancing the science and practice of social and emotional learning: Looking back and moving forward. *Review of Research in Education*, 40(1), 644–681. <https://doi.org/10.3102/0091732X16673595>
- Paker, T. (2011). Student teacher anxiety related to the teaching practicum. *Eurasian Journal of Educational Research*, 11(42), 207–224.
- Peiser, G., Ambrose, J., Burke, B., & Davenport, J. (2018). The role of the mentor in professional knowledge development across four professions. *International Journal of Mentoring and Coaching in Education*, 7(1), 2–18. <https://doi.org/10.1108/ijmce-07-2017-0052>
- Perlman, D. (2015). Assisting preservice teachers toward more motivationally supportive instruction. *Journal of Teaching in Physical Education*, 34(1), 119–130. <https://doi.org/10.1123/jtpe.2013-0208>
- Rajuan, M., Beijaard, D., & Verloop, N. (2007). The role of the cooperating teacher: Bridging the gap between the expectations of cooperating teachers and student teachers. *Mentoring & Tutoring: Partnership in Learning*, 15(3), 223–242. <https://doi.org/10.1080/13611260701201703>
- Roorda, D. L., Koomen, H. M., Spilt, J. L., & Oort, F. J. (2011). The influence of affective teacher–student relationships on students' school engagement and achievement: A meta-analytic approach. *Review of Educational Research*, 81(4), 493–529. <https://doi.org/10.3102/0034654311421793>
- Reeve, J. (2015). Giving and summoning autonomy support in hierarchical relationships. *Social and Personality Psychology Compass*, 9(8), 406–418. <https://doi.org/10.1111/spc3.12189>
- Ruohotie-Lyhty, M. (2013). Struggling for a professional identity: Two newly qualified language teachers' identity narratives during the first years at work. *Teaching & Teacher Education*, 30(12), 120–129. <https://doi.org/10.1016/j.tate.2012.11.002>
- Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality*, 63(3), 397–427. <https://doi.org/10.1111/j.1467-6494.1995.tb00501.x>
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78. <https://doi.org/10.1037/0003-066x.55.1.68>
- Ryan, R. M., & Deci, E. L. (2002). An overview of self-determination theory: An organismic-dialectical perspective. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 3–33). University of Rochester Press.
- Ryan, R. M., & Deci, E. L. (2017). Self-determination theory: Basic psychological needs in motivation, development, and wellness. *Guilford Press*. <https://doi.org/10.1521/978.14625/28806>
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 61, 101860. <https://doi.org/10.1016/j.cedpsych.2020.101860>

- Ryan, R. M., Ryan, W. S., Di Domenico, S. I., & Deci, E. L. (2019). The nature and the conditions of human autonomy and flourishing: Self-determination theory and basic psychological needs. In R. M. Ryan (Ed.), *The Oxford handbook of human motivation* (2nd ed., pp. 89–110). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780190666453.013.6>
- Sallee, M. W., & Flood, J. T. (2012). Using qualitative research to bridge research policy. *Theory into Practice, 51*(2), 137–144. <https://doi.org/10.1080/00405841.2012.662873>
- Schepens, A., Aelterman, A., & Vlerick, P. (2009). Student teachers' professional identity formation: Between being born as a teacher and becoming one. *Educational Studies, 35*(4), 361–378. <https://doi.org/10.1080/03055690802648317>
- Schonert-Reichl, K. A. (2017). Social and emotional learning and teachers. *The future of children, 137*–155. <https://doi.org/10.1353/foc.2017.0007>
- Schoon, I. (2021). Towards an integrative taxonomy of social-emotional competences. *Frontiers in Psychology, 12*, 515313. <https://doi.org/10.3389/fpsyg.2021.515313>
- Sutherland, L., & Markauskaite, L. (2012). Examining the role of authenticity in sporting the development of professional identity: An example from teacher education. *Higher Education, 64*(6), 747–766. <https://doi.org/10.1007/s10734-012-9522-7>
- Teng, M. F. (2017). Emotional development and construction of teacher identity: Narrative interactions about the pre-service teachers' practicum experiences. *Australian Journal of Teacher Education, 42*(11), 117–134. <https://doi.org/10.14221/ajte.2017v42n11.8>
- Timošćuk, I., & A. Ugaste, A. (2010). Student teachers' professional identity. *Teaching and Teacher Education, 26*(8), 1563–1570. <https://doi.org/10.1016/j.tate.2010.06.008>
- Uzman, E. (2014). Basic psychological needs and psychological health in teacher candidates. *Procedia-Social and Behavioral Sciences, 116*, 3629–3635. <https://doi.org/10.1016/j.sbspro.2014.01.814>
- White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review, 66*(5), 297–333. <https://doi.org/10.1037/h0040934>
- Wong, C. Y. E. (2022). Development of teacher professional identity in pre-service teachers: perspectives from self-determination theory [Doctoral dissertation, National Institute of Education, Nanyang Technological University]. NIE Digital Repository. <http://hdl.handle.net/10497/24069>
- Yuan, E. R. (2016). The dark side of mentoring on pre-service language teachers' identity formation. *Teaching and Teacher Education, 55*, 188–197. <https://doi.org/10.1016/j.tate.2016.01.012>
- Zhu, G. (2017). Chinese student teachers' perspectives on becoming a teacher in the practicum: Emotional and ethical dimensions of identity shaping. *Journal of Education for Teaching, 43*(4), 491–495. <https://doi.org/10.1080/02607476.2017.1341162>
- Zins, J. E., Bloodworth, M. R., Weissberg, R. P., & Walberg, H. J. (2007). The scientific base linking social and emotional learning to school success. *Journal of Educational and Psychological Consultation, 17*, 191–210. <https://doi.org/10.1080/10474410701413145>

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Chapter 11

Autonomy-Supportive Mentoring: Self-Determination Theory-Based Model of Mentoring that Supports Beginning Teachers' Social and Emotional Learning in the Induction Period



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Abstract The chapter is dedicated to *Autonomy-Supportive Mentoring Model* (ASMM), which draws on SDT (Ryan & Deci, 2017). The model was developed as part of the Promentors project (Erasmus + program of the EU). Within SDT, the concept of mentoring has been applied in different contexts, but its application within the domain of beginning teachers has been limited. ASMM emphasizes optimal development of both mentor and mentee. The impact of mentoring occurs when the mentoring relationship supports basic psychological needs for relatedness, competence, and autonomy. ASMM may also guide Social-Emotional Learning. The chapter introduces the goals and principles of ASMM and practical aspects of its implementation, including need-supportive behaviors of mentors. The connections of the model to SEL will also be introduced. The model has been implemented and researched in a Bedouin school. The chapter includes results from a qualitative case-study. The participants were 28 mentors, beginning teachers, and policy makers. The main research tool was in-depth interview. The findings indicate that most of the participants experienced need-support and need-satisfaction, changed their mentoring paradigm, and developed autonomous motivation for mentoring. The results show that ASMM is a framework through which we can understand the characteristics of an environment that promotes optimal social-emotional and motivational functioning among beginning teachers.

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Introduction

“Today I see my role differently. I have been a mentor in the past, but I was a centralist, I didn’t know what the mentee needed. Today I am willing to let go.” These words were expressed by a mentor teacher following training and practical experience in the *Autonomy Supportive Mentoring Model (ASMM)*. The ASMM is a new mentoring model (Kaplan & Israel, 2021) for beginning teachers (BTs) in the induction period (De Neve & Devos, 2017) that is based on the Self Determination Theory (SDT; Ryan & Deci, 2017a, 2017b).

The ASMM was developed and implemented in Israel as part of the international Promentors Project (Erasmus + Program of the European Union), in collaboration with nine colleges of education, four European universities, the Ministry of Education and Mofet Institute (a national institute for research and program development in teacher education). The model is part of a new and unique support system of professional learning communities comprising interns, new teachers, mentors, school administrators, and policymakers called Multi-Players Induction Teams (MIT) (Kaplan et al., 2021). The chapter focuses on presenting the ASMM and its connections to the domain of Social Emotional Learning (SEL; Elias et al., 2019).

The induction period refers to the transition from teacher education to the teaching profession and includes the first years of teaching in the education system. The literature shows that the induction period is complex and presents the BTs with multiple difficulties (De Neve & Devos, 2017; Flores, 2017). To address this, several models for supporting BTs have been developed, among them mentoring by experienced teachers (Ingersoll & Smith, 2004; Thomas et al., 2019). The contribution of the mentor teacher to the induction process has been reported vastly (Ewing, 2021; Kutsyruba et al., 2017).

One of the most important theories today from which one can learn how to support BTs in the mentoring process is SDT. Few studies have explored the contributions of mentors to BTs from the perspective of SDT (Kaplan, 2021b, 2021c, 2022). SDT is a motivational theory that specifies the universal tendency of the individual to psychological growth and development (Deci & Ryan, 2000; Ryan & Deci, 2017a, 2017b, 2020). SDT posits that people have basic psychological and universal needs for autonomy, relatedness, and competence. According to the theory, when teachers’ psychological needs are supported by their environment (mentor, principal, colleagues), they feel need-satisfaction, which leads to positive outcomes such as autonomous motivation and self-fulfillment (Kaplan, 2022).

Social-emotional learning (SEL) focuses on the competencies that individuals (children, adolescents, and adults) need in order to have meaningful and emotionally healthy social life (Elias et al., 2019; Kurdi et al., 2021). The linkage between SEL and SDT has not yet been sufficiently examined (Kurdi et al., 2022). The current chapter explores this linkage via the ASMM intervention program.

SDT concerns the social, environmental, and motivational conditions individuals need in order to develop, thrive, and function optimally, highlighting the conditions that allow optimal SEL to take place (Kurdi et al., 2022). In the chapter we claim that BTs' social emotional capacities and functioning can develop in an environment that supports their needs and promotes internal resilience and growth resources, i.e., a sense of need-satisfaction and autonomous motivation. When future teachers are trained in such an environment, it serves as a model that teaches them various intrapersonal and interpersonal skills (that will later be transferred on to their students).

We begin the chapter by presenting the world of BTs and introducing mentoring as a support system that serves teachers during their induction period. Then we will present the ASMM, linking it to SDT and discussing the connection to SEL.

The Beginning teacher's World

BTs' first years on the job are important in constructing their professional identity (Kaplan et al., 2016). It is a period in which BTs acquire the necessary knowledge, skills, and abilities for teaching, and adapt to school culture (Thomas et al., 2019). At the same time, this period is also considered one of most difficult stages in a teacher's career, inducing a sense of sharp transition from the training stage (Aarts et al., 2019; Schmidt et al., 2017). Teachers begin their professional path imbued with a sense of mission, but their dreams and ideals quickly turn into a daily struggle for survival (Pillen et al., 2013). This shift stems from the gap between school reality and the professional knowledge, sense of competence in teaching, vision, and values that the teachers acquired during their training.

BTs encounter pedagogical, emotional, and social difficulties, and find it hard to adjust to the school's organizational culture (De Neve & Devos, 2017). They have to emotionally cope with the complex reality of the school, contend with new pedagogical knowledge, adapt teaching methods to different populations, and solve problems in the classroom, e.g., discipline issues and motivation, to name only some of the struggles.

These difficulties manifest psychologically, causing negative feelings, ill-being, need frustration and a sense of burnout (Clandinin et al., 2015; Voss et al., 2017). Ultimately, they lead to impaired motivation and professional functioning (Kaplan, 2021a). Harmsen et al. (2018), for example, found that negative perceptions regarding student behavior positively correlated with reactions of pressure (negative emotions, stress, discontent) that predicted teaching behavior and dropout. Coping difficulties during this stage may result in teachers, especially quality ones, dropping out of the education system, a troubling phenomenon in many countries (Shapira-Lishchinsky et al., 2019; Sperling, 2015).

In light of this unstable reality, we should ask what may help BTs cope with the challenging reality of schoolwork. What conditions may guarantee a smooth

induction and what are the skills that teachers should acquire when they begin their career?

Mentoring as a Support System for BTs

In order to help BTs in the induction period, various support systems have been developed around the world (Ingersoll & Smith, 2004; Thomas et al., 2019). The most prevalent support system is mentoring (Kutsyuruba et al., 2017). Mentors support BTs in professional, emotional, organizational, and social aspects. The role of teacher-mentors and their positive effects on the induction process have been extensively researched and reported in the professional literature (Alegado & Soe, 2021; Ewing, 2021; Hennissen et al., 2008; Ingersoll & Strong, 2011; Kutsyuruba et al., 2017).

A mentor's support was found to be associated with various positive outcomes, e.g., BTs' sense of professional efficacy (LoCasale-Crouch et al., 2012), sense of well-being and enthusiasm (Richter et al., 2013), improved teaching practices (Alegado & Soe, 2021), job satisfaction, reduced emotional burnout (Burger et al., 2021; Richter et al., 2013), motivation (Kaplan, 2021b), and persistence in the profession (Rots et al., 2007).

Different paradigms of mentoring appear in existing literature (Burger et al., 2021; Cochran-Smith & Paris, 1995; Feiman-Nemser, 2001; Richter et al., 2013). The traditional paradigm of conventional or transmission-oriented mentoring is based on behavioral learning theories. In this paradigm, the mentor is perceived as an authority, and the mentoring style is one of conveying knowledge, practices, skills, and pedagogical emphases (e.g., how to manage a classroom, how to build lessons) perceived by the mentor (or the school) as professionally suitable. Another paradigm focuses on knowledge transformation and is also known as educative mentoring or constructivist-oriented mentoring. This style of mentoring emphasizes a collaborative relationship between mentor and mentee, and knowledge is created jointly in processes that promote growth, inquiry, and learning from practice. The mentoring relationship in this paradigm is not hierarchic, and mentoring is based on joint reflection and autonomous decision-making (Burger et al., 2021).

Studies on BTs have found that compared to the transmission model, the constructivist approach leads to more positive outcomes among BTs, including a sense of competence, teacher enthusiasm, and job satisfaction (Richter et al., 2013; Voss et al., 2017). It was also found that this mentoring style reduces emotional burnout by supporting mentees' need for autonomy (Burger et al., 2019). The humanistic approach, which underlies the constructivist paradigm, presents the desirable mentoring relationship according to SDT (Orland-Barak & Wang, 2020).

The research literature describing the connection between mentoring and SDT refers to diverse populations, including school students and teachers (e.g., Dantzer, 2017), higher education students and faculty (e.g., Lechuga, 2014), and the workplace (e.g., Kennett & Lomas, 2015). Studies on the effects of mentoring on a population of BTs from an SDT perspective are few (Burger et al., 2021; Kaplan, 2022; Kaplan &

Israel, 2020). Consequently, the present chapter contributes to the research literature in this regard. SDT is presented in the next section, as the core theoretical foundation of the ASMM.

Autonomy Supportive Mentoring Model (ASMM)

The ASMM is based on SDT (Dantzer, 2017; Fisher et al., 2020; Ryan & Deci, 2017a, 2017b), a humanistic theory of motivation and personality (Deci & Ryan, 2000; Ryan, 2023; Ryan & Deci, 2017a, 2017b). According to SDT, the components of optimal development are three basic psychological needs: relatedness, competence, and autonomy. These needs are innate and universal; hence they are found along the entire developmental sequence, in both genders, as well as across different cultures and contexts (Ryan & Deci, 2017a, 2017b).

The need for relatedness is striving to maintain close, secure, and satisfying relationships with others in the social environment and to be part of a community. The need for competence is the desire to experience oneself as capable of fulfilling plans, goals, and ambitions, and to feel a sense of efficacy. The need for autonomy is striving for self-determination, authentic self-expression, meaning, independence, and freedom of choice (Deci & Ryan, 2000). It is the desire for active and explorative formation and realization of abilities, inclinations, values, goals, and interests that provide a sense of direction. The need for autonomy, in other words, is an individual's endeavor to construct an identity (Reeve & Assor, 2011) and to develop an "inner compass", a sense of knowing what is truly important to the self in terms of values, life aspirations, interests, and goals that are experienced as autonomous and authentic (Assor et al., 2021, 2023).

The ASMM focuses on two processes of constructing role identity, which are related to the need for autonomy. In mentors' training, the model focuses on identity construction of the future mentor: a teacher who changes his or her role identity to mentor. In the actual mentoring, the mentor creates an optimal environment for the continued identity construction of the BT during the induction period, which often raises questions related to professional identity (Kaplan et al., 2016). Thus, the processes related to the need for autonomy and especially the "inner compass" of the mentor and mentee are especially meaningful during the induction period.

Within the ASMM, unique ways were developed to support participants' psychological needs, especially autonomy. These were based on accumulated knowledge from SDT research and SDT-based intervention programs (Ahmadi et al., 2022), which will be detailed below. Need-support and the experience of need satisfaction manifest in both the training and the actual mentoring. The training is designed such that it creates an environment that supports participants' autonomy through the group unique facilitation methods, the climate in the group (which derives from the special group facilitation), and the nature of the relationship between the group facilitator and each participant as well as among participants. During the practical mentoring,

which takes place at schools, the relationships between the mentor and mentee reflect the same ideas.

According to SDT, supporting psychological needs leads to an experience of need-satisfaction (Ryan & Deci, 2017a, 2017b). For example, in the MIT communities (which run under the Promentors' project of Erasmus +), it was found that mentors in training reported a need supportive environment and a sense of need satisfaction (Kaplan et al., 2021). In the practical mentoring, experiences of supported and satisfied needs contributed to the mentees' autonomous motivation for both mentoring and teaching (Kaplan & Israel, 2020), which in turn led to positive outcomes (Kaplan, 2021b, 2022). In a study by Kaplan (Kaplan, 2022), for example, it was found that mentors' support in the BT's psychological needs predicted autonomous teaching motivation, which in turn predicted self-actualization and a sense of competence in teaching, but was negatively correlated with a sense of burnout.

Thus, from the point of view of optimal mentoring and its outcomes, a need-supportive mentoring relationship encourages a meaningful connection between BTs and their mentors that is based on mutual trust and a sense of relatedness. Responding to competence support by their mentors, mentees might also experience a sense of competence in teaching, resulting from their developing ability to execute plans, accomplish objectives, and contribute to their students and the school. Further, they will be able to utilize their inner resources, goals, values, and abilities, feeling a sense of autonomy and meaning in their teaching. In a parallel process, the mentors will also experience a sense of need satisfaction arising from the mentoring process, enhanced by the meaningful relationship with the BT, as well as by their own contribution to the mentee and the school life, and their abilities and uniqueness that come alive through the mentoring process.

Motivation is a unique concept in SDT. The theory focuses on the quality of motivation, referring to different motivation types, which are classified according to the person's level of self-determination that is defined as the degree to which they feel that their activity is based on and emerges from their authentic inner self (Deci & Ryan, 2000; Ryan & Deci, 2020). Controlled motivation is a state wherein the person acts from a sense of coercion, pressure, hope for reward, or fear of punishment (extrinsic motivation), or from inner pressure, feelings of shame and guilt, or a desire to gain internal or external appreciation (introjected motivation). Autonomous motivation is a state wherein a person experiences a sense of choice, will, and self-determination, acting out of identification with the value or behavior (identified motivation), or inner interest and profound satisfaction (inherent intrinsic motivation). Behaviors stemming from extrinsic motivation can become self-determined through a process of internalization (Deci & Ryan, 2000), which leads to the person perceiving the action as consistent with their identity and important in relation to other actions (integrative/autonomous motivation).

The notion of internalization is important for mentoring because mentors are often assigned the role without choosing it (i.e., they are required by the principal to perform it for the benefit of the school). Furthermore, mentoring might be perceived as (and sometimes is) a process through which the mentor and other authority figures try to advance teachers' socialization into the organization, presenting organizational

practices and norms as a condition for the teacher's continued employment (using both explicit and implicit messages); i.e., encouraging controlled motivation (see Pennanen et al., 2018; Wang & Odell, 2007; Yuan, 2016). Thus, the SDT approach describes how to preserve the future mentors' autonomous motivation (in case it is initially autonomous) or strengthen their internalization process (during which they come to identify with the mentor's role and internalize its goals, values and, practices).

In sum, the ASMM centers on processes that promote experiences of need-satisfaction, autonomous motivation, well-being, internalization, and thriving of both partners in the process – mentor and mentee, and on the impact of mentoring on both. According to researchers and theoreticians, SDT can explain motivational processes in mentoring relationships, identify factors that influence these relationships, and suggest practices that may promote optimal mentoring (Janssen, 2015; Lewis et al., 2016; Wilbanks & Wu, 2014). Additionally, SDT serves as a conceptual framework for devising mentoring intervention programs (see, for example, Dantzer, 2017) or mentors' training (e.g., Fisher et al., 2020; Weber-Main et al., 2019).

Main Goals of the ASMM

The goals of the model relate to the two partners – the mentor and mentee, as well as to the training phase and to the practical mentoring phase.

Goals for the Mentors—The Training Phase

- To create a need-supportive environment that will lead to experiences of need-satisfaction.
- To preserve or promote intrinsic/autonomous mentoring motivation.
- To learn about the approach, values, principles, and practices of SDT and ASMM, based on participants' experiences of need satisfaction in the workshop.
- To enhance the understanding of BT's inner world from the perspective of satisfaction or frustration of needs.
- To promote self-reflection and exploration: perceptions (such as on the question "what is mentoring"), values, goals, and interests.
- To receive tools to assist BTs in fulfilling the demands of the Ministry of Education (introducing the evaluation measures in the Israeli education system, giving feedback, classroom observations) in an autonomy-supportive way.
- To improve guidance and consultation skills, including both basic mentoring abilities and specific SDT-related skills.

Goals for the Mentees—Practical Mentoring

- To enhance experiences of meaningful, need-supportive dialogue (Kaplan & Assor, 2012), a sense of need satisfaction, and well-being.
- To enhance the construction of role identity (Who am I as a teacher?) and to promote autonomous teaching motivation.
- To promote experiences of optimal induction into the teaching profession.

Premises and Principles

The core principles of the model are described in the following.

- The ASMM is involved in the process of constructing participants' role identity—changing their role from teacher to mentor or enhancing identification with the role of teacher.
- The model frames mentoring as anchored in a humanistic, autonomous, relativistic, constructivist, and psychological paradigm.
- The training course is designed as a narrative and reflective workshop. In its center are participants' personal narratives and experiences, and the narratives of mentees.
- The training takes place in a need-supportive environment that invites exploration (Kaplan et al., 2016). The workshop-style course focuses on participants' experiences—their sense of relatedness, competence, and autonomy within their peer group (the “here and now” of the relationship with their facilitator and colleagues).
- We also focus on the practical experience of mentoring and the extent to which the mentor experiences need-satisfaction during the mentoring process. The facilitator conceptualizes relevant processes, relationships, and insights together with participants. They address the idea of need-support in practical mentoring and its meaning for both partners. They may refer to, for example, resistance or difficulties in building an authentic relationship with the mentee.
- The training emphasizes the mentee's subjective experience from the perspective of needs (exploring emotional, pedagogic, and social aspects, as well as issues relevant to the school life) and aspires to develop a need-supportive dialogue that is based on mutuality and equity (Kaplan & Assor, 2012).
- The training introduces SDT and its central concepts (participants read articles and explore studies that reflect the theory, etc.), which are then implemented during the mentoring process.
- The teachers develop and practice specific principles and skills for supporting each of the three needs, as will be explained later.
- The training seeks to promote agentic engagement and proactivity (Reeve & Shin, 2020)—what can I do to create my own need-supportive environment? This is an important skill for BTs who frequently experience need frustration.

- The training addresses parallel processes of need support in additional school contexts (such as promoting autonomous motivation and need satisfaction among students).
- The processes, content, and methods are adjusted to fit the culture of participants.

The How to—Practical Aspects

We have thus far related the ASMM's theoretical background and motivational processes. We will now turn the spotlight to its practical aspects, describing the central units in the teachers' mentoring course. Importantly, while each of the aspects described below is processed within specific sessions, the facilitator relates to it throughout all sessions.

- Creating a sense of safety and relatedness in the group. Deciding on discourse principles and deepening bonding among participants to nurture a climate of reciprocity, trust, caring, free expression, and emotional discourse.
- Understanding participants' mentoring motivation (i.e., Why am I here?) This is done both at the beginning and end of the course, allowing participants to identify their initial mentoring motivation and recognize signals of internalization from extrinsic/controlled motivation to autonomous motivation.
- Acknowledging participants' pre-course paradigm to mentoring. Examining conceptions of mentoring: what is mentoring to me, what is my prior experience, what do I believe? What do I perceive as the goals of mentoring?
- Elaborating participants' memories and experiences relating to satisfaction or dissatisfaction of their psychological needs, especially as linked to dialogue, instruction, and guidance. Conceptualization using the terminology of needs, discussion of the importance of need satisfaction for building internal resources, exploring the goals of mentoring, and setting intrinsic goals to the mentoring process. This module encourages participants to study the theory and understand its central concepts (creating a shared language).
- Satisfaction of the mentors' needs in the mentoring process. Self-reflection (I as a mentor) in the dialogue with the mentee from the perspective of psychological needs: do I experience need satisfaction, and if not—what can I do to make it better? Does my sense of competence as a mentor grow? Do I express my qualities as a person, teacher, or mentor, without imposing my views on the mentee? How does our relationship allow the mentee to explore their role identity as a teacher? To what extent does our connection allow the BT to feel safe and to share challenges, feelings, dilemmas, or conflicts? Or to discover their own strengths?
- Satisfying the mentee's needs during the mentoring process. Understanding the BTs' inner world, reaffirming the empathy to their needs, paying attention to their psychological needs. Course participants learn this through their personal narratives and the stories they bring from their sessions with BTs, or via specific methods. For example, role play is based on a story of a BT, where participants

play the role of the mentee. The session focuses on examining which of the mentee's needs are satisfied and which are frustrated, and how his/her needs can be supported (by giving rationale, acknowledging negative emotions, showing empathy, strengthening proactivity, etc.)

SEL and Its Connection to ASMM

Background

The literature on SEL draws on numerous theoretical frameworks, proposing different definitions and classifications of skills (Benbenishty & Friedman, 2020; Jones et al., 2019). Scholars, international organizations, and educational systems around the world have been addressing the topic (for reviews see Berg et al., 2017; Osher et al., 2016) and implementing SEL via different intervention programs (Jones & Bouffard, 2012). SEL is a vast topic and includes other aspects besides skills, as manifested in the ASMM program. Thus, some of the theoretical frameworks also relate to values, self-perceptions, stances, etc. This vast scope does not allow us to present the topic fully in this chapter; we will therefore focus on one definition and illustrate the classification of the CASEL organization.

The broad definition accepted by major researchers in the field of SEL is “SEL refers to the process through which individuals learn and apply a set of social, emotional, behavioral, and character skills required to succeed in schooling, the workplace, relationships, and citizenship” (Elias et al., 2019, p. 1). According to Casel (2005), among the skills are the following: identifying emotions, thoughts, values, strengths and weaknesses (self-awareness); emotional regulation, thoughts and behaviors, stress management, setting and achieving goals, anger management (self-management); interpersonal and social awareness, ability to express empathy and understand different perspectives, identifying support resources (social awareness); and the ability to make responsible and ethical choices, make decisions, analyze situations, and solve problems and conflicts (responsible decision making).

Most SEL programs for schoolchildren teach relevant skills through direct instruction, informal activities, or other methods. These programs usually employ an organizational approach that encompasses the whole school or education system, emphasizing the accumulation of interactions that children experience during their development (Benbenishty & Friedman, 2020). These programs highlight skills as the key to optimal social-emotional development.

Unlike other SEL programs, the ASMM focuses on the factors that contribute to optimal development and thriving of mentors and mentees and not (only) on pedagogy (lesson plans, teaching methods, acquiring disciplinary knowledge, etc.) or skills related to mentoring or teaching. The program focuses on supporting the teachers' psychological needs in order to induce an experience of need-satisfaction, autonomous motivation, well-being, and internalization of pro-social values, such

that teachers' own growth resources are nurtured. Thus, the two programs differ – supporting psychological needs and nurturing growth resources as opposed to cultivating social-emotional skills.

Why Should ASMM Be Used to Promote Social-Emotional Learning Among BTs?

SEL research has shown that teachers' social-emotional abilities and their well-being shape their relationships with students. These, in turn, affect their ability to promote SEL among their students, which influences students' development and their ability to benefit from educational interventions in the field (Jennings & Greenberg, 2009; Schonert-Reichl, 2017). A teacher who is unaware of his own or his students' emotional processes or does not know how to regulate them, will have a difficult time conducting substantial social-emotional teaching and providing a model to effective social-emotional processes (Benbenishty & Friedman, 2020).

This premise, which underscores the important place of teachers in the development of an ESL program, is in line with SDT's thinking that teachers' motivational processes, such as a sense of need-satisfaction and autonomous teaching motivation, are a necessary condition for their ability to support their students' needs. Studies have shown, for example, that autonomous teaching motivation leads to a teaching style that supports students' autonomy (Roth et al., 2007; Van den Berghe et al., 2014).

Studies on teachers explored school environments that either support or thwart teachers' needs (Ryan & Deci, 2017a, 2017b), and some studies examined the association between teachers' need satisfaction and autonomous motivation and a range of outcomes associated with teachers' motivational, social, emotional, cognitive, and behavioral functioning (Aelterman et al., 2016; Kaplan & Madjar, 2017; Klassen et al., 2012; Van den Berghe et al., 2014). Numerous studies linked autonomous teaching motivation and social-emotional outcomes such as a sense of self-accomplishment (Roth et al., 2007), job satisfaction, and well-being (Nie et al., 2014). Autonomous motivation was found to be negatively associated with emotional exhaustion (Roth et al., 2007).

In a parallel process, the ASMM program assumes that participants' experiences of need satisfaction and autonomous mentoring motivation will drive them to support the needs of the BTs during the practical mentoring, thus causing the mentees to feel that their needs are satisfied. Importantly, the program is designed for the induction period since BTs need social-emotional skills to cope with this particularly stressful time. For example, they need to be able to manage stress and identify internal strengths and growth resources. They should also learn how to show empathy to students and be familiar with conflict resolution techniques, among other skills. The ASMM program has a unique way of teaching these abilities.

How Does ASMM Treat Skills?

In ASMM, skills of mentor and mentee teachers are taught in context, in contrast to direct or technical teaching. The ASMM is based on substantial research in education and psychology showing that the main foundation for optimal social-emotional development is an experience of growth stemming from having one's basic psychological needs supported and satisfied, as well as from internalization of pro-social goals and values (Assor & Yitshaki, 2020; Yitshaki & Assor, 2023). Assor and Yitshaki underscore the importance of nurturing growth resources, claiming that teaching specific skills is not enough for promoting social-emotional learning.

The ASMM program draws on this approach, proposing that accumulated experiences of need satisfaction help an individual build internal growth and resilience resources and promote social-emotional and motivational capacities (Vansteenkiste & Ryan, 2013) of both the mentor and mentee. These experiences lead to positive perceptions of the self and others (mentors and mentees), which in turn contribute to positive affect and autonomous motivation for mentoring or teaching. These allow effective social, emotional, cognitive, and behavioral functioning that is based on feelings of satisfaction, meaning, and well-being (Ryan & Deci, 2017a, 2017b).

According to this approach, mentees' well-being and growth will result from a mentoring relationship that supports need-satisfaction, positive perceptions, internalization of values, and development of an inner compass, which includes values, ambitions, inclinations, and the goals that derive from them (Assor & Yitshaki, 2020). Additionally, such resources may help the BTs to cope with the challenges of induction, which often lead to a sense of failure. Autonomy-supportive mentoring, where mistakes are legitimized (e.g., when a mentor shares an experience of failure), will help BTs deal with possible obstacles and see them as part of their professional growth. As a result, the need-supportive connection with the mentor will encourage the BT to take a risk and experiment with new situations even if a failure is an option. The practical experience with the challenging situation in itself can enhance the relevant skills.

On the other hand, frustrating a person's basic needs leads to ill-being and increases tendency for poor coping, negative affect, and even psychopathology (Vansteenkiste & Ryan, 2013). An example for such processes can be seen in a study by Kaplan (Kaplan, 2021a) that examined experiences of Bedouin-Arab BTs. The study indicated that most of the BTs reported experiences of need thwarting and feelings of need frustration. As a result, they expressed controlled motivation and adopted various coping strategies. At the same time, when the teachers experienced a sense of need satisfaction, they integrated well into the school. Thus, ASMM focuses on personal resources that are not skills, and these provide the foundation for optimal social-emotional development (Assor & Yitshaki, 2020). In addition to promoting optimal growth through relationships, it is also important to promote skills. Internalization of the learned skills can take place when the mentee feels that mentoring is a safe place that supports his or her needs.

To allow the teachers undergoing mentors' training to experience need-satisfaction, they participate in a reflective narrative workshop. The workshop is guided by a professional group facilitator and emphasizes the facilitator's need—supportive behaviors. Rather than directly teaching the relevant skills, the facilitator's behavior shapes a need-supportive environment that increases the participants' motivation to be actively involved in the social-emotional learning that relates to the mentoring. Some of the facilitator's behaviors promote the acquisition of social-emotional skills by demonstrating them through the dialogue in the workshop. During the workshop and the narrative discourse, participants share experiences from the classroom, which turns the spotlight onto certain skills. For example, when a teacher brings up a discipline problem from the classroom and his or her angry response, the facilitator can refer to the skills of emotional regulation or observing a situation from the students' point of view.

Below we present behaviors of the facilitator that support the psychological needs of the course participants. In a parallel manner, these behaviors characterize the mentor–mentee communication in their dyadic sessions. Thus, behaviors that model need-support by the facilitator or demonstrate the need-supportive discourse between group members are translated into skills that the mentors use during the practical mentoring. These behaviors are based on knowledge accumulated in studies and educational interventions and adapted to the field of mentoring (Ahmadi et al., 2022; Reeve, 2006, 2009; Reeve et al., 2022). The facilitation is based on the principles of leading autonomy-supportive dialogue (Kaplan & Assor, 2012).

The facilitator's Behaviors of the in the Mentors' Training Group

The facilitator's behaviors to support the course participants' needs are described in the following.

Relatedness Support

Creating rules of safe dialogue between the facilitator and the participants and between the participants themselves (The group as a safe place).

Activities that promote familiarity with participants and forming close relationships.

Sharing experiences and emotions, developing an emotional language.

Expressing affection, caring, curiosity and empathy.

Treating all participants equally and unconditionally.

Competence Support

- Assisting in setting optimal goals and challenges, that will enable the participants to experience success (goals for improvement and continued growth.).
- Assisting in coping with difficulties and experiences of failure, enhancing effective coping strategies, managing emotions and positive thinking.
- giving specific nonjudgmental feedback.
- Messages about the possibility of improving and developing abilities, emphasizing the process and not only the outcome (Dweck, 1999).

Autonomy Support

- Discussing relevant authentic issues from the school and the classroom.
- Allowing freedom of expression and listening to the teacher's authentic voice.
- Strengthening explorative processes and examining issues related to professional identity. Refer to beliefs, values, interests, personal goals, etc.
- Clarifying relevancy, value and benefit.
- Supporting proactivity and initiatives in the classroom, the school and the community.
- Adjusting coping strategies and learned skills to the culture and context of the school and community.

In addition to creating a need-supportive climate, the course also emphasizes certain SDT-based skills for supporting autonomy. These skills are highlighted during the training as well as later during the practical mentoring. Table 11.1 presents these skills with practical explanations about how to promote them. The skills are also part of the facilitator's behavior introduced above, but we also wanted to present them separately because of their pivotal role in supporting autonomy.

Mentors' and Beginning Teachers' Voices—A Qualitative Research

Within Promentors, the group of mentoring trainees is part of a town-based learning community called MIT, which includes interns, new teachers, mentors, and local policymakers. In its gatherings, the MIT addresses the teachers' various needs. It taps into the nature of the local town and enhances the sense of belongingness of the BTs to their workplace, through a program that is subject to assessment and research. Below we bring testimonies that indicate the contributions of the ASMM program to BTs and mentors.

The evaluation was conducted according to the CIPP (context, input, process and product) qualitative research paradigm (Stufflebeam & Zhang, 2017) as a case study. The participants were 28 mentor teachers, BTs, and officials from the school,

Table 11.1 Mentor’s need-supportive behaviors and practices

The behavior and its rationale	The skill
<p>Listen to the mentee like you are him/her, try to be “in his shoes”. Ask him what he would like to talk about, what intrigues him or bothers him, if he wishes to speak about a certain event Ask: what do you feel? What are you thinking? What do you want? Why did you act a certain way? Integrate these contents into the mentoring session (even if something else was planned)</p>	<p>Take the mentee’s perspective</p>
<p>Listen empathically to what the mentee says and try to understand the dominant underlying need. Respond accordingly This is based on the “active listening” skill. It is a starting point for a more specific skill—listening to the mentee’s psychological needs This skill also includes the skill of empathy</p>	<p>Empathic listening to the BT’s overt or covert psychological needs Identify the needs underlying what the mentee says (e.g., a conflict with the principal, parents, or students, or a success story)</p>
<p>Decide together with the mentee on the topics of the meeting—find out what is important or interesting from his/her perspective If there is a topic that needs to be discussed in the school reality (e.g., instructions from the Ministry of Education, school-wide topic), ask the mentee: What do you find interesting in this topic? How does it connect to something you are good at? What can help you cope?</p>	<p>Invite the mentee to pursue their personal interests, preferences, and goals Listen and be responsive to the mentee’s inputs and initiatives</p>
<p>Give the mentee choices regarding the content of the mentoring, assessment methods, areas to develop in their lessons, what to focus on in the feedback given, what initiative they would like to promote, etc For example, when mentoring includes encouraging the mentee to initiate and lead an educational project, it is important to let him or her choose partners, goals, methods, content, etc</p>	<p>Offer choices and options</p>
<p>Explain the demands, duties, regulations, or expectations of the school and the mentee’s academic discipline Explain the importance or contribution of the demand, such as: it can help you learn a new teaching method, improve your teaching skill, improve your performance, help students learn, etc</p>	<p>Provide explanatory rationale</p>

(continued)

Table 11.1 (continued)

The behavior and its rationale	The skill
<p>Accept the mentee’s negative feelings and discomfort When a school duty—like a mandatory seminar, a requirement from a superior, or a special difficulty—raises objection or resistance, acknowledge the negative emotion and legitimize it. Discuss it with the mentee, explore its sources, address various perspectives, search together for a way to overcome the barriers</p>	<p>Acknowledge and accept expression of positive and negative feelings (expressions of discomfort)</p>
<p>Use words or a tone that express empathy and understanding. Avoid sounding coercive Examples: “What do you think about...?” “Why don’t you try...?” instead of “You should...” “You need to...”</p>	<p>Rely on invitational language</p>
<p>When a decision should be made, like what method to use in a lesson or how to solve a conflict with a student, try to reach a consensus Listen to the mentee’s point of view and try to understand the rationale behind it; don’t force your opinion or experience</p>	<p>Make decisions together on issues requiring judgment</p>
<p>Show interest in the mentee’s inner world. Ask clarification questions, adopt a perspective of not-knowing Ask: “What do you mean?”; “Can you give an example?”</p>	<p>Asking inquisitive questions, targeting the mentee’s inner world</p>
<p>This skill requires the mentor to be attentive to his/her own needs and to the effect of his/her personal experiences on the mentoring process. In addition, the mentor should encourage reflection of the mentees on their own experiences, especially in the aspect of satisfying psychological needs</p>	<p>Reflection—self reflection of the mentor and enhancing the mentee’s reflectivity</p>
<p>This ability relies on the skill of reflection and strengthens the BT’s engagement and proactivity, in light of the experience of unsatisfied needs: What can you do to change the situation?</p>	<p>Agentive and proactive engagement: How do I experience my own needs and what can I do to build my own need-supporting environment (Reeve, 2013)</p>

town, ministry of education and the college. The research tools included in-depth interviews, reflective journals of course participants and year-end reports written by group facilitators.

In this chapter, we have included evidence that focuses on mentoring from the perspective of the BTs and the teachers who have been trained for mentoring. The teachers underwent training and at the same time carried out actual mentoring and

they report on these two arenas. We will refer to the main themes that arose in the analysis.

Autonomy Support

The findings indicate that the participants experienced a sense of autonomy while also supporting the BTs' autonomy. They reported that the nature of the course encouraged free discussion and multiple opinions, giving room for free thought and independent decision making. They described their mentoring methods, which highlighted free choice, attention, and empowerment. These methods created a sense of trust and enhanced the connection with the mentees.

In the group we always had many different ideas. We discuss them, argue, I always hear creative ideas from everyone. This is why I prefer this model (mentor, end of the year).

I gave the teacher a free platform to think what he is going to do – giving him almost full independence. And it was a very smart move. He felt very much at ease, He was much better professionally. It created a sense of belonging to the place (the school), and a sense of trust was formed between us (mentor, end-of-course interview).

The mentors combined autonomy support and belongingness support. They were attentive to the BTs and empowered them.

First, always give him a feeling that he is not a new teacher, to give him the feeling that he is one of us, not to let him feel discrimination and loneliness. The mentor must always have an open ear and that's something you don't always see with experienced teachers and mentors, and this is harmful and hinders the connection and the mentee's learning, to allow the new teacher to show his strengths, that he can contribute to the school... (mentor, end of the year).

Belongingness Support

The BTs and the mentors reported a sense of relatedness to the school and support in belongingness by the principal, mentor-teachers, and other faculty.

It's very helpful to me as a teacher to know the mentor and other teachers in the community, communicate with them, get closer, know them better, learn from their experience and have them learn from my experience, let them know me and get to know them. My mentor contributed to my connection to the school (beginning teacher, end of the year).

Competence Support

The BTS reported that the mentoring supported their competence. They were encouraged to plan and implement initiatives that enhanced their sense of competence.

How did the mentoring contribute to you? I've acquired new teaching tools, solving various problems, and getting to know the entire school staff. *Give an example of something you learned at the MIT that helped you do your work.* Diversifying teaching methods in various ways, to adjust learning material to students' level... to initiate and lead a meaningful initiative with my mentor (beginning teacher, end of the year).

Changing the Mentoring Paradigm

The findings indicate a change in the perception of mentoring: a shift from the traditional paradigm, in which the relationship is hierarchical, to a relativistic and autonomous paradigm, in which the mentor and mentee are partners. This change was initially shocking to participants ("this can't be true") but was gradually internalized.

What characterizes the Promentors is that it questions existing things. We always learned the classic model of mentoring, where the mentor is the one that leads, advises, and directs, and no one doubts his authority. And suddenly there is another model, which first caused a shock, like, 'this can't be true'. But as we started going deeper, the discussion and the implementation, things started to look differently (mentor-teacher, reflection after a course session, Alfarouk).

Throughout the process, thanks to the MIT and the Self-Determination theory, I start treating the mentee as a professional partner, like we are one team that works together, not as if he is an inferior teacher because of his lack of experience. We have undergone a process together. I have changed my mentoring way from an instructional approach to a supportive approach, in which the mentee and I are partners. My view on things, on teaching, on the students, and on beginning teachers - has changed (mentor, end of course interview).

Developing Autonomous Motivation

Another finding concerns the development of autonomous motivation during the year of training. The mentors indicated a sense of mission, identification with the role, and enjoyment (mentors, end of the course interview).

After years of feeling that mentoring was a burden, I am enjoying my mentoring role for the first time... today I feel much more relevant for my mentees and much closer to them than ever before...

Mentoring is a mission, it's helping, it's persistence, it's very important to help beginning teachers acclimatize at the school, to help them fit in... I like helping...

In Summary

The literature emphasizes the importance of promoting SEL among teachers (Benbenishty & Friedman, 2020). In addition to various educational interventions reported in the literature, ASMM is a unique intervention program that encourages social-emotional learning among schoolteachers. It focuses on changing the

style of mentoring from the traditional paradigm of transmission and control (the behavioristic approach) to a humanistic, autonomous, relativistic, and constructivist paradigm based on partnership and reciprocity. The findings reveal the link between the mentors' course and the practical mentoring: supporting psychological needs and a sense of need-satisfaction experienced by mentor teachers during their training led them to provide autonomy-supportive mentoring to their mentees.

The two theoretical perspectives—SDT and SEL—focus on the ways in which social-emotional functioning of teachers (and other populations) can be promoted. SEL does that mostly through teaching skills, while SDT focuses on cultivating growth resources and inner resilience, through which such skills are also promoted. SDT, and specifically ASMM, is a framework through which we can understand the characteristics of an environment that allows social-emotional learning and promotes optimal social-emotional functioning among BTs.

References

- Aarts, R., Kools, Q., & Schildwacht, R. (2019). Providing a good start: Concerns of beginning secondary school teachers and support provided. *European Journal of Teacher Education, 43*(2), 277–295. <https://doi.org/10.1080/02619768.2019.1693992>
- Aelterman, N., Vansteenkiste, M., Keer, H. V., & Haerens, L. (2016). Changing teachers' beliefs regarding autonomy support and structure: The role of experienced psychological need satisfaction in teacher training. *Psychology of Sport and Exercise, 23*, 64–72. <https://doi.org/10.1016/j.psychsport.2015.10.007>
- Ahmadi, A., Noetel, M., Parker, P., Ryan, R. M., Ntoumanis, N., Reeve, J., Beauchamp, M. R., Dicke, T., Yeung, A., Ahmadi, M., Bartholomew, K., Chiu, T. K. F., Curran, T., Erturan, G., Flunger, B., Frederick, C., Froiland, J. M., González-Cutre, D., Haerens, L., & Lonsdale, C. (2022). A classification system for teachers' motivational behaviors recommended in self-determination theory interventions [pre-published]. *PsyArXiv*, 218–225. <https://doi.org/10.1037/edu0000783>
- Alegado, P. J. E., & Soe, H. Y. (2021). A comparative analysis of the effects of mentoring among participating countries in 2013 and 2018 Teaching and Learning International Survey (TALIS). *International Journal of Research Studies in Education, 10*(5), 45–59. <https://doi.org/10.5861/ijrse.2021.5077>
- Assor, A., Benita, M., & Geifman, Y. (2023). The authentic inner compass: antecedents and contribution to optimal functioning. In R. Ryan (Ed.), *The new handbook of self-determination theory* (2nd ed.). Chapter 18, Oxford University Press.
- Assor, A., Benita, M., Shi, Y., Goren, R., Yitshaki, N., & Wang, Q. (2021). The authentic inner compass as a well-being resource: Predictive effects on vitality, and relations with self-esteem, depression and behavioral self-realization. *Journal of Happiness Studies, 22*(8), 3435–3455. <https://doi.org/10.1007/s10902-021-00373-6>
- Assor, A., & Yitshaki, N. (2020). Promoting growth experiences of needs support (rather than skills) is the main factor for optimal social-emotional development. In R. Benbenishty, & T. Friedman (Eds.), *Social and emotional skills cultivation in the education system: A summary of the proceeding of the expert committee, status report and recommendations* (pp. 218–225). Yozma—Center for knowledge and Research in Education. The Israel Academy of Sciences and Humanities.

- Benbenishty, R., & Friedman, T. (2020). *Social and emotional skills cultivation in the education system: A summary of the proceedings of the expert committee, status report and recommendations*. Yozma—Center for knowledge and Research in Education. The Israel Academy of Sciences and Humanities.
- Berg, J., Osher, D., Same, M., Nalon, E., Benson, D., & Jacobs, N. (2017). *Identifying, defining and measuring social and emotional competencies*. American Institute for Research.
- Burger, J., Bellhäuser, H., & Imhof, M. (2021). Mentoring styles and novice teachers' well-being: The role of basic need satisfaction. *Teaching and Teacher Education, 103*, 1–11. <https://doi.org/10.1016/j.tate.2021.103345>
- Casel, (2005). *Safe and sound: An educational leader's guide to evidence-based social and emotional learning (SEL) programs* (Illinois ed.). Casel.
- Clandinin, D. J., Long, J., Schaefer, L., & Wnuk, S. (2015). Early career teacher attrition: Intentions of teachers beginning. *Teaching Education, 26*(1), 1–16. <https://doi.org/10.1080/10476210.2014.996746>
- Cochran-Smith, M., & Paris, C. L. (1995). Mentor and mentoring: Did Homer have it right? In J. Smith (Ed.), *Critical discourse on teacher development* (pp. 181–202). Cassell.
- Dantzer, B. (2017). Psychological well-Being: Using Self-determination theory to examine the reciprocal benefits of mentoring and teaching others. *International Journal of Social Science and Humanity, 7*(2), 93–101. <https://doi.org/10.18178/ijssh.2017.7.2.80293>
- De Neve, D., & Devos, G. (2017). Psychological states and working conditions buffer beginning teachers' intention to leave the job. *European Journal of Teacher Education, 40*(1), 6–27. <https://doi.org/10.1080/02619768.2016.1246530>
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Dweck, C. S. (1999). *Self-theories, their role in motivation, personality and development*. Edwards Brothers.
- Elias, M. J., Brackett, M. A., Miller, R., Jones, S., Kahn, J., Mahoney, J. L., Weissberg, R. P., & Chung, S. Y. (2019). Developing social and emotional skills and attitudes and ecological assets. In D. Osher, M. J. Mayer, R. J. Jagers, K. Kendziora, & L. Wood (Eds.), *Keeping students safe and helping them thrive: A collaborative handbook on school safety, mental health, and wellness* (pp. 185–209). Praeger/ABC-CLIO.
- Ewing, L.-A. (2021). Mentoring novice teachers. *Mentoring & Tutoring: Partnerships in Learning, 29*(1), 50–69. <https://doi.org/10.1080/13611267.2021.1899585>
- Feiman-Nemser, S. (2001). Helping novices learn to teach: Lessons from an exemplary support teacher. *Journal of Teacher Education, 52*(1), 17–30. <https://doi.org/10.1177/0022487101052001003>
- Fisher, M. H., Athamanah, L. S., Sung, C., & Josol, C. K. (2020). Applying the self-determination theory to develop a school-to-work peer-mentoring program to promote social inclusion. *Journal of Applied Research in Intellectual Disabilities, 33*(2), 296–309. <https://doi.org/10.1111/jar.12673>
- Flores, M. A. (2017). The complexities and challenges of be(com)ing a teacher and a teacher educator. *European Journal of Teacher Education, 40*(1), 2–5. <https://doi.org/10.1080/02619768.2017.1280238>
- Harmsen, R., Helms-Lorenz, M., Maulana, R., & van Veen, K. (2018). The relationship between beginning teachers' stress causes, stress responses, teaching behavior and attrition. *Teachers and Teaching, 24*(6), 626–643. <https://doi.org/10.1080/13540602.2018.1465404>
- Hennissen, P., Crasborn, F., Brouwer, N., Korthagen, F., & Bergen, T. (2008). Mapping mentor teachers' roles in mentoring dialogues. *Educational Research Review, 3*(2), 168–186. <https://doi.org/10.1016/j.edurev.2008.01.001>
- Ingersoll, R. M., & Smith, T. M. (2004). Do teacher induction and mentoring matter? *National Association of Secondary School Principals Bulletin, 88*(638), 28–40. <https://doi.org/10.1177/019263650408863803>

- Ingersoll, R., & Strong, M. (2011). The impact of induction and mentoring programs for beginning teachers. *Review of Educational Research*, *81*, 201–233. <https://doi.org/10.3102/0034654311403323>
- Janssen, S. (2015). *A self-determination theory perspective on mentoring relationships at work* (Thesis dissertation). University of Twente. <https://doi.org/10.3990/1.9789036539807>
- Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research*, *79*(1), 491–525. <https://doi.org/10.3102/0034654308325693>
- Jones, S. M., & Bouffard, M. W. (2012). Social and emotional learning in schools: From programs to strategies and commentaries. *Social Policy Report*, *26*(4), 3–22. <https://doi.org/10.1002/j.2379-3988.2012.tb00073.x>
- Jones, S. M., McGarrah, M. W., & Kahn, J. (2019). Social and emotional learning: A principled science of human development in context. *Educational Psychologist*, *54*(3), 129–143. <https://doi.org/10.1080/00461520.2019.1625776>
- Kaplan, H. (2021a). Suppression of psychological needs among beginning teachers: A self-determination theory perspective on the induction process in Bedouin schools. *Frontiers in Psychology, Educational Psychology Section*, *12*, 621984. <https://doi.org/10.3389/fpsyg.2021.621984>
- Kaplan, H. (2021b). Promoting optimal induction of beginning teachers using self-determination theory. *Sage Open*, *11*(2). <https://doi.org/10.1177/21582440211015680>
- Kaplan, H. (2021c). Tmicha BaTzrahim HaPsichologiim Shel Morim Hadashim [Supporting beginning teachers' psychological needs as predictive of beliefs regarding optimal integration into teaching: The perspective of self-determination theory]. *Rav Gvanim*, *20*, 205–240.
- Kaplan, H. (2022). The unique effects of supporting beginning teachers' psychological needs through learning communities and a teacher-mentor's support: A longitudinal study based on self-determination theory. *Frontiers in Psychology*. <https://doi.org/10.3389/fpsyg.2022.859364>
- Kaplan, H., & Assor, A. (2012). Enhancing autonomy-supportive i-thou dialogue in schools: Conceptualization and socio-emotional effects of an intervention program. *Social Psychology of Education*, *15*, 251–269. <https://doi.org/10.1007/s11218-012-9178-2>
- Kaplan, H., Glassner, A., & Adess, S. (2016). Tzrachim Psichologiim Bsiyim VeExploratzia Etzel Morim Hadashim KeMashav LeHavnayat Zehut Miktzoit (Support for basic psychological needs and the exploration of exploratory processes in novice teachers as a resource for the construction of a professional identity). *Dapim*, *63*, 130–165.
- Kaplan, H., Govrin, D., & Mindlin, M. (2021). A learning community of beginning teachers: A systemic intervention based on self-determination theory to promote autonomous proactive teachers. *Creative Education*, *12*, 2657–2686. <https://doi.org/10.4236/ce.2021.1211198>
- Kaplan, H., & Israel, V. (2020). *Autonomy-based mentoring: The ABC-C mentoring model (autonomy/belongingness/competence/community)* (Unpublished manuscript). Kaye Academic College of Education.
- Kaplan, H., & Madjar, N. (2017). The motivational outcomes of psychological need support among pre-service teachers: Multicultural and self-determination theory perspectives. *Frontiers in Education*, *2*(42), 1–14. <https://doi.org/10.3389/feduc.2017.00042>
- Kennett, P., & Lomas, T. (2015). Making meaning through mentoring: Mentors finding fulfilment at work through self-determination and self-reflection. *International Journal of Evidence Based Coaching and Mentoring*, *13*(2), 29–44. <https://doi.org/10.24384/IJEBMC>
- Klassen, R. M., Perry, N. E., & Frenzel, A. C. (2012). Teachers' relatedness with students: An underemphasized component of teachers' basic psychological needs. *Journal of Educational Psychology*, *104*(1), 150–165. <https://doi.org/10.1037/A0026253>
- Kurdi, V., Joussemet, M., & Mageau, G. A. (2021). A self-determination theory perspective on social and emotional learning. In N. Yoder, & A. Skoog-Hoffman (Eds.), *Motivating the SEL field forward through equity: Advances in motivation and achievement* (Vol. 21; pp. 61–78). Emerald Publishing. <https://doi.org/10.1108/S0749-7423202100002100>

- Kutsyuruba, B., Walker, K. D., & Godden, L. (2017). Creating supportive school cultures for beginning teachers: Mitigating the cultural contextual factors. *The International Journal of Educational Organization and Leadership*, 24(2), 1–18. <https://doi.org/10.18848/2329-1656/CGP/v24i02/1-18>
- Lechuga, V. M. (2014). A motivation perspective on faculty mentoring: The notion of “non-intrusive” mentoring practices in science and engineering. *Higher Education*, 68(6), 909–926. <https://doi.org/10.1007/s10734-014-9751-z>
- Lewis, V., Martina, C. A., McDermott, M. P., Trief, P., Goodman, S. R., Morse, G. D., LaGuardia, J. G., Sharp, G., & Ryan, R. M. (2016). A randomized controlled trial of mentoring interventions for underrepresented minorities. *Academic Medicine: Journal of the Association of American Medical Colleges*, 91(7), 994–1001. <https://doi.org/10.1097/acm.0000000000001056>
- LoCasale-Crouch, J., Davis, E., Wiens, P., & Pianta, R. (2012). The role of the mentor in supporting new teachers: Associations with self-efficacy, reflection, and quality. *Mentoring and Tutoring: Partnership in Learning*, 20(3), 303–323. <https://doi.org/10.1080/13611267.2012.701959>
- Nie, Y., Chua, B. L., Yeung, A. S., Ryan, R. M., & Chan, W. Y. (2014). The importance of autonomy support and the mediating role of work motivation for well-being: Testing self-determination theory in a Chinese work organization. *International Journal of Psychology*, 50(4), 245–255. <https://doi.org/10.1002/ijop.12110>
- Orland-Barak, L., & Wang, J. (2020). Teacher mentoring in service of preservice teachers’ learning to teach: Conceptual bases, characteristics, and challenges for teacher education reform. *Journal of Teacher Education*. <https://doi.org/10.1177/0022487119894230>
- Osher, D., Kidron, Y., Brackett, M., Dymnicki, A., Jones, S., & Weissberg, R. P. (2016). Advancing the science and practice of social and emotional learning: Looking back and moving forward. *Review of Research in Education*, 40(1), 644–681. <https://doi.org/10.3102/0091732X16673595>
- Pennanen, M., Heikkinen, H. L. T., & Tynjälä, P. (2018). Virtues of mentors and mentees in the Finnish model of teachers’ peer-group mentoring. *Scandinavian Journal of Educational Research*, 355–371. <https://doi.org/10.1080/00313831.2018.1554601>
- Pillen, M., Beijaard, D., & den Brok, P. (2013). Tensions in beginning teachers’ professional identity development, accompanying feelings and coping strategies. *European Journal of Teacher Education*, 36(3), 240–260. <https://doi.org/10.1080/02619768.2012.696192>
- Reeve, J. (2006). Teachers as facilitators: What autonomy-supportive teachers do and why their students benefit. *The Elementary School Journal*, 106, 225–236. <https://doi.org/10.1086/501484>
- Reeve, J. (2009). Why teachers adopt a controlling motivating style toward students and how they can become more autonomy supportive. *Educational Psychologist*, 44(3), 159–175. <https://doi.org/10.1080/00461520903028990>
- Reeve, J. (2013). How students create motivationally supportive learning environments for themselves: The concept of agentic engagement. *Journal of Educational Psychology*, 105, 579–595. <https://doi.org/10.1037/a0032690>
- Reeve, J., & Assor, A. (2011). Do social institutions necessarily suppress individuals’ need for autonomy? The possibility of schools as autonomy promoting contexts across the globe. In V. I. Chirkov, R. M., Ryan, & K. M. Sheldon (Eds.), *Human autonomy in a cross-cultural context: Perspectives on the psychology of agency, freedom and well-being* (pp. 111–132). Springer.
- Reeve, J., & Shin, S. H. (2020). How teachers can support students’ agentic engagement. *Theory into Practice*, 59(2), 150–161. <https://doi.org/10.1080/00405841.2019.1702451>
- Reeve, J., Ryan, R. M., Cheon, S. H., Matos, L., & Kaplan, H. (2022). *Supporting students’ motivation: Strategies for success*. Routledge, Taylor & Francis Group. <https://doi.org/10.4324/9781003091738>
- Richter, D., Kunter, M., Lüdtke, O., Klusmann, U., Anders, Y., & Baumert, J. (2013). How different mentoring approaches affect beginning teachers’ development in the first years of practice. *Teaching and Teacher Education*, 36, 166–177. <https://doi.org/10.1016/j.tate.2013.07.012>
- Roth, G., Assor, A., Kanat-Maymon, Y., & Kaplan, H. (2007). Autonomous motivation for teaching: How self-determined teaching may lead to self-determined learning. *Journal of Educational Psychology*, 99(4), 761–774. <https://doi.org/10.1037/0022-0663.99.4.761>

- Rots, I., Aelterman, A., Vlerick, P., & Vermeulen, K. (2007). Teacher education, graduates' teaching commitment and entrance into the teaching profession. *Teaching and Teacher Education, 23*, 543–556. <https://doi.org/10.1016/j.tate.2007.01.012>
- Ryan, R. M., & Deci, E. L. (2017a). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. The Guilford Press.
- Ryan, R. (Ed.) (2023). *The new handbook of self-determination theory* (1st ed.). Oxford University Press.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory. Basic psychological needs in motivation, development, and wellness*. The Guilford Press.
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology, 61*, 101860. <https://doi.org/10.1016/j.cedpsych.2020.101860>
- Schmidt, J., Klusmann, U., Lüdtke, O., Möller, J., & Kunter, M. (2017). What makes good and bad days for beginning teachers? A diary study on daily uplifts and hassles. *Contemporary Educational Psychology, 48*, 85–97. <https://doi.org/10.1016/j.cedpsych.2016.09.004>
- Schonert-Reichl, K. A. (2017). Social and emotional learning and teachers. *The Future of Children, 27*(1), 137–155.
- Shapira-Lishchinsky, O., Benoliel, P., Schechter, C., & Klein, J. (2019). *Retaining novice teachers in the education system: Developing an ecological school culture measure for teacher retention*. Final scientific report submitted to the Office of the Chief Scientist, Ministry of Education, Bar-Ilan University. Retrieved from <http://meyda.education.gov.il/files/LishcatMadaan/TeacherAbsorption.pdf>
- Sperling, D. (2015). *Teacher dropout around the world: Information survey*. Mofet Institute, Tel-Aviv, Israel.
- Stufflebeam, D. L., & Zhang, G. (2017). *The CIPP Evaluation model how to evaluate for improvement and accountability*. Guilford Press.
- Thomas, T., Tuytens, M., Moolenaar, N., Devos, G., Kelchtermans, G., & Vanderlinde, R. (2019). Teachers' first year in the profession: The power of high-quality support. *Teachers & Teaching, 25*(2), 166–188. <https://doi.org/10.1080/13540602.2018.1562440>
- van den Berghe, L., Soenens, B., Aelterman, N., Cardon, G., Tallir, I. B., & Haerens, L. (2014). Within-person profiles of teachers' motivation to teach: Associations with need satisfaction at work, need-supportive teaching, and burnout. *Psychology of Sport and Exercise, 15*(4), 407–417. <https://doi.org/10.1016/j.psychsport.2014.04.001>
- Vansteenkiste, M., & Ryan, R. M. (2013). On psychological growth and vulnerability: Basic psychological need satisfaction and need frustration as a unifying principle. *Journal of Psychotherapy Integration, 23*, 263–280. <https://doi.org/10.1037/a0032359>
- Voss, T., Wagner, W., Klusmann, U., Trautwein, U., & Kunter, M. (2017). Changes in beginning teachers' classroom management knowledge and emotional exhaustion during the induction phase. *Contemporary Educational Psychology, 51*, 170–184. <https://doi.org/10.1016/j.cedpsych.2017.08.002>
- Wang, J., & Odell, S. J. (2007). An alternative conception of mentor–novice relationships: Learning to teach in reform-minded ways as a context. *Teaching and Teacher Education, 23*(4), 473–489. <https://doi.org/10.1016/j.tate.2006.12.010>
- Weber-Main, A. M., Shanedling, J., Lapsitis, R., & LaGuardia, J. (2019). 3362 enhancing mentee motivation using the CARES mentoring model: A new online mentor training module. *Journal of Clinical and Translational Science, 3*(s1), 70–70. <https://doi.org/10.1017/cts.2019.164>
- Wilbanks, J. E., & Wu, S. Y. (2014). Mentoring and self-determination theory: The impact of motivation upon the phases of mentoring. *Academy of Management Proceedings, 1*, 11424. <https://doi.org/10.5465/ambpp.2014.11424abstract>
- Yitshaki, N., & Assor, A. (2023). Social emotional learning in a motivational and developmental approach: How the educational environment can promote growth and optimal functioning. In Y. Harpaz., & A. Karmon (Eds.). *Educational visions in six steps: Systematic proposals for alternative education* (pp. 245–269). Resling Publishing.

Yuan, E. R. (2016). The dark side of mentoring on pre-service language teachers' identity formation. *Teaching and Teacher Education*, 55, 188–197. <https://doi.org/10.1016/j.tate.2016.01.012>

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Chapter 12

Autonomy-Supportive Teaching on Teacher Social-Emotional Competencies



Kimberly Hannah Siacor, Betsy Ng, and Woon Chia Liu

Abstract Autonomy-supportive teaching has been associated with a variety of positive student outcomes, such as psychological need satisfaction, self-efficacy, and classroom engagement (Ng et al., 2016; Olivier et al., 2020). Nevertheless, there is significantly less research attention on the teacher benefits of autonomy-supportive teaching. With the complex emotional and social demands of the teaching profession, it is important to understand the ways to cultivate teacher social-emotional competencies (SECs). The social and emotional well-being of teachers affects their classroom functioning, and eventually student outcomes. Furthermore, the teacher SECs are linked to teacher well-being. As autonomy-supportive teaching focuses on building a pleasant and supportive learning environment for the students, it is a plausible idea to investigate how such teaching practices may cultivate teacher SECs as well. As expected, the findings suggest that the five SECs were demonstrated by the teachers while being autonomy-supportive. Out of the five SECs, self-awareness and relationship management seem to be most frequently demonstrated by the teachers, while self-management seems to be least presented, during autonomy-supportive teaching.

Introduction

The quality of teacher-student relationships has received significant research attention in the past several decades. Considering extensive evidence on its association with a variety of student outcomes, such as student social functioning (Ladd et al., 1999), cognitive development (Davis, 2003), and academic achievement (Lei

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et al., 2023), it is only imperative to gain an understanding on how to improve teacher-student interactions. Moreover, a meta-analysis of 119 studies conducted by Cornelius-White (2007) has determined associations between person-centered teacher variables and positive student outcomes. For example, a composite of these person-centered teacher variables (empathy, warmth, positive teacher-student relationships, encouraging learning, and higher order thinking) is associated with large increases in student participation, satisfaction, and motivation to learn. These studies corroborate the positive impact of teacher-student relationships on student development.

Along with positive student outcomes arising from quality teacher-student relationships is the less explored teacher benefits (Aldrup et al., 2020). The complex emotional and social demands of the teaching profession bring forth the need to cultivate social-emotional competencies (SECs) in teachers. When students disregard teacher directives, disrupt classroom activities, and are disengaged in learning, teachers generally endure unpleasant emotions and find difficulty in forming connections with them (Aldrup et al., 2017). Furthermore, research has shown that teacher burnout and low levels of occupational well-being are primarily attributed to the social aspects of teaching, ranging across difficult teacher-student interactions to classroom management (Friedman, 2006). This experience of teacher burnout negatively influences the teacher workforce in a myriad of ways, as manifested by high teacher attrition and turnover rates. Ultimately, this impedes the quality of classroom instruction and overall productivity of the education system (Chang, 2009). Taken altogether, it is then relevant to elucidate the ways teachers can understand and manage their own and student social and emotional needs, in order to achieve positive student development and teacher well-being.

Teacher Social-Emotional Competencies

In education literature, a common agreement exists that social and emotional well-being of teachers are indicative of their overall classroom functioning. For example, a sizeable body of research shows its implication to teacher facilitation of supportive learning environment and targeted learning support (Collie, 2017; McLean & Connor, 2015; Shen et al., 2015). Likewise, SECs are highly linked to well-being. SECs enable individuals to understand and manage their social and emotional facets of life, supporting effective task management. Teachers regularly encounter emotionally stimulating situations in varying social contexts and often have limited latitude for self-regulation when such situations occur (Jennings & Greenberg, 2009). Hence, it is crucial for teachers to cultivate SECs to effectively develop students holistically and support their own well-being.

While there are many ways to operationalize SECs, the conceptualization by the Collaborative for Academic, Social, and Emotional Learning (CASEL, 2008) has been broadly accepted across social-emotional learning (SEL) literature. By this

definition, SECs are outcomes of SEL, namely self-awareness, social awareness, self-management, relationship management, and responsible decision-making.

Self-awareness

Socially and emotionally competent teachers are self-aware. Self-awareness is the first dimension of SECs, which refers to the ability to understand one's own thoughts, emotions, values, personal goals, and their influence on actions (CASEL, 2013). Self-awareness in teachers may manifest in the recognition of their own skills and knowledge that they already possess or lack thereof, their own emotions and tendencies, and how to leverage positive emotions to encourage learning in themselves and their students (Collie, 2017; Jennings & Greenberg, 2009). Researchers have highlighted the importance of self-awareness in teachers (Collie et al., 2012; Farrel, 2013; Ryan et al., 2015). For example, Farrell (2013) determined that teachers who are self-aware, exercised through journaling, are better able to incorporate constructive behavioral changes in and out of the classroom. Similarly, it has been demonstrated that teacher perception of their classroom management and use of instructional strategies is strongly related to their quality of teaching and higher job satisfaction (Collie et al., 2012; Ryan et al., 2015).

Social Awareness

Socially and emotionally competent teachers are also socially aware. Social awareness refers to effective perspective-taking, exercising empathy, and understanding and applying social norms for behavior (CASEL, 2013). Among teachers, it may be evident in their attempts to understand the perspectives of students, parents, and colleagues; understanding and applying proper conduct within school community; and ability to build mutual understanding and support with others (Collie, 2017; Jennings & Greenberg, 2009). Existing work has also identified the value of teacher social awareness for effective instruction (Domitrovich et al., 2016; Wink et al., 2021). For instance, Domitrovich et al. (2016) showed that teachers with high level of awareness and compassion for others also tend to have higher self-efficacy for behavioral management and lower burnout. Moreover, Wink et al. (2021) demonstrated that teachers with greater cognitive empathy exhibited higher competence in handling problematic behaviors, greater closeness with students, and lower burnout. Socially aware teachers are sensitive toward the perspectives of others and take this into consideration when communicating with students, parents, and colleagues.

Self-Management

Self-management involves monitoring and regulating one's own thoughts, feelings, and behaviors toward achieving adaptive goals (CASEL, 2013). Among teachers, it may be evident in self-regulation when interacting with students, managing occupational stress (e.g., limiting feelings of frustration toward unforeseen events) and attaining work-related goals. Evidently, empirical support has exemplified the value of self-regulation on effective teaching (Klusmann et al., 2008; Toussi et al., 2011). For instance, Toussi et al. (2011) revealed that self-regulation components (e.g., emotional control, mastery-goal orientation) are significantly related to teaching effectiveness. In addition, Klusmann et al. (2008) showed that teachers with higher self-regulation are likely to experience greater well-being, job satisfaction, and higher evaluation by students in terms of effective teaching. Self-managing teachers effectively regulate their thoughts and emotions in a manner that promotes classroom productivity without jeopardizing their well-being.

Relationship Management

Given that effective teaching is partly contingent to teacher-student relationships, it is vital for teachers to manage relationships effectively. Relationship management is the ability to form and maintain healthy relationships, communicate clearly, and negotiate constructively during conflict (CASEL, 2013). In the context of teaching, it may show as teacher capacity to connect with students in understanding and encouraging ways, exhibiting good strategies for conflict resolution, and providing appropriate support to students (Collie, 2017). As expected, research has shown the role of teacher-student relationships in teacher well-being and instructional outcomes (Lee, 2012; Spilt et al., 2011). For example, Spilt et al. (2011) explained that teachers often internalize experiences with students, which then indicate their emotional responses to them, ultimately affecting teacher well-being. Furthermore, it has also been shown that supportive teacher-student relationships are associated with emotional and behavioral student engagement, and that these relationships predict academic performance (Lee, 2012).

Responsible Decision-Making

Responsible decision-making is the fifth SEC which involves making constructive and adaptive choices in terms of one's actions (CASEL, 2013). In teachers, this may show as using appropriate pedagogy to diverse students, considering safety and well-being concerns when faced with instructional decisions (e.g., by excusing students from an activity when unwell or ill-equipped), and employing choices that promote

positive student behaviors and outcomes. Inherent in the nature of teaching, teachers are expected to make decisions continually (Emmer & Stough, 2001). It is embedded throughout the course of instruction (e.g., lesson planning, adjusting classroom activities, planning modification post-lesson). Indeed, previous research has documented the effect of teacher decision-making on teacher and student outcomes. For instance, it has been shown that preventive classroom management strategies (e.g., setting class expectations) instead of reactive strategies (e.g., use of external rewards) is related to lower teacher stress and increased student behavioral engagement (Clunies-Ross et al., 2008). Teachers who exercise responsible decision-making assess various factors carefully and take accountability of their actions.

Autonomy-Supportive Teaching

Grounded by the self-determination theory (SDT; Deci & Ryan, 2012), autonomy-supportive teaching is an instructional strategy that provides students with a learning environment that supports their psychological growth (Reeve, 2016). Teachers provide autonomy support by identifying, vitalizing, and strengthening student self-determination. Autonomy-supportive teaching is characterized by six instructional behaviors—student perspective-taking, vitalizing student inner motivational resources, providing explanatory rationales, use of non-pressuring language, acknowledging student negative affect, and displaying patience (Reeve, 2016).

Though a vast amount of literature has explored the positive student outcomes associated with autonomy-supportive teaching, there is considerably less attention on its potential teacher benefits. Nonetheless, some research was conducted to examine the potential teacher outcomes from giving autonomy support (Cheon et al., 2014; Jang et al., 2009). For instance, Cheon et al. (2014) showed that autonomy-supportive teachers have higher teaching motivation, teaching skills, job satisfaction, and lower physical and emotional exhaustion compared to teachers not practicing autonomy support. Jang et al. (2009) also provided empirical evidence of teachers demonstrating enhanced classroom functioning as a result of student higher need satisfaction and lower need frustration from receiving teacher autonomy support.

The proposition of ‘teacher advantages from providing autonomy support’ could be explained by specific processes. Firstly, when teachers become autonomy supportive, they become more able in supporting classroom functioning, which then enhances their teaching self-efficacy and job satisfaction. Secondly, autonomy-supportive teaching could also provide teachers a platform to generate student engagement and more adaptive student behaviors, which may facilitate a more positive teacher-student relationship (Reeve & Cheon, 2021). Henceforth, it might be worthwhile to explore how autonomy-supportive teaching could contribute to teacher SECs. In this regard, the significance of autonomy support in education can be extended toward teacher welfare, interest, and well-being.

The Present Study

Based on existing knowledge, there is no empirical study that investigated the potential benefits of autonomy-supportive teaching on teacher SECs. This preliminary study intends to bridge the research gaps between teacher social-emotional learning, teacher benefits of autonomy support, as well as to provide practical insights on the association between teaching practices and teacher development. This present study offers a qualitative analysis of how autonomy support in academic context support teacher SECs. In summary, this study aimed to illuminate on the following overarching research question, ‘How does autonomy-supportive teaching contribute to teacher SECs?’

Method

Participants

Seven science and math teacher participants (1 male, 6 females) from seven secondary schools in Singapore were gathered in this study. The teacher participants were from lower to upper secondary school levels. All teacher participants conducted autonomy-supportive teaching in their respective classrooms over a 10-week period, following their participation in two online autonomy support training sessions. Informed consent was obtained from all teacher participants, and confidentiality of their narratives was ensured. Ethical clearance from the university’s institutional review board (IRB-2021-03-033) and approval from Singapore Ministry of Education were made prior to the start of the study.

Autonomy Support Intervention

A school-based autonomy support intervention was implemented over a 10-week period. Prior to the start of the intervention, teacher participants were trained by the researchers on the concept of SDT and autonomy support in two online training sessions. The first training session involved the conceptual summary of SDT and illustrations of the six autonomy-supportive instructional behaviors. Studies on autonomy-supportive teaching and its outcomes were also presented. The second training session involved gathering queries about autonomy-supportive teaching from teacher participants.

Data Collection

Semi-structured interviews were conducted on individual teacher participants via *Zoom*. The interviews were held for an average of half an hour. With their informed consent, the teacher interviews were audio-recorded and transcribed. A variety of autonomy-supportive teaching experiences and their accompanying thoughts and feelings were intended to be covered in the interviews, to obtain a clear picture of each teacher participant's individual experiences. Key interview questions included: what examples of interactions the teacher participants had with their students; and do teacher participants think there are advantages (to both teachers and students) in using autonomy-supportive teaching in their classroom.

Data Analysis

Thematic analysis (Braun & Clarke, 2006) was used in the analysis of the interview data. The broad framework for analysis was based on the five SECs as conceptualized by CASEL (2008). A coding scheme adapted from Zhou and Ee (2012) was used in the analysis of the interview transcripts. Information relevant in answering the research question was coded using the codes from the adapted coding scheme. Codes that were similar were categorized and collapsed together to form themes pre-conceived from the literature. The coding scheme is summarized in Table 12.1.

To ensure the trustworthiness of the study, data analysis was done by two independent coders, and disagreements were thoroughly discussed until consensus was made. Follow-up questions and probes were also used during the interviews to ensure that findings are consistent with the teacher participants' reality (Shenton, 2004). The illustrative excerpts were presented in the findings section to exemplify each of the themes with the least complexity possible (Braun & Clarke, 2006).

Findings

This section highlights the themes that describe the social-emotional competencies demonstrated by teachers in the context of autonomy-supportive teaching.

Self-awareness

All teacher participants demonstrated self-awareness as they practice autonomy-supportive teaching with their students. Self-awareness was presented by the teacher participants in various forms. For instance, one teacher participant highlighted

Table 12.1 Coding scheme

Theme	Codes used
Self-awareness	<ol style="list-style-type: none"> (1) knowing one's thinking and doing (2) understanding why one does what he/she does (3) understanding one's moods and feelings (4) knowing when one is moody (5) reading people's faces when they are angry
Social awareness	<ol style="list-style-type: none"> (1) recognizing how people feel based on their facial expressions (2) understanding why people feel the way they do (3) knowing what someone is thinking when they are sad, angry, or happy (4) understanding why people react the way they do (5) having a good idea why someone is upset
Self-management	<ol style="list-style-type: none"> (1) staying calm in stressful situations (2) staying calm and overcome anxiety in new situations (3) staying calm when things go wrong (4) can control one's feelings when something bad happens (5) waiting till one has calmed down before discussing the issue when upset
Relationship management	<ol style="list-style-type: none"> (1) apologizing when hurting someone unintentionally (2) try to comfort others (3) try not to criticize someone when quarreling (4) tolerant of others' mistakes (5) standing up for oneself without putting others down
Responsible decision-making	<ol style="list-style-type: none"> (1) taking into account the consequences of one's actions when making decisions (2) ensuring more positive outcomes when making a choice (3) weighing the strengths of situation before making a choice (4) considering criteria chosen before making a recommendation (5) considering strengths and weakness of the strategy before deciding to use

Adapted from Zhou and Ee (2012)

that autonomy-supportive teaching raised awareness of his own tendencies when interacting with the students, as presented by the excerpt below:

I generally do this even before this whole motivation study... but I am more aware (now). So even for students who misbehave, I sometimes use not so positive language (on them) but I try my best to do so as well (Teacher A).

Interestingly, another teacher participant expressed that autonomy-supportive teaching enabled her to be more aware of the reasons of her own actions in response to student behaviors. By carefully observing student responses, the teacher participant became aware of the appropriate responses when a certain student behavior presents.

I would naturally get very frustrated because he is weak in mathematics. But if you ask him mental sums, he can do it very fast. If you ask him percentages, basic stuff, he can do very fast. I asked him, 'twelve times six?' then I would call his name, then he can (answer). But

when it comes to more complicated topics towards the upper secondary level, he just refuses to grasp anything. So I have to be a bit more targeted in which topics I feel that he can do so that he can achieve some success (Teacher B).

In addition, there was an indication of enlightenment of the student impact of autonomy-supportive teaching. As demonstrated by the excerpt below, the teacher participant became more aware and convinced of the value of providing autonomy support to the students.

I felt like there are still benefits (in autonomy-supportive teaching). I'm a learner. My character is a learner. I feel that you should never proclaim your own (knowledge)... you always learn. It's like how can I do better?... So this project gave me a stronger message and convinced me that you will see it in the students impact (Teacher D).

Social Awareness

Most of the teacher participants expressed social awareness in the narratives of their autonomy support experiences. For most of the teacher participants, social awareness was demonstrated by understanding their student intrinsic interest, which they use when they plan future classroom activities or lesson plans.

You actually have to think what might work for them... what are the activities that might engage them. And what I think is engaging could be slightly different from the children's perspective as well. Sometimes, not every lesson is perfect. I mean I do (sometimes) feel they (students) have not understood the intent of the lesson (Teacher E).

It is interesting to note that the practice of autonomy-supportive teaching allowed some teacher participants to understand and acknowledge student psychological need for autonomy as well. For instance, one teacher participant mentioned that one of the advantages of autonomy-supportive teaching is that it provides teachers a platform to facilitate learner autonomy.

It has all the advantages, because we keep saying that the students should own their learning so we should support them...we always say that we're only there to facilitate their learning so they themselves have to do it... so (we must) support them in being autonomous learners (Teacher G).

Another teacher participant displayed awareness of student natural concerns, including not having enough practice and cognitive capacity to endure long examinations. The teacher participant tried to consider the student expectations as a result of disruption in their routine. The perspective-taking aspect of autonomy-supportive teaching may have facilitated awareness of student needs and concerns.

They (students) will have a problem because they have very few tests. They have very few long tests. So this exam is the first time that they sit for two and a half hours. Can you believe that? You have not sat for an examination for two and a half hours long and suddenly, you are expected to sit for an examination for two and a half hours! There is a demand in their so-called 'concentration'. So you have to practice the past year paper at least once so that you can go through with the motion with the students (Teacher D).

Self-management

A few teacher participants shared improvements in their self-management skills while using autonomy-supportive teaching in the classroom. For instance, one teacher participant expressed challenges in managing her own negative emotions toward disruptive student behaviors. The same teacher participant mentioned that she used the technique of ‘nudging oneself’ as a prompt to manage and self-regulate her emotional responses toward the students.

I had one student who was walking around. I didn’t scold (the student). And then after that, all these little things I really have to nudge myself. Then a few students were like, ‘Teacher, we don’t understand anything you’re saying about this question’. So that will usually rile me up... like what is it (that you don’t understand)? But instead, I went to the back (of the classroom), and I went to the two students and then I asked them what exactly they do not understand. There were many times where things would get me really angry. Then I think the students suddenly became scared to ask (me). So, in general, I think towards the end of the year, they became more open? Yeah, so now, the students will just ask me (Teacher B).

Conversely, another teacher participant demonstrated self-management in a different manifestation. One teacher participant shared that it is also essential for teachers to manage their own behaviors when they are deemed inordinately laid-back. Although understanding student interests is what autonomy-supportive teaching entails, it is also equally necessary to understand when student needs should be more considered especially during examination period.

I’m not a very stern teacher all the time. So I kind of just continue (not being stern). But of course, there are times where I really have to put on a stern face to make sure progress can be done, especially during pre-examination period where I must make sure that they have a bit of drilling (Teacher G).

Relationship Management

All teacher participants portrayed relationship management skills in the context of autonomy-supportive teaching. Most teacher participants expressed these skills in terms of providing academic help to students in need. For instance, one teacher participant mentioned eliciting more questions and learning initiative from the weaker students and showing sincerity when providing assistance to them.

The weak ones are taking more initiative to learn and ask questions. That is where they can see that I’m really trying to help. Because it’s not that I discriminate against the weak ones. So, whenever I am able to help one person improve and if they buy in to my sincerity, that is where I know I have succeeded (Teacher F).

Interestingly, another teacher participant indicated displaying patience as a way to improve her relationship with the students. For example, the teacher participant recounted how she tried to anticipate the students coming unprepared for the class and then accommodated accordingly to these student setbacks.

Usually other times I would say, 'Oh ok I have extra (copy of worksheets), don't worry.' I would tell them, 'Don't worry, come. Sit down. You do. As long as you do, start off. I'm gonna start on page two. Later page one, you refer to someone. Don't worry.' So usually other times, I will always bring extra (copy of worksheets) because I know them and I will tell them, 'As long as we're learning, we're learning. Everyone, pay attention (Teacher B).

Likewise, one teacher participant shared of having improved rapport with students as evident with having more open student communication, as excellently illustrated in the excerpt below:

I personally felt that our rapport (become better)..like they will share more things with me. They feel at ease when they share some information... like before class I'll have a chit-chat with them. They feel at ease with me (Teacher C).

Responsible Decision-Making

Many of the teacher participants portrayed responsible decision-making in the course of using autonomy-supportive teaching. Responsible decision-making in teachers was exemplified in varied instances. For example, one teacher participant reported modifying learning content and materials to make it more appropriate for student comprehension. This is one way of ensuring positive student outcomes of which responsible decision-making in teachers entails.

For the upper secondary level students, by the time they come up to us.... algebra can be more complicated. So whenever certain parts are more complicated, I will show them how to define the X. So, if their foundation is weak, they will find it difficult. But at least they have a solution to look at when simplifying this complicated string of things into this simple one (Teacher D).

Another teacher participant shared how she let go of certain learning objectives in class to give students a chance to rest. Notably, the teacher participant mentioned that she used this as a reason for the students to cooperate in the next lesson as well. This excellently shows the respect of the teacher participant for student needs and thereby making more responsible decisions in class.

I tried not to push too hard. Sometimes they are not responding, then sometimes they just need a break. So sometimes it is ok to let go like certain learning objectives for that lesson. But you have to make it clear to them that you are letting go..that you are giving them a chance to rest. Then use this as a reason to cooperate for the next lesson. So everything must be accompanied by rationale (Teacher C).

Lastly, one teacher participant talked about planning certain activities in the areas where students find more challenging. In this way, the teacher participant was able to pinpoint the weaker points of the lesson plan and plan future classroom activities accordingly and responsibly around it.

They (students) also sensed that I also work together with them. I will think a little bit harder about which parts of the topic are more challenging and then plan activities around that... some small challenging portion... as supposed to how I would have done it previously (Teacher E).

Discussion

In general, the teacher participants in this study demonstrated the five SECs while practicing autonomy-supportive teaching in class. First, for self-awareness, the narratives from the teacher participants showed several instances of these skills. The student perspective-taking instructional behavior enabled the teachers to understand the patterns of their interactions with their students. This allowed them to get a clearer understanding of their own actions and emotional responses to them. For instance, Teacher B recounted an incident involving a challenging interaction with a disengaged student. It was mentioned that these interactions allowed her to determine how to let the student experience success in the classroom and support student competence. In this way, the teacher participant became more aware of her own thoughts and emotions and how they contributed to her actions. Likewise, Teacher A became more aware of his tendency not to use positive language with misbehaving students, which propelled him to try to make use of it more. Interestingly, it was also revealed that the general use of autonomy-supportive teaching in the classroom enlightened teachers on its student impact as well. This is an interesting finding as it demonstrates how instructional practices can remind teachers of the vision of the teaching profession itself. Generally, teachers become more self-aware during autonomy-supportive teaching, and they recognize that it brings out autonomous learning in their students (Ng et al., 2015).

Second, in terms of relationship management, it was apparent that the instructional behaviors of autonomy-supportive teaching facilitated a positive relationship between teachers and students. For instance, Teacher F mentioned welcoming more questions from the weaker students, thus helping the students to connect to the teacher better. Moreover, it was shared that displaying patience, using non-pressuring language, acknowledging negative affect, and using open communication with their students allowed the teachers to have more pleasant interactions with them. To a large extent, autonomy-supportive teaching allows teachers to have greater teacher-student relationship satisfaction (Cheon et al., 2020). This may explain the relationship management skills teachers demonstrated while practicing autonomy-supportive teaching.

Third, social awareness could be seen in the majority of the teachers who highlighted that understanding the student interests and needs (through autonomy-supportive teaching) enabled them to be more aware of student perceptions. For example, Teachers D and E shared of creating lessons plans and classroom activities based on student expectations, needs, and requirements. Further, it was also mentioned that learning about autonomy-supportive teaching itself highlights the need to build autonomous learners. As regarded previously, providing autonomy support is a learner-centered instruction, which serves to support student needs (Reeve & Shin, 2020). Hence, it is not surprising that it facilitates and enables teachers to practice their social awareness skills.

Fourth, the results related to responsible decision-making suggest that many of the teachers, when vitalizing student inner motivational resources, tend to modify lesson

plans and classroom activities based on student enjoyment, curiosity, and intrinsic interest. In this regard, the teachers make decisions responsibly and respectably in terms of student wants, needs, and emotions. This excellently exemplifies responsible decision-making among teachers as they do not only ensure optimal student outcomes, but they also assess various factors holistically and carefully without neglecting their own needs. In this way, teachers show prosocial values at which they show deep respect to their students and think about how their own decisions affect student well-being (Schonert-Reichl, 2017). Altogether, the teachers tried to make the best decisions possible as a response to their interactions with students in an autonomy-supportive classroom.

Lastly, self-management skills seem to be displayed by teachers while being autonomy supportive as well. A few teachers shared some interesting ways of managing themselves during the course of instruction. For instance, Teacher B indicated nudging oneself as a technique she uses when an interaction triggers a negative emotional response. In this way, it enabled the teacher participant to use more of the non-pressuring language and acknowledgement of negative affect with her students. Compellingly, an interesting finding from Teacher G showed that self-management could go both ways. The teacher participant shared that certain scenarios in the classroom might warrant a firmer tone from the teacher when the student needs arise, for example, during pre-examination period. This shows that student perspective-taking, as per autonomy-supportive teaching, allows teachers to know when to calibrate themselves according to student changing needs as well. Teachers then must be flexible in their teaching approach as they adapt to the various needs of the students under their care (Parsons et al., 2018).

Taken altogether, the findings suggest that the five SECs can be exercised by teachers through the use of autonomy-supportive teaching in the classroom. Evidently, it seems that perspective-taking skills and vitalizing inner motivational resources have provided the foundation on practicing these competencies. Additionally, using non-pressuring language, acknowledging student expression of negative affect, and displaying patience facilitated the teacher relationship management skills and positive teacher-student relationships. Finally, providing explanatory rationale seems to be linked to responsible decision-making as it allows the students to appreciate the task beforehand, thereby allowing it to be internalized effectively (Vansteenkiste et al., 2018).

Practical Implications and Limitations

A preliminary study was conducted on autonomy-supportive teaching and teacher SECs, focusing on seven science and mathematics teachers in Singapore. Nevertheless, the study can have wider implications beyond the aforementioned setting. Firstly, the issues on teacher burnout and problematic teacher-student relationships continue to affect many educational systems, both in terms of student development and teacher workforce (Aldrup et al., 2017; Chang, 2009; Friedman, 2006). These

issues would most likely perpetuate in many education systems worldwide, indicating the importance of developing teacher SECs. The findings from this study shed light on how instructional practices, which are primarily learner-centered, can also positively impact teacher development. Secondly, autonomy-supportive teaching seems to extend along the cultivation of teacher SECs. Many of the instructional behaviors entailed in autonomy-supportive teaching imply skills and competencies in understanding and managing one's own and student social and emotional needs. It is then worthwhile to examine how these teaching practices provide a platform for both positive student development and teacher well-being.

While practical insights on the association between autonomy-supportive teaching and teacher SECs were gathered from this study, there are still some key limitations to consider for future work. Firstly, the current study had a low sample size of seven science and mathematics teachers. This limits the generalizability of the study's findings in other classroom contexts. Secondly, the autonomy-supportive intervention was conducted only over a 10-week period. As teacher SECs take some time to develop, it was challenging to present findings that capture rich details of teacher SECs. Future studies can then investigate teacher SECs in the context of autonomy-supportive teaching with bigger sample size and longer duration. This would then allow a fine-grained elucidation of teacher benefits, in terms of their SECs from autonomy-supportive teaching. This preliminary study presented an illustration of how autonomy-supportive teaching may impact each SEC in teachers. More research of teacher SECs in autonomy-supportive teaching in other classroom contexts may provide further insights into teaching practice and teacher development. Teacher education programs may utilize this study to obtain conceptual insights into the associations between their pre-service teaching education programs and teacher well-being outcomes, ranging from planning to evaluation stages.

Conclusion

The present study illustrated how autonomy-supportive teaching benefited teachers in cultivating their SECs. As the teacher SECs play a significant role on positive student development and teacher well-being, it is increasingly evident that autonomy-supportive teaching could enhance both student and teacher outcomes, thereby improving the educational system.

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References

- Aldrup, K., Carstensen, B., Köller, M. M., & Klusmann, U. (2020). Measuring teachers' social-emotional competence: Development and validation of a situational judgment test. *Frontiers in Psychology, 11*, 892. <https://doi.org/10.3389/fpsyg.2020.00892>
- Aldrup, K., Klusmann, U., & Lüdtke, O. (2017). Does basic need satisfaction mediate the link between stress exposure and well-being? A diary study among beginning teachers. *Learning and Instruction, 50*, 21–30. <https://doi.org/10.1016/j.learninstruc.2016.11.005>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101.
- Chang, M. L. (2009). An appraisal perspective of teacher burnout: Examining the emotional work of teachers. *Educational Psychology Review, 21*, 193–218. <https://doi.org/10.1007/s10648-009-9106-y>
- Cheon, S. H., Reeve, J., & Vansteenkiste, M. (2020). When teachers learn how to provide classroom structure in an autonomy-supportive way: Benefits to teachers and their students. *Teacher and Teaching Education, 90*, 103004. <https://doi.org/10.1016/j.tate.2019.103004>
- Cheon, S. H., Reeve, J., Yu, T. H., & Jang, H. R. (2014). The teacher benefits from giving autonomy support during physical education instruction. *Journal of Sport and Exercise Psychology, 36*(4), 331–346. <https://doi.org/10.1123/jsep.2013-0231>
- Clunies-Ross, P., Little, E., & Kienhuis, M. (2008). Self-reported and actual use of proactive and reactive classroom management strategies and their relationship with teacher stress and student behavior. *Educational Psychology, 28*(6), 693–710. <https://doi.org/10.1080/01443410802206700>
- Collaborative for Academic, Social, and Emotional Learning [CASEL]. (2008). *SEL assessment, tools, needs and outcome assessments*. Collaborative for Academic, Social, and Emotional Learning.
- Collaborative for Academic, Social and Emotional Learning [CASEL]. (2013). *The 2013 CASEL guide: Effective social and emotional learning programs-preschool and elementary school edition*. Collaborative for Academic, Social, and Emotional Learning.
- Collie, R. J. (2017). Teachers' social and emotional competence: Links with social and emotional learning and positive workplace outcomes. In E. Frydenberg, A. Martin, & R. Collie (Eds.), *Social and emotional learning in Australia and the Asia-Pacific* (pp. 167–184). Springer.
- Collie, R. J., Shapka, J. D., & Perry, N. E. (2012). School climate and social-emotional learning: Predicting teacher stress, job satisfaction, and teaching efficacy. *Journal of Educational Psychology, 104*, 1189–1204. <https://doi.org/10.1037/a0029356>
- Cornelius-White, J. (2007). Learner-centered teacher-student relationships are effective: A meta-analysis. *Review of Educational Research, 77*(1), 113–143. <https://doi.org/10.3102/0034654302985>
- Davis, H. A. (2003). Conceptualizing the role and influence of student-teacher relationships on children's social and cognitive development. *Educational Psychologist, 38*(4), 207–234. https://doi.org/10.1207/S15326985EP3804_2
- Deci, E. L., & Ryan, R. M. (2012). Self-determination theory. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (pp. 416–436). Sage Publications Ltd.
- Domitrovich, C. E., Bradshaw, C. P., Berg, J. K., Pas, E. T., Becker, K. D., Musci, R., Embry, D. D., & Lalango, N. (2016). How do school-based prevention programs impact teachers? Findings from a randomized trial of an integrated classroom management and social-emotional program. *Prevention Science, 17*, 325–337. <https://doi.org/10.1007/s11121-015-0618-z>
- Emmer, E. T., & Stough, L. M. (2001). Classroom management: A critical part of educational psychology, with implications for teacher education. *Educational Psychologist, 36*(2), 103–112. https://doi.org/10.1207/S15326985EP3602_5
- Farrell, T. S. (2013). Teacher self-awareness through journal writing. *Reflective Practice, 14*(4), 465–471. <https://doi.org/10.1080/14623943.2013.806300>

- Friedman, I. A. (2006). Classroom management and teacher stress and burnout. In C. M. Evertson & C. S. Weinstein (Eds.), *Handbook of classroom management: Research, practice, and contemporary issues* (pp. 925–944). Lawrence Erlbaum Associates Publishers.
- Jang, H., Reeve, J., Ryan, R. M., & Kim, A. (2009). Can self-determination theory explain what underlies the productive, satisfying learning experiences of collectivistically-oriented South Korean adolescents? *Journal of Educational Psychology, 101*, 644–661. <https://doi.org/10.1037/a0014241>
- Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research, 79*(1), 491–525. <https://doi.org/10.3102/0034654308325693>
- Klusmann, U., Kunter, M., Trautwein, U., Lüdtke, O., & Baumert, J. (2008). Engagement and emotional exhaustion in teachers: Does the school context make a difference? *Applied Psychology: An International Review, 57*, 127–151. <https://doi.org/10.1111/j.1464-0597.2008.00358.x>
- Ladd, G. W., Birch, S. H., & Buhs, E. S. (1999). Children's social and scholastic lives in kindergarten: Related spheres of influence? *Child Development, 70*(6), 1373–1400. <https://doi.org/10.1111/1467-8624.00101>
- Lee, J. S. (2012). The effects of the teacher–student relationship and academic press on student engagement and academic performance. *International Journal of Educational Research, 53*, 330–340. <https://doi.org/10.1016/j.ijer.2012.04.006>
- Lei, H., Wang, X., Chiu, M. M., Du, M., & Xie, T. (2023). Teacher-student relationship and academic achievement in China: Evidence from a three-level meta-analysis. *School Psychology International, 44*(1), 68–101. <https://doi.org/10.1177/0143034322112245>
- McLean, L., & Connor, C. M. (2015). Depressive symptoms in third-grade teachers: Relations to classroom quality and student achievement. *Child Development, 86*(3), 945–954. <https://doi.org/10.1111/cdev.12344>
- Ng, B., Liu, W. C., & Wang, C. K. (2015). A preliminary examination of teachers' and students' perspectives on autonomy-supportive instructional behaviors. *Qualitative Research in Education, 4*(2), 192–221. <https://doi.org/10.17583/qre.2015.1463>
- Ng, B. L., Liu, W. C., & Wang, J. C. (2016). Student motivation and learning in mathematics and science: A cluster analysis. *International Journal of Science and Mathematics Education, 14*(7), 1359–1376. <https://doi.org/10.1007/s10763-015-9654-1>
- Olivier, E., Galand, B., Hospel, V., & Dellisse, S. (2020). Understanding behavioral engagement and achievement: The roles of teaching practices and student sense of competence and task value. *British Journal of Educational Psychology, 90*(4), 887–909. <https://doi.org/10.1111/bjep.12342>
- Parsons, S. A., Vaughn, M., Scales, R. Q., Gallagher, M. A., Parsons, A. W., Davis, S. G., Pierczynski, M., & Allen, M. (2018). Teachers' instructional adaptations: A research synthesis. *Review of Educational Research, 88*(2), 205–242. <https://doi.org/10.3102/0034654317743198>
- Reeve, J. (2016). Autonomy-supportive teaching: What it is, how to do it. In W. C. Liu, J. Wang, & R. Ryan (Eds.), *Building autonomous learners* (pp. 129–152). Springer.
- Reeve, J., & Cheon, S. H. (2021). Autonomy-supportive teaching: Its malleability, benefits, and potential to improve educational practice. *Educational Psychologist, 56*(1), 54–77. <https://doi.org/10.1080/00461520.2020.1862657>
- Reeve, J., & Shin, S. H. (2020). How teachers can support students' agentic engagement. *Theory into Practice, 59*(2), 150–161. <https://doi.org/10.1080/00405841.2019.1702451>
- Ryan, A. M., Kuusinen, C. M., & Bedoya-Skoog, A. (2015). Managing peer relations: A dimension of teacher self-efficacy that varies between elementary and middle school teachers and is associated with observed classroom quality. *Contemporary Educational Psychology, 41*, 147–156. <https://doi.org/10.1016/j.cedpsych.2015.01.002>
- Schonert-Reichl, K. A. (2017). Social and emotional learning and teachers. *The Future of Children, 27*(1), 137–155. <http://www.jstor.org/stable/44219025>

- Shen, B., McCaughtry, N., Martin, J., Garn, A., Kulik, N., & Fahlman, M. (2015). The relationship between teacher burnout and student motivation. *British Journal of Educational Psychology*, 85(4), 519–532. <https://doi.org/10.1111/bjep.12089>
- Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22(2), 63–75.
- Spilt, J. L., Koomen, H. M., & Thijs, J. T. (2011). Teacher wellbeing: The importance of teacher–student relationships. *Educational Psychology Review*, 23, 457–477. <https://doi.org/10.1007/s10648-011-9170-y>
- Toussi, M. T. M., Boori, A. A., & Ghanizadeh, A. (2011). The role of EFL teachers' self-regulation in effective teaching. *World Journal of Education*, 1(2), 39–48.
- Vansteenkiste, M., Aelterman, N., De Muynck, G. J., Haerens, L., Patall, E., & Reeve, J. (2018). Fostering personal meaning and self-relevance: A self-determination theory perspective on internalization. *The Journal of Experimental Education*, 86(1), 30–49. <https://doi.org/10.1080/00220973.2017.1381067>
- Wink, M. N., LaRusso, M. D., & Smith, R. L. (2021). Teacher empathy and students with problem behaviors: Examining teachers' perceptions, responses, relationships, and burnout. *Psychology in the Schools*, 58(8), 1575–1596. <https://doi.org/10.1002/pits.22516>
- Zhou, M., & Ee, J. (2012). Development and validation of the social emotional competence questionnaire (SECO). *The International Journal of Emotional Education*, 4(2), 27–42.

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Part IV
Socioemotional Learning in Higher
Education

Chapter 13

A Self-determination Approach to Socioemotional Learning: Supporting Students' Needs as an Essential Foundation for the Cultivation of Socioemotional Skills



Avi Assor and Noam Yitshaki

Abstract Based on self-determination theory and research, we suggest that SEL programs should focus primarily on enhancing teachers' capacity to support students' basic psychological needs via practices that mostly do *not* involve teaching of skills via a pre-determined curriculum. This view is based on evidence that teachers can best facilitate students' socioemotional functioning and well-being by practices supporting their needs. Teaching socioemotional skills may also contribute to need satisfaction and subsequent optimal functioning, but only when teachers support students' needs. Given that the learning and effective application of need-supporting practices is a very demanding task, social and emotional learning (SEL) programs should invest most of their efforts in enhancing teachers' capacity to apply need-supporting practices, rather than in teaching a curriculum of skills. We show that there is no conclusive evidence for the effectiveness of SEL programs focusing only on skills. We describe the negative effects that programs focusing only on skills teaching may have on teachers' thinking, practice, and role definition and on resource allocation by policymakers. Moreover, skills-only programs may contribute to the missing of an important opportunity to use the current interest in SEL as a catalyst for a significant change in the ways teachers relate to their students and construct learning processes and contexts.

Introduction

In the last decade, there is a growing and widespread understanding that in order for children and youth to learn and thrive, they must develop growth resources that will enable them to cope well with challenges and difficulties in a changing and often

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stressful world. In an attempt to develop such growth resources in children within the educational system, many programs focusing on social emotional learning (SEL) were developed. While the aim and underlying concern of these programs are very important, it seems that the solution many of them appear to propose in order to promote optimal social emotional development is lacking and highly incomplete. In our view, the main weakness of many SEL programs is that they appear to place a central (and in our opinion misleading) emphasis on teaching socioemotional (SE) skills by main teachers in a structured, pre-determined curriculum, rather than on teachers' practices that directly support students' basic psychological needs (Assor et al., 2018; Reeve et al., 2022; Ryan & Deci, 2017), often without teaching SE skills.

As will be shown later, most of the more serious and successful SEL programs now also include other components, including personal resources that are not skills (e.g., pro-social and civic values, positive perceptions of self and others, etc.). However, the way these programs are advertised and perceived still includes a major and primary focus on the teaching of SE skills via a structured curriculum. Furthermore, many such programs treat values, positive perceptions and assumptions about the self and others, and even identity, as if they are skills or competencies that can be taught directly (CASEL, 2020; Zins et al., 2007).

The notion of SE skills refers to students' capacity to perform various actions that contribute to successful coping with various challenges and stressors and to the attainment of goals students want to achieve. While there are different typologies of SE skills, one that is particularly well-known was offered by the Collaborative for Academic, Social, and Emotional Learning (CASEL, 2020; Zins et al., 2007). The CASEL typology refers to five groups of attributes, many of which are not really skills but a mixture of personal inclinations, self-perceptions, world views, aspirations, and values (e.g., Cefai et al., 2018; Jones et al., 2021). Yet in the "SEL world", there is still a strong emphasis on skills, which according to CASEL fall into five groups: (1) self-awareness (i.e., capacity to recognize one's feelings and motivations), (2) self-management (i.e., capacity to regulate strong emotions, to tolerate frustration, to delay gratification, to set achievable goals, and monitor one's progress toward these goals), (3) social awareness (i.e., capacity to understand others' point of view), (4) relationship skills (i.e., capacity to listen to others; to express oneself clearly and assertively, to find a place in a group, to cooperate, to resist negative social pressure, to resolve conflicts, to ask for help, and give help sensitively), and (5) responsible decision-making (i.e., the capacity to make reasonable informed choices, to assess the consequences of one's actions).

While the SE skills noted above obviously are important inner resources that can facilitate coping and growth, we claim that *it is a mistake to place their direct planned teaching at the center of socioemotional education and support*. Based on self-determination theory (SDT; Ryan & Deci., 2017) and other important, research-based theories of motivation and development, and a long tradition of liberal humanistic education (e.g., Rogers & Freiberg, 1970), we suggest that socioemotional education and SEL should be based primarily on teachers and schools attempts to support students' basic psychological needs. Accordingly, in this chapter, we present a comprehensive approach situating need-support practices at the foundation of SEL

and the teaching of skills as an additional less important component, which can be highly beneficial only when teachers regularly support students' basic needs. This model is presented in Fig. 13.1.

We start the chapter with an explanation of our model of the role of teacher need-supports as a primary facilitator of students' optimal functioning and coping and teacher direct teaching of SE skills as part of a curriculum as a considerably less

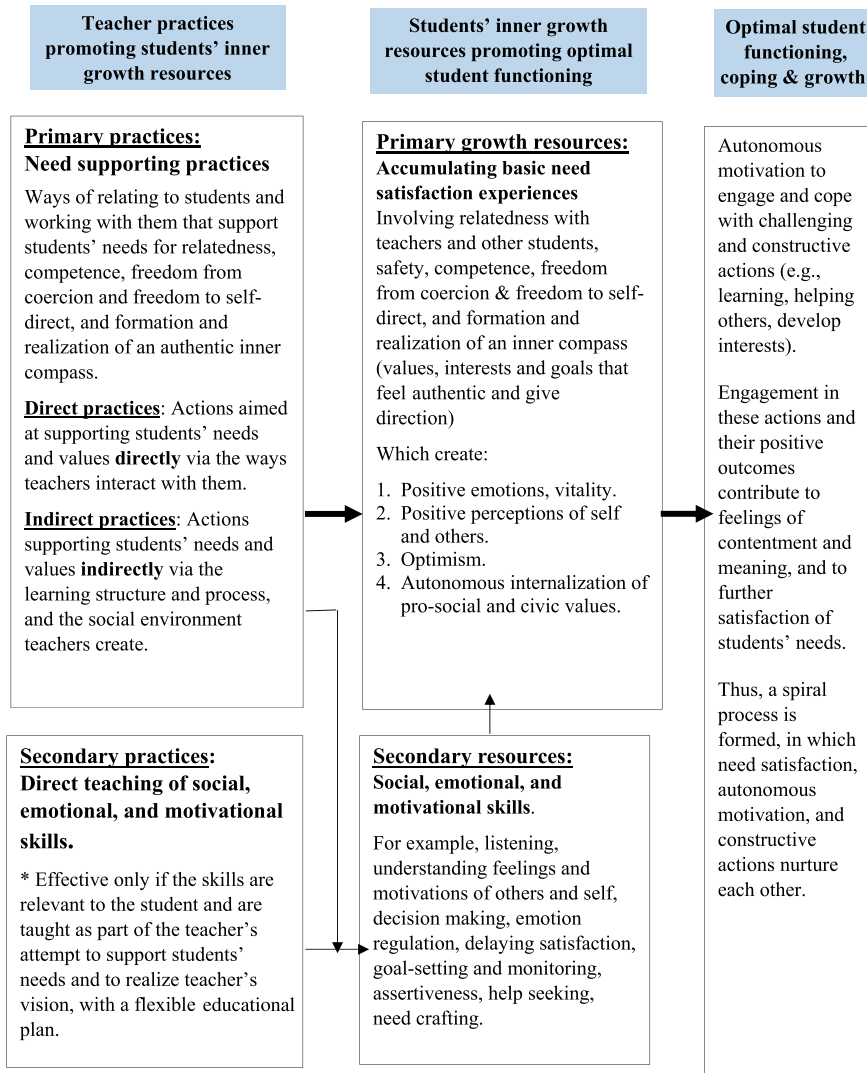


Fig. 13.1 Self-determination theory model of SEL: supporting students' needs as an essential foundation for the cultivation of SE skills and SE growth

important factor. We proceed with a claim that extant meta-analyses of SEL programs do **not** provide conclusive evidence for the effectiveness of SEL programs focusing **only** on skills teaching as part of a curriculum; that is, SEL programs including only skills teaching and no teacher guidance in basic need-support. We then describe negative consequences of SEL programs focusing mainly on the teaching of SEL via a structured curriculum for teachers' thinking and educational approach, as well as for educational policy, decision-making, and resource allocation at various levels of the education system.

Most SEL leaders nowadays explicitly include in the domain of SEL and attributes that are not skills and are best cultivated by growth-supporting practices that do not involve direct teaching and practice. Therefore, we suggest that it is time to substitute the term SEL, which for most people, primarily implies direct teaching and practice of skills, with more accurate and less misleading terms. We suggest the terms socioemotional growth (SEG) and socioemotional support, as these terms indicate that socioemotional development is also (perhaps mainly) based on inner growth resources that are not skills and is mainly cultivated by growth-supporting practices that do not involve direct teaching and practice of skills. For example, direct need-support or provision of experiences that enable students to build positive self- and other perceptions or discover the intrinsic satisfactions inherent in various valued actions such as learning or helping others.

We end with a summary of our view of what SEL (or SEG) should really be about; that is, what according to SDT is the most important content to be learnt in SEL, and how it should be cultivated.

A Self-determination Theory Model of SEL: Supporting Students' Needs as an Essential Foundation for the Cultivation of Socioemotional Skills and Growth

The model presented in Fig. 13.1 posits that there are two types of teacher practices that facilitate students' optimal functioning, well-being, coping, and growth, by promoting two types of students' inner growth resources. Starting from the left column, we can distinguish between practices we consider primary and critical:—need-supporting practices—and practices we consider secondary and considerably less important: direct teaching of SE skills by main teachers, as part of a pre-planned curriculum. The thick arrows going from the primary (need-support) practices box to the primary resources box and then to the box of optimal student functioning signify that this path *is the major route through which teachers can influence their students' optimal functioning*. Therefore, it is also where educational systems should invest most of their efforts and resources. The figure also indicates that direct planned teaching of skills is likely to have considerable benefits only to the extent that teachers really try support their students' basic psychological needs.

Basic Need Satisfaction is a much more Important Inner Resource of Coping and Growth than are SE Skills

The SEL model in Fig. 13.1 clearly posits that the major and *most critical resource facilitating optimal student functioning and development is experiences of basic need satisfaction*. This assumption is very different from the assumption underlying many SEL programs emphasizing social-emotional skills. According to the latter assumption, the *most critical resource facilitating optimal student functioning and development is social-emotional skills* (see for example, Oberle & Schonert-Reichl, 2017). As we will see later, the acceptance of this (often implicit) assumption appears to be one of the negative effects of SEL programs focusing mostly on direct teaching of skills. But first, let us explain the notion that basic need satisfaction is the key driver of optimal development and coping.

Basic Need Satisfaction Experiences as Primary Growth Resources

The view that the most direct and important inner resource of optimal development is the experience of need satisfaction is held by major, research-based theories of human development. Together, these theories emphasize the importance of cumulative experiences of relatedness, belonging, and safety needs (e.g., Ainsworth et al., 2015; Bowlby, 1969; Maslow, 1970), competence and effectiveness (e.g., Bandura, 1994; Elliot et al., 2002; Seligman, 2018), freedom to direct oneself and freedom from coercion (DeCharms, 2013; Ryan & Deci, 2017; Winnicott, 1965), as well as the need to form values, purpose, and commitments which create a sense of having an authentic inner compass and meaning (Assor et al., 2020a; Assor et al., 2023; Damon, 2008; Erikson, 1968; Frankl, 1959). As shown in Fig. 13.1, these experiences create positive perceptions of self and others, followed by positive emotions and autonomous motivation, which lead to actions that create feelings of satisfaction, satisfying identity, and meaning (Assor, 2018a, 2018b; Assor et al., 2023; Baumeister, 1991; Damon, 2008; MacKenzie & Baumeister, 2014; Marcia et al., 1993; Martella et al., 2018; Ryan & Vansteenkiste, 2013).

Thus, it was found that when children experience and perceive themselves as worthy of love, protected, belonging to their social environment, capable of coping with difficult challenges, free from coercion, and having values and interests that give them a direction that is perceived as authentic—they experience positive emotions, feelings of vitality and optimism, and develop autonomous motivation to invest in challenging and positive actions and goals (e.g., learning, helping others, developing interest tendencies, social involvement). As a result of these activities, they feel satisfaction and meaning.

Another reason for the central importance of experiences and perceptions of self as loved, belonging and capable, and free from coercion is that when children feel this way, they are interested in learning things that can contribute to them. Indeed, there is research that shows that when children are exposed to adults providing such need-supports, children develop social emotional skills, and especially self-regulation skills, even in the absence of direct instruction on the subject (Bindman et al., 2015; Bernier et al., 2010).

Socioemotional Skills as a Secondary, Less Important, Growth Resource

It is important to note that research-based theories positing basic need satisfaction as primary direct drivers of optimal functioning are also likely to view social-emotional skills as important. However, these skills are conceptualized as secondary supportive factors, promoting optimal functioning through its influence on need satisfaction experiences, which *remain the primary direct drivers of optimal functioning*. For example, students' perceptions of themselves as having the skills required to cope with difficult tasks and failure enable them to view the process of coping with difficult challenges as a potential need-satisfying experience, rather than as a threat to their need for competence. Students perceiving themselves as having strong coping skills often engage successfully with difficult challenges and consequently are likely to experience increased satisfaction of their need for competence. Thus, skill-based engagement with difficult challenges may indeed contribute to need satisfaction and the plethora of positive outcomes emerging from need satisfaction.

Given the likely contribution of skills to need satisfaction, one may suggest that teachers should focus most of their efforts on the teaching of skills, rather than on direct support for students' needs. We disagree with this view, and later in the chapter, will try to show that teachers can promote students' need satisfaction much more effectively through direct need-support practices, rather than through the teaching of skills, which then enable students to satisfy their needs. However, first we explain and exemplify the set of educational practices posited to function as the primary facilitators of students' basic need satisfaction and subsequent positive outcomes; namely direct need-support practices.

The Major Role of Need-Supporting Teaching Practices in Promoting Students' Need Satisfaction and Subsequent Optimal Functioning

Considerable research shows that there are a number of teacher practices that directly support students' needs and positive self-perceptions, contribute to the internalization

of pro-social values, and are the most important growth facilitators (see: Assor, 2012, 2018a, 2018b; Assor & Kaplan, 2001; Assor et al., 2002; Baker et al., 2003; Eccles & Roeser, 2009; Hamre & Pianta, 2001; Patall et al., 2010; Patall et al., 2018; Reeve & Cheon, 2014; Reeve et al., 2022; Ruzek et al., 2016; Salomon et al. 1996; Shim et al, 2013; Schunk & Miller, 2002; Urden, 2006). These practices affect students' need satisfaction experiences in two ways: (a) direct effects, occurring as a result of the ways teachers relate to students and interact with them, and (b) indirect effects, occurring as a result of the ways teachers conduct the learning process and structure the classroom learning environment and social context. In here, we briefly present some of these practices. We distinguish among three groups of practices, based on the needs they support. A more complete list appears in the appendix of Assor and Yitshaki (2020). Notably, a similar, but less detailed approach emphasizing the importance of support for students' needs was presented by Baker et al (2003).

Practices and structures supporting the need for competence. These practices involve various ways of working with students that promote a sense of competence due to educational success. For example: (1) setting optimal challenges based on an initial assessment and a conversation between the teacher and the student, (2) setting achievable interim goals on the way to a more global final goals, (3) providing specific, frequent, non-comparative feedback on task performance, focusing on performance level as a product of effort, prior knowledge, and strategies rather than inborn, unchangeable talent (see Assor, 2015), (4) providing help and coping strategies following non-success, (4) respectful and constructive response to mistakes, construing mistakes as a phase that is essential and useful part of the learning process for both the individual student and various classmates, (5) activities and messages that create a classroom culture that focuses on improving capacities, rather than demonstrating ability (Dweck, 2013); a culture enhancing students' willingness to share their difficulties and ask for help, and (7) attributing failure to a lack of prior knowledge or strategies, rather than to limited innate ability (Dweck, 2013).

Practices and structures supporting the needs for relatedness, belonging, and safety. Examples of such practices include: (1) classroom activities increasing students' knowledge of the their classmates special interests, strengths, and preferences, (2) routine teacher-child conversations characterized by empathic listening, (3) determined actions to prevent exclusion, bullying, shaming, or any aggression in the classroom and outside, (4) creating classroom culture including norms, routines, and a value orientation that increase consideration, cooperation, help, caring, and respect between all students (for example: dialogue circles at the beginning of every day in school), (5) creating opportunities for all students to participate in class discussions and to fulfill roles that contribute to a satisfying classroom activities and experiences, (6) paying attention to all students and not just the brilliant or disruptive ones, (7) promoting cooperative work and reducing competition and comparison between students (Johnson & Johnson, 1999; Kohlberg, 2013; Power & Higgins-D'Alessandro, 2008).

Practices and Structures Supporting the Meta-need for Autonomy. According to Assor and colleagues (Assor, 2018a, 2018b, Assor et al., 2020a, 2020b, 2021a, 2021b, 2023, and see also Russo-Netzer & Shoshani, 2020), the need for autonomy is

a meta-need for “true self-direction”, that includes at least two more specific needs: (a) freedom from coercion and freedom to direct and determine one’s actions and (b) having and realizing an authentic inner compass (i.e., a sense of knowing what is truly important to you, based on values, aspirations, interests, personal preferences, and goals one truly identifies with).

The need for freedom. This need can be supported by practices involving (1) attempts to understand students’ perspectives and feelings, especially when teacher and students have different preferences, (2) allowing criticism, (3) encouraging student choice and initiative, and (4) providing a convincing rationale for educational tasks and behavioral norms, as well as by avoiding practices of threat and control, including social comparisons and conditional regard (e.g., Assor, 2018; Assor et al., 2004, 2005; Assor & Tal, 2012; Assor et al., 2020a, 2020b, 2020c; Kanat Maymon et al., 2023; Ryan & Deci, 2017; Soenens et al., 2019).

The need for an authentic inner compass. This need can be supported by teacher actions that contribute to the formation of values, goals, and commitments students deeply identify with. This process is facilitated via the following teacher practices: (1) fostering students’ inclination and capacity to engage in inner-directed valuing by paying attention to what they really value, prefer, feel, and want in situations involving difficult decisions, particularly when facing social pressures to conform and ignore one’s true feelings and preferences, (2) supporting students’ inclination and capacity to examine and explore different values, opinions, and options before they decide, take responsibility, or commit themselves; such exploration can involve thinking, experimenting, and talking to people with different values and opinions, (3) inherent value demonstration; that is, teachers demonstrating the merit of the values they endorse through their actions, and (4) cultivating students’ individual interests. Assor (2011) noted that, across different societies, pro-social values formulate an important part of the core of a growth-promoting, authentic, inner compass. Therefore, educational practices promoting the internalization of pro-social values are of special importance. For example, teacher and school practices emphasizing the importance of these values through appropriate norms and regulations and even more so through the active participation of students in thinking about and determining the values and norms that guide the school’s activities. Examples of such practices can be found in Kohlberg’s Just Community (2013) and the Caring Community (Battistich et al., 1995, 1997) approaches (see also Assor et al., 2018; Bundick & Tirri, 2014). These approaches view discussions about values as a secondary means, which only make sense if the educational environment realizes the values on a daily basis and encourages children to participate in forming a community that lives according to these values.

In this section, we demonstrated that in order for teachers to be able to promote significant basic need satisfaction and social emotional growth in students, they must internalize and competently enact a considerable number of complex practices. Furthermore, since using these practices under the challenging conditions prevailing in many schools is a difficult task, it seems that if we want teachers to internalize even just some of these practices and implement them in a competent manner, teachers

should get significant training, guidance and consultation in the ongoing use of these need-supporting practices.

Therefore, it *makes little sense to require teachers who have not yet learnt how to competently enact need-supporting practices, to invest additional effort in learning to teach SE skills*, which in any case, are a considerably less important resource of optimal student functioning.

Direct Teaching of SE Skills is Unlikely to be Beneficial in the Absence of Basic Need-Support

As already noted, the most important reason for considering the teaching of SE skills as a secondary, more marginal, component of SEL programs is that there is a much more important, and rather demanding, teaching component that such programs should focus on; namely direct teaching of basic need-support, that often does not include skills teaching. However, there are additional reasons why SEL programs should not focus on the teaching of SE skills when teachers do not master and regularly enact practices of basic need-support. Inhere we provide three such reasons.

First, given the complex tasks and demands teachers already face (Shulman & Wilson, 2004) and the work load they cope with, many teachers may not find the time and energy to teach SE skills effectively. Second, and particularly important, students may not be willing to learn SE skills from teachers who frustrate, or do not support, their needs; teachers whom they experience as not really interested in them, or not trying to help when they face difficulties. For example, a student may not be willing to learn how to cope with social rejection from a teacher who does nothing to prevent the student's rejection by classmates. Similarly, students are not likely to learn how to cope with an academic failure from a teacher they perceive as the one who causes the failure by giving tasks that are too difficult, unclear instructions, or no assistance when students fail. *Sometimes, when teachers try to teach students skills for coping with a problem the teacher is perceived as at least partly responsible for, this may even backfire*, causing students to react with suspicion, cynicism, distancing, and even defiance.

Finally, teachers who do not provide a need-supporting learning process and context do not create opportunities that encourage students to practice the skills they have learnt and experience their benefits. As a result, children may find the skill they have learnt not useful and may be inclined to stop using and practicing it. For example, children who have learned skills enabling them to deal with frustration and persist in educational tasks, may not apply and develop these skills if teachers give them tasks that are too difficult, do not give children feedback following their efforts and success, or respond to children success by presenting much more demanding standards and tasks.

Interestingly, the distinction between the teaching of SE skills as part of an explicit curriculum and teachers' need-supporting practices has much in common with the *distinction between the "hidden" and "manifest" curriculums* (Bloom, 1972; but see also Assor & Gordon, 1987). The hidden curriculum refers to the type of lessons students learn from teachers' repeated behaviors and school routines that express basic values, norms, and beliefs. The manifest curriculum refers to the contents that are taught and explained explicitly in the classroom. In a way, teachers' need-supporting (or frustrating) practices seem to constitute *the hidden curriculum* of the class, which as noted by Bloom (1972) is much more powerful than the manifest curriculum of socio-emotional skills taught in many SEL classes.

Effective Ways of Combining Need-Support with SE Skills Teaching

Based on the conception and model presented above, we recommend that *priority* should be given to training and guiding teachers in learning and implementing need-supporting practices and structures, *without burdening them with systematic direct skills teaching according to a pre-determined plan*. However, when teachers already master the intricacies and challenges of effective basic need-support, it appears possible and even desirable to integrate the teaching of specific skills as part of the teacher's effort to support students' needs and promote the internalization of pro-social values. When such integration is carried out, it is important that the skills taught will be chosen in a way that complements the teacher's effort to create a need-supportive learning process and social environment, and in accordance with the concerns and challenges that emerge from conversations with the students. This approach is very different from the teaching of skills according to a rigid curriculum, in which the skills are taught according to a pre-determined plan, irrespective of the issues students and teachers are concerned with.

Therefore, it is recommended to assess at the beginning of the school year which aspects of students' and classroom functioning are bothering the students and the teachers, and they would like to improve. Then, to hold an evolving educational process focused on the strengthening student need satisfaction experiences and the perceptions, motivations, and values related to these needs. Let us consider, as an example, a class in which many students see themselves as marginalized or rejected and experience fear of exclusion. In addition, many join actions of exclusion out of fear of being excluded themselves (see Faris, 2012). In response, the teacher can begin a process that includes (a) discussions that raise awareness to the issue, (b) study methods and group work that reduce rejection, allow students to get to know each other, express their strengths, and promote friendships (e.g., Johnson & Johnson, 1999), and (c) reducing teaching methods that create social comparison and competition for status (Maehr & Midgley, 1996).

To strengthen the effectiveness of these educational practices and structures, teachers can add teaching and practice of listening skills and conflict resolution skills, which contribute to effective group work, and strengthen empathy. This example clarifies that effective combination of need-support practices with skills teaching is much more likely to occur when teachers are not obliged to teach skills according to a pre-determined order and have *the freedom to choose the skills they view as relevant to their student present concerns* and the educational process teachers try to promote.

Importantly, in the last decades, major leaders of the SEL community have underscored the importance of combining need-support with skills teaching (Jennings & Greenberg, 2009; Elias et al., 1997; Darling-Hammond & Cook-Harvey, 2018; Jones & Bouffard, 2012; Cohen, 2006; Osher et al., 2020), especially in regard to teacher support for students needs for relatedness, belongingness, and safety. A number of well-known, highly appreciated programs actually include such a need-support component in their teacher training and support (e.g., the caring community program [Battistich et al., 1997]; the 4Rs program [Brown et al., 2010]; the Ruler program [Bracket et al., 2012; Nathanson et al., 2016]; and the responsive classroom program [Rimm-Kaufman et al., 2014]).

From an SDT perspective, the growing emphasis on combining direct skills teaching with need-supports from teachers represents a necessary and valuable move forward. However, when considering approaches and programs endorsing a combination of direct skills teaching with direct teaching of need-support practices, it is important to be aware that *the integration suggested by most SEL scholars and programs differs from the integration endorsed by SDT*. According to SDT and our SEL model, need-supporting practices and structures are the **foundation** of the SEL process, and skills teaching is likely to constitute a valuable addition only when sound need-support already exists. In contrast, most of the SEL writers and programs endorsing a combination of need-supporting practices and context with direct skills' teaching view these two components as additive features of SEL programs. Accordingly, *most of these writers do not delineate a clear interactive model in which skills teaching becomes clearly effective only when students' needs are being supported*. Furthermore, in contrast to our approach and model, these writers do not view need-support as a more important aspect of SEL programs than direct teaching of skills.

Given the difference between SDT and more traditional SEL programs with regard to integration of skills teaching with need-supports, it is important that educational leaders and teachers carefully examine the nature of programs endorsing need-support and skill teaching integration. Thus, a program that ostensibly includes both components may nevertheless allocate most of its resources to the training and guiding of teachers in the teaching of SE skills according to a pre-determined rigid curriculum. In this case, educators believing in the primary importance of need-support should look for another program, one focusing primarily on need-support, allowing flexible addition of skills teaching only when this helps to further support students' needs.

Our view that SEL programs focusing only on direct teaching of SE skills may appear questionable, given that there are several meta-analyses claiming to show that SEL programs are effective. In the next part, we will show that, although these

analyses are rightfully cited as evidence (Corcoran et al., 2018; Durlak et al., 2011; Korpershoek et al., 2016; Sklad et al., 2012; Taylor et al., 2017) for the effectiveness of SEL programs, *they do not show that SEL programs focusing **only** on skills teaching produce sizable benefits.*

There is no Conclusive Evidence that SEL Programs Focusing Only on Skills Teaching Produce Sizable Benefits for Students

Meta-analyses of SEL interventions (e.g., Corcoran et al., 2018; Durlak et al., 2011; Korpershoek et al., 2016; Sklad et al., 2012; Taylor et al., 2017) do not provide conclusive evidence that SEL programs focusing only on skills teaching produce sizable benefits. This is because the effects documented may be ascribed to components of the programs supporting students' basic needs without direct teaching of SE skills. Thus, as will be shown below, many of these programs include school changes, and teacher guidance aimed at creating teacher–student relationship, classroom climate, and a learning process that supports students' needs for caring and relatedness, competence, and at times also for participation and autonomy (see for example, Grant et al., 2017).

Unfortunately, none of the meta-analyses controlled for the extent to which the effects of the program can be ascribed to the effects of the school change and teacher guidance components supporting students' needs without teaching SE skills. As a result, we have a classic case of confounding, in which the positive effects of SEL programs may be ascribed mostly to need-supporting components that do not involve direct teaching of SE skills. This is a very serious problem because there are fairly rigorous studies showing that the component of many SEL programs focusing on teacher guidance in creating need-supporting teacher–student relationship, classroom context, and learning process (without skills teaching) has clear positive effects (e.g., Aelterman et al., 2014; Akioka & Gilmore, 2013; Assor et al., 2018; Cheon et al., 2012, 2015, 2019, 2020; Flunger et al., 2019; Gustavsson et al., 2016; Guay et al., 2016; Hamre & Pianta, 2001; Kaplan & Assor, 2012; Pianta et al., 2012; Reeve & Cheon, 2014; Reeve et al., 2019, 2022; Su & Reeve, 2011; Tessier et al., 2010; Turner & Meyer, 2000). Given this well-documented effect, it is important to examine whether direct teaching of SE skills produces positive outcomes beyond the well-known effects of teacher guidance and school changes which support students' needs.

This confound does not completely invalidate the conclusions of the analyses, but it does require serious modification and moderation of this conclusion. Thus, until this confound is disentangled, we may only say that the research suggests that SEL programs (meeting accepted implementation guidelines and criteria) are likely to have positive effects if they have two components of skills teaching and direct need-support. Yet, presently, we do not know which of the components of these programs is mostly responsible for their positive effects.

To further support our claim that *the positive effects of major SEL programs might be ascribed at least partly to teacher guidance in need-supporting practices*, we will now show that these programs indeed have an important need-supporting component that does not involve direct teaching of SE skills by main teachers as part of a pre-determined curriculum. The programs selected for this part are included in the major meta-analyses, and most of them are often cited as exemplary programs in Oberle and Schonert-Reichl (2017) well-known chapter on SEL.

Caring School Community (CSC) Program

The Caring School Community (CSC) program was developed by researchers at the Center for the Collaborative Classroom, formerly called the Developmental Studies Center (Battistich et al., 1997, 2004). This is the second program which Oberle and Schonert-Reichel (2017) present as an example of a high-quality effective SEL program that is also recommended by CASEL. The program obviously has a very strong and explicit emphasis on improving the school and classroom need-supporting context, far beyond the teaching of SE skills (in fact it focuses only on some social skills).

Responsive Classroom Program

The need-supporting nature of the responsive classroom (RC) program is reflected in its strong emphasis on ongoing guidance of teachers in practices supporting caring and relatedness in the classroom, choice, and basing learning on students' interests and goals (Rimm-Kaufman et al., 2014). Furthermore, Kaufman et al. (2014) note that: "the RC approach differs from prevalent approaches to SEL. For example, the RC approach emphasizes how to teach rather than what to teach. Instead of establishing a set curriculum for teaching SEL skills... the RC approach embeds modeling of prosocial behavior, collaboration, and SEL into instructional practices. RC practices are designed to align with existing curricula in the school rather than introducing content with an SEL focus" (p. 571).

4Rs (Reading, Writing, Respect, and Resolution) Program

The 4Rs program which Oberle and Schonert-Reichel (2017) present as an example of a high-quality effective SEL program is also recommended by CASEL (e.g., Brown et al., 2010). This highly regarded program clearly emphasizes the creation of a secure, supportive, pro-social school, classroom, and teaching environment as

a foundational and ongoing process that supports and enables effective teaching of SE skills.

PATHS (Promoting Alternative Thinking Strategies) Program

Greenberg and his colleagues emphasize the importance of supportive teacher–student relationships and effective classroom management as critical determinants that should accompany SE skills teaching in an attempt to enhance students’ development (e.g., Jennings & Greenberg, 2009). PATHS interventions often include components involving the creation of supportive and caring teacher–student relationships, rule-setting, and at times also effective teaching. For example, the PATHS intervention described in Domitrovich et al. (2007) notes that one of the key components of the intervention was processes aimed at creating “a positive classroom atmosphere that supports social-emotional learning”.

The first study assessing the effects of PATHS not involving the Greenberg group was done by Hamre et al. (2012). The study showed positive effects of PATHS on teacher rated students’ social competence. Importantly, in this study the teaching of the PATHS curriculum was accompanied by teacher training using My Teaching Partner program (MTP). MTP involves training in three teaching components assessed by the Classroom Assessment Scoring System (CLASS; Pianta et al., 2008). The CLASS assesses three domains of effective teacher–child interactions: Emotional Support, Classroom Organization, and Instructional Support. Although the study showed positive results, we do not know if *the effects of PATHS teaching would have occurred if it was not accompanied by teacher training in effective relational and teaching practices*.

More generally, most of the positive PATH findings were obtained in studies with children with special needs and with pre-elementary school children. It is possible that in such contexts, where teachers usually pay considerable attention to children emotional needs and the emotional climate is more supportive, PATHS and perhaps other SEL programs may have positive effects even without being accompanied by a process aimed to improve the teachers’ need-supportive practices. This, however, is less likely to be the case in schools and classes that are not part of the special education system or focus on older children and adolescents (see the effects of age also in Taylor et al (2017) meta-analysis).

Raising Healthy Children Program

This Raising Healthy Children (RHC; Catalano et al., 2003) program was included in Sklad et al (2012) positive review of SEL programs results. The RHC intervention is a comprehensive, multifaceted longitudinal school-based prevention program. The intervention included a series of workshops for teachers aimed at improving

classroom social, motivational, and learning environment. Specifically, workshop topics included, in addition to the promotion of classic SE skills involving interpersonal and problem-solving skills, also proactive classroom management, cooperative learning methods, strategies to enhance student motivation, student involvement and participation, and reading strategies.

The RULER (Recognizing, Understanding, Labeling, Expressing, and Regulating) Program

The RULER program (2018; Nathanson et al., 2016; Bracket et al., 2012) was also given as an example of a high-quality SEL program in the Oberle and Schonert-Reichel chapter. The program has a fundamental component including a charter document and rather systematic and thorough process promoting a positive emotional school and class climate, involving norms and rules for appropriate and constructive behavior at school, minimizing conflicts, and promoting students and teachers' well-being and sense of competence. This is done via a participatory process involving teachers and students, which clearly supports teachers and students' sense of autonomy. The research on RULER shows very positive results (e.g., Nathanson et al., 2016). Yet, also in this case, it is difficult to know how much of the effects would have occurred if the program did not have a strong school and class climate component.

The Resolving Conflict Creatively Program

The Resolving Conflict Creatively Program (RCCP) was examined by Aber, Jones, and Brown (often considered among the early leaders of the SEL movement). Research on the RCCP program demonstrates the important role of the classroom context in the success of SEL-type interventions. A study conducted by Aber et al. (1998) showed that *the effect of the intervention on students' aggressive tendencies was restricted to classrooms where the norm is that the use of aggression is "really wrong"*. In other words, classroom context had a clear moderating role on the effects of the SEL program. Aber and his colleagues also state that children's classrooms constitute a proximal context of great potential importance both to the ontogeny of aggression and conduct disorder, as well as to the success of a classroom-based preventive intervention.

This section showed that current meta-analyses do not provide evidence for sizable effects of programs including only SE skills teaching. This suggests that presently *there are no good reasons to adopt SEL programs focusing mainly on the teaching of SE skills as part of a pre-planned structured curriculum*. However, in the next

section we describe additional reasons to avoid investing considerable resources in such programs.

Negative Consequences of SEL Programs Focusing Primarily on Teaching Skills via a Structured Curriculum

SEL programs focusing mainly on the teaching of SE skills via a structured curriculum (with little or no guidance in need-support) may have three negative consequences. The first and perhaps most important and immediate negative consequence of such programs is that *they foster a rather limited, perhaps even problematic, educational thinking, approach, and role definition* in teachers participating in these “skills-only” SEL programs. Specifically, SEL programs emphasizing skills as the primary source of human growth and optimal functioning are likely to have a negative effect on two aspects of teachers’ thinking and approach. The first problem is that such programs convey (implicitly or explicitly) a message that the major driver of ***student’s growth, coping, well-being, and optimal functioning are skills taught to them by teachers*** (and other important socializing agents). Therefore, if teachers want to promote their students’ socioemotional growth (SEG) and optimal functioning, they should mainly focus on the teaching of SE skills. Accordingly, they should ***define their role in students’ socioemotional development and education, as cultivators of SE skills***. As noted earlier, we view such “skill-first” educational approach and teacher role definition, as misleading and as hindering teachers’ capacity to have a deep salutary effect on their students’ socioemotional development, and on high-quality learning.

This undesirable development in teachers’ thinking and role definition may occur because the view of skills as the major resource of optimal growth causes teachers to miss or underestimate the crucial role of cumulative basic needs satisfaction experiences as the most critical driver of student’s growth and optimal functioning. Accordingly, the “skills first” approach is also likely to cause teachers to invest insufficient effort in attempts to support student’s needs, a demanding task also when teachers understand the critical importance of such support. Finally, the “skills first” approach is also likely to cause teachers to underestimate the importance of defining their role in students’ socioemotional development and education as *key facilitators of need satisfaction in students*.

Another serious problem emanating from using the term “skill”, or the related term “competency”, to describe the main focus of many SEL programs is that many such programs and major SEL writings *erroneously and misleadingly include under these terms highly desirable attributes, which are not skills or competencies and cannot be fostered in the ways skills are cultivated*. For example, values, aspirations, motivations, positive perceptions and assumptions about self, others or the world, and even identity. This inaccurate and often erroneous use of the terms skills and competencies is likely to blur and confuse teachers’ thinking on the nature of the

student attributes they want to cultivate. More important, treating desirable attributes and virtues which are not skills as skills may cause teachers to choose educational means that are not appropriate for the cultivation of these desirable attributes and *neglect the more essential and critical means for cultivating these highly desirable attributes*.

To illustrate our claim, let us consider two well-known SEL typologies of “skills” or “competencies”. The description appearing in the 2020 SEL framework of CASEL (2020)—the most important consortium of SEL programs and scholars—describes the following students’ attributes as competencies: experiencing self-efficacy, developing interests and a sense of purpose, demonstrating honesty and integrity, showing the courage to take initiative, demonstrating personal and collective agency, exhibiting self-motivation, the capacity to feel compassion for others, showing concern for the feelings of others, understanding and expressing gratitude, the ability to make caring and constructive choices, and demonstrating curiosity and open-mindedness. Similarly, Jones (2019) includes among the “non-cognitive” skills she lists, values, as well as what she describes as identity or self-image attributes (e.g., purpose, self-esteem).

The major problem with using terms such as skills or competencies to describe the attributes listed above is that they may cause teachers to assume that these are attributes, such as values, goals and purpose, can be taught like real skills, *by direct instruction and then practice*. Considerable research suggests that values are not skills. They are principles and goals with which people identify deeply. Educators can facilitate the formation of values, as well as goals, interests, purpose, and autonomous motivations by *demonstrating the inherent value* of these action-guiding inner schemas (e.g., Assor, 2011, 2018; Assor et al., 2023; Yu et al., 2023). Furthermore, educators can create opportunities that allow students to explore and form moral principles, goals, purpose, commitments, interests, and an identity that feel authentic, relevant, and satisfying (Assor, 2018a, 2018b; Damon, 2008; Kohlberg, 2013; Marcia et al., 1993). As for perceptions of oneself as efficacious and worthy, these also are not things you can teach one about oneself. A reliable sense of self-esteem and efficacy is primarily based on experiences of mastery and positive feedback in coping with various challenges (Bandura, 2008). In a similar way, compassion and concern for others is not something you can directly teach children as a skill. Rather, these dispositions, to a large extent, emerge in contexts where other people treat the child in a caring and respectful way and demonstrate this desirable behavior in their own behavior (Noddings, 2010; Thompson et al., 2019).

By causing teachers to view attributes such as values, compassion for others, purpose, or sense of self-efficacy as skills that can be taught, there is a real risk that teachers will treat these attributes as qualities that can be taught and trained directly, rather than fostered via need-satisfying experiences that motivate students to adopt them. As a result, teachers may neglect important educational practices that are the real facilitators of these desirable attributes. For example, rather than demonstrate values in their behavior, create a caring context that encourages compassion for others, or generate mastery opportunities enabling students to experience self-efficacy, teachers will conduct lessons in which they will teach their students

valued ways of acting or of positively evaluating themselves. When such teachings are not supported and echoed by accumulating, action-based, emotional experiences confirming their personal validity and relevance, there is little chance that children will internalize these teachings in a deep and meaningful way.

A second potential harm of SEL programs focusing mainly on skills teaching is that they may contribute to *the missing of a significant opportunity for the current interest in SEL to act as a catalyst for a significant educational change*. Thus, instead of making significant changes in the ways teachers respond to students needs by changing their ways of relating and working with students and by re-constructing classrooms as caring learning communities, skills teaching may provide a relatively easy escape route and apparent solution, through the adding of yet another type of lesson to a pre-determined curriculum. In this way, structured SE skills programs may help schools and education administrators ignore the much-needed change in teachers' and schools' practices, learning, and social contexts and culture. Put differently, they may help maintain teachers' focus on learning materials rather than on their own behaviors as teachers and educators *they may help maintain teachers' focus on learning materials rather than on their own behaviors as teachers and educators*.

A third potential harm, that is actually a product of the first two potential dangers, is that educational policymakers and administrators controlling significant amounts of money and other resources will invest most of these resources in programs focusing almost exclusively on the development of structured curriculums of skills teaching, rather than in programs and efforts focusing first and foremost on changing the ways teachers and schools relate to students directly and the context, learning process, and culture they create. To the extent that resources will indeed be invested mostly in curriculums of skills teaching, this may further augment the unfortunate missing of a precious opportunity to use the concern underlying the focus on SEL to act as a catalyst for a significant educational change.

From Socioemotional Learning (SEL) to Socioemotional Growth (SEG)

The conception of SEL as involving the development of inner growth resources that are not only (or not even mainly) skills suggests that the terms SEL and socioemotional teaching should be substituted by terms that better capture our wider conception of socioemotional growth (SEG).

For most people, the notion "learning" refers primarily to a process in which certain knowledge and specific skills are learnt via direct teaching, followed by practice and feedback on learners' performance. As many of the attributes now included under the term SEL are not cultivated by direct systematic instruction and practice, but by other, very different growth-supporting processes (e.g., provision of need-supporting experiences promoting positive self- and other views, or finding the intrinsic satisfaction inherent in the pursuit of certain goals and actions),

it appears reasonable to replace the terms SEL and SE teaching, with the terms socioemotional growth (SEG) and socioemotional support (SES), because the latter terms reflect much more accurately the different types of inner resources involved in socioemotional growth and the wide range of processes nurturing such growth.

Hopefully, the terms socioemotional growth (SEG) and support (SES) will enhance a need oriented thinking and approach, which in turn, will foster a change in teachers' role definition: from a teacher of SE skills to a *facilitator of SEG through a variety of experiences and practices centering, first and foremost, on the support of students' basic needs and the kindling of students' intrinsic motivation.*

Summary

In conclusion, the conception and model presented in this chapter emphasize that social-emotional learning (SEL), or more accurately socioemotional growth (SEG), includes much more than the acquisition of skills. According to our conception, the most important component of social-emotional learning is the development of growth resources consisting of *accumulating experiences of basic need satisfaction*, which in turn promote positive perceptions of self and others, autonomous motivation for learning and other constructive engagements, as well as deep and volitional internalization of pro-social values. Thus, when significant social-emotional learning and growth occur, children learn that they are worthy of love and appreciation; that they can face difficult challenges; that there are people in the world they can trust; that it is desirable and satisfying to be considerate toward others; that there are things that really interest them; and that they have values and goals they identify with and therefore form the basis for an authentic sense of inner compass and meaning. *Skills can help reinforce the formation of these experiences, perceptions, and values, but are still only a secondary resource.*

Finally, our SDT view and most SEL leaders nowadays explicitly include in the domain of SEL attributes that are not skills and are best cultivated by growth-supporting practices that do *not* involve direct teaching and practice. Therefore, we suggest that it is time to substitute the term SEL, which for most people, primarily, implies direct teaching and practice of skills, with more accurate and less misleading terms. Instead of SEL, we suggest the term socio-emotional growth (SEG), and instead of socioemotional teaching–socioemotional support (SES). Importantly, socioemotional support consists, first and foremost, of educational practices supporting students' needs. For example, providing need-supporting experiences that enable students to build positive self- and other perceptions or discover the intrinsic satisfactions inherent in various valued actions such as learning or helping others.

References

- Aber, J. L., Jones, S. M., Brown, J. L., Chaudry, N., & Samples, F. (1998). Resolving conflict creatively: Evaluating the developmental effects of a school-based violence prevention program in neighborhood and classroom context. *Development and Psychopathology, 10*(2), 187–213.
- Aelterman, N., Vansteenkiste, M., Van den Berghe, L., De Meyer, J., & Haerens, L. (2014). Fostering a need-supportive teaching style: Intervention effects on physical education teachers' beliefs and teaching behaviors. *Journal of Sport and Exercise Psychology, 36*(6), 595–609.
- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. N. (2015). *Patterns of attachment: A psychological study of the strange situation*. Psychology press.
- Akioka, E., & Gilmore, L. (2013). An intervention to improve motivation for homework. *Australian Journal of Guidance and Counselling, 23*(1), 34–48.
- Assor, A. (2011). Autonomous moral motivation: Consequences, socializing antecedents and the unique role of integrated moral principles. In M. Mikulincer, & P. R. Shaver (Eds.), *The social psychology of morality: Exploring the causes of good and evil*. American Psychological Association.
- Assor, A. (2012). Allowing choice and nurturing an inner compass: Educational practices supporting students' need for autonomy. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *The handbook of research on student engagement*. Springer Science.
- Assor, A. (2015). An instruction sequence promoting autonomous motivation for coping with challenging learning tasks. In J. Wang, L. W. Chia, & R. Ryan (Eds.), *Building autonomous learners: Research and practical perspectives using self-determination theory*. Springer.
- Assor, A. (2018). Parental conditional regard. In M. H. Bornstein (Ed.), *The sage encyclopedia of lifespan human development*. Sage publications.
- Assor, A., Benita, M., Yitshaki, N., Geifman, Y., & Maree, W. (2020b). Sense of authentic inner compass as a moral resource across cultures: possible implications for resisting negative peer-pressure and for parenting. *Journal of Moral Education, 1*–19.
- Assor, A., Cohen, R., Ezra, O., & Yu, S. (2021b). Feeling free and having an authentic inner compass as important aspects of the need for autonomy in emerging adults' interactions with their mothers. *Frontiers in Psychology, 12*, 1792.
- Assor, A., Benita, M., Shi, Y., Goren, R., Yitshaki, N., & Wang, Q. (2021a). The authentic inner compass as a well-being resource: Predictive effects on vitality, and relations with self-esteem, depression, and behavioral self-realization. *Journal of Happiness Studies, 1*–21.
- Assor, A., Benita, M., & Geifman, Y. (2023). The authentic inner compass as an important motivational experience and structure: Antecedents and benefits. In *The Oxford handbook of self-determination theory* (pp. 362–386). New York: Oxford University Press.
- Assor, A. (2018a). The striving to develop an authentic inner-compass as a key component of adolescents' need for autonomy: Parental antecedents and effects on identity, well-being, and resilience. In B. Soenens, M. Vansteenkiste, & S. Van Petegem (Eds.), *Autonomy in adolescent development: Towards conceptual clarity* (pp. 119–145). Psychology Press.
- Assor, A., Buhnick-Atzil, O., Rabinovitz-Magen, L., Auerbach, J., Kanat-Maymon, Y., Smiley, P., & Moed, A. (2020c). Maternal prenatal conditional regard orientation and postnatal controlling behavior as predictors of preschoolers' helpless coping with failure: A prospective study. *European Journal of Developmental Psychology, 17*(6), 828–854.
- Assor, A., Feinberg, O., Kanat-Maymon, Y., & Kaplan, H. (2018). Reducing violence in non-controlling ways: A change program based on self-determination theory. *Journal of Experimental Education, 86*(2), 195–213.
- Assor, A., & Gordon, D. (1987). The implicit learning theory of hidden curriculum research. *Journal of Curriculum Studies, 19*, 329–339.
- Assor, A., & Kaplan, H. (2001). Mapping the domain of autonomy support: Five important ways to enhance or undermine students' experience of autonomy in learning. In A. Eklides, R. Sorrentino, & J. Kuhl (Eds.), *Trends and prospects in motivation research* (pp. 99–118). Kluwer.

- Assor, A., Roth, G., & Deci, E. L. (2004). The emotional costs of parents' conditional regard: A Self-Determination Theory analysis. *Journal of personality*, 72(1), 47–88.
- Assor, A., Kaplan, H., Kanat-Maymon, Y., & Roth, G. (2005). Directly controlling teacher behaviors as predictors of poor motivation and engagement in girls and boys: The role of anger and anxiety. *Learning and instruction*, 15(5), 397–413.
- Assor, A., Kaplan, H., & Roth, G. (2002). Choice is good but relevance is excellent: Autonomy affecting teacher behaviors that predict students' engagement in learning. *British Journal of Educational Psychology*, 72, 261–278.
- Assor, A., Soenens, B., Yitshaki, N., Ezra, O., Geifman, Y., & Olshtein, G. (2020a). Towards a wider conception of autonomy support in adolescence: The contribution of reflective inner-compass facilitation to the formation of an authentic inner compass and well-being. *Motivation and Emotion*, 44(2), 159–174.
- Assor, A. & Yitshaki, N. (2020). A motivational approach to SEL -Appendix listing need-supporting teacher practices. Ben Gurion University, Israel. (Hebrew).
- Baker, J. A., Dilly, L. J., Aupperlee, J. L., & Patil, S. A. (2003). The developmental context of school satisfaction: Schools as psychologically healthy environments. *School Psychology Quarterly*, 18(2), 206–221.
- Bandura, A. (2008). An agentic perspective on positive psychology. In S. J. Lopez (Ed.), *Praeger perspectives. In Positive psychology: Exploring the best in people* (Vol. 1., pp. 167–196). Praeger Publishers/Greenwood Publishing Group.
- Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (Vol. 4, pp. 71–81). Academic Press.
- Battistich, V., Solomon, D., Watson, M., & Schaps, E. (1997). Caring school communities. *Educational Psychologist*, 32(3), 137–151.
- Battistich, V., Schaps, E., & Wilson, N. (2004). Effects of an elementary school intervention on students' "connectedness" to school and social adjustment during middle school. *Journal of Primary Prevention*, 24(3), 243–262.
- Battistich, V., Solomon, D., Kim, D. I., Watson, M., & Schaps, E. (1995). Schools as communities, poverty levels of student populations, and students' attitudes, motives, and performance: A multilevel analysis. *American Educational Research Journal*, 32(3), 627–658.
- Baumeister, R. F. (1991). *Meanings of life*. Guilford press.
- Baumeister, R. F. (2012). Need-to-belong theory. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (Vol. 2, pp. 121–140). Sage Publications Ltd.
- Bernier, A., Carlson, S. M., & Whipple, N. (2010). From external regulation to self-regulation: Early parenting precursors of young children's executive functioning. *Child Development*, 81(1), 326–339.
- Bindman, S. W., Pomerantz, E. M., & Roisman, G. I. (2015). Do children's executive functions account for associations between early autonomy-supportive parenting and achievement through high school?. *Journal of Educational Psychology*, 107(3), 756–770.
- Bloom, B. S. (1972). Innocence in education. *The School Review*, 80(3), 333–352.
- Bowlby, J. (1969). Attachment and loss, Vol. I: Attachment. Basic Books.
- Brackett, M. A., Bailey, C. S., Hoffmann, J. D., & Simmons, D. N. (2019). RULER: A theory-driven, systemic approach to social, emotional, and academic learning. *Educational Psychologist*, 54(3), 144–161.
- Brackett, M. A., Rivers, S. E., Reyes, M. R., & Salovey, P. (2012). Enhancing academic performance and social and emotional competence with the RULER feeling words curriculum. *Learning and Individual Differences*, 22(2), 218–224.
- Brown, J. L., Jones, S. M., LaRusso, M. D., & Aber, J. L. (2010). Improving classroom quality: Teacher influences and experimental impacts of the 4rs program. *Journal of Educational Psychology*, 102(1), 153.

- Bundick, M. J., & Tirri, K. (2014). Student perceptions of teacher support and competencies for fostering youth purpose and positive youth development: Perspectives from two countries. *Applied Developmental Science, 18*(3), 148–162.
- CACEL. (2020). CASEL'S SEL framework: What are the core competence areas and where are they promoted? <https://casel.org/casel-sel-framework-11-2020/?download=true>
- Catalano, R. F., Mazza, J. J., Harachi, T. W., Abbott, R. D., Haggerty, K. P., & Fleming, C. B. (2003). Raising healthy children through enhancing social development in elementary school: Results after 1.5 years. *Journal of School Psychology, 41*(2), 143–164.
- Cefai, C., Bartolo, P. A., Cavioni, V., & Downes, P. (2018). *Strengthening social and emotional education as a core curricular area across the EU: A review of the international evidence.*
- De Charms, R. (2013). *Personal causation: The internal affective determinants of behavior.* Routledge.
- Cheon, S. H., Reeve, J., & Vansteenkiste, M. (2020). When teachers learn how to provide classroom structure in an autonomy-supportive way: Benefits to teachers and their students. *Teaching and Teacher Education, 90*, 103004.
- Cohen, J. (2006). Social, emotional, ethical, and academic education: Creating a climate for learning, participation in democracy, and well-being. *Harvard Educational Review, 76*(2), 201–237.
- Cheon, S. H., & Reeve, J. (2015). A classroom-based intervention to help teachers decrease students' amotivation. *Contemporary Educational Psychology, 40*, 99–111.
- Cheon, S. H., Reeve, J., Lee, Y., Ntoumanis, N., Gillet, N., Kim, B. R., & Song, Y. G. (2019). Expanding autonomy psychological need states from two (satisfaction, frustration) to three (dissatisfaction): A classroom-based intervention study. *Journal of Educational Psychology, 111*(4), 685.
- Cheon, S. H., Reeve, J., & Moon, I. S. (2012). Experimentally based, longitudinally designed, teacher-focused intervention to help physical education teachers be more autonomy supportive toward their students. *Journal of Sport and Exercise Psychology, 34*(3), 365–396.
- Cheon, S. H., Reeve, J., & Ntoumanis, N. (2018). A needs-supportive intervention to help PE teachers enhance students' prosocial behavior and diminish antisocial behavior. *Psychology of Sport and Exercise, 35*, 74–88.
- Corcoran, R. P., Cheung, A. C., Kim, E., & Xie, C. (2018). Effective universal school-based social and emotional learning programs for improving academic achievement: A systematic review and meta-analysis of 50 years of research. *Educational Research Review, 25*, 56–72.
- Damon, W. (2008). *The path to purpose: Helping our children find their calling in life.* Simon and Schuster.
- Darling-Hammond, L., & Cook-Harvey, C. M. (2018). Educating the whole child: Improving school climate to support student success. *Learning Policy Institute.*
- Domitrovich, C. E., Cortes, R. C., & Greenberg, M. T. (2007). Improving young children's social and emotional competence: A randomized trial of the preschool "PATHS" curriculum. *The Journal of Primary Prevention, 28*, 67–91.
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82*(1), 405–432.
- Dweck, C. S. (2013). *Self-theories: Their role in motivation, personality, and development.* Psychology Press.
- Eccles, J. S., & Roeser, R. W. (2009). Schools, academic motivation, and stage-environment fit. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology: Individual bases of adolescent development* (Vol. 1, 3rd ed., pp. 404–434). John Wiley & Sons Inc.
- Elias, M. J., Zins, J. E., Weissberg, R. P., Frey, K. S., Greenberg, M. T., Haynes, N. M., et al. (1997). *Promoting social and emotional learning: Guidelines for educators.* Association for Supervision and Curriculum Development.
- Elliot, A. J., McGregor, H. A., & Thrash, T. M. (2002). The need for competence. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 361–387). University of Rochester Press.

- Erikson, E. (1968). *Identity youth and crisis*. Norton.
- Faris, R. (2012). Aggression, exclusivity, and status attainment in interpersonal networks. *Social Forces*, 90(4), 1207–1235.
- Flunger, B., Mayer, A., & Umbach, N. (2019). Beneficial for some or for everyone? Exploring the effects of an autonomy-supportive intervention in the real-life classroom. *Journal of Educational Psychology*, 111(2), 210–234.
- Frankl, V. E. (1959). *Man's search for meaning*. Beacon Press.
- Freiberg, H. J., Huzinec, C. A., & Templeton, S. M. (2009). Classroom management—A pathway to student achievement: A study of fourteen inner-city elementary schools. *The Elementary School Journal*, 110(1), 63–80.
- Grant, S., Hamilton, L. S., Wrabel, S. L., Gomez, C. J., Whitaker, A., Leschitz, J. T., & Ramos, A., et al. (2017). *Social and emotional learning interventions under the every student succeeds act: Evidence review. Research Report. RR-2133-WF*. RAND Corporation.
- Guay, F., Valois, P., Falardeau, É., & Lessard, V. (2016). Examining the effects of a professional development program on teachers' pedagogical practices and students' motivational resources and achievement in written French. *Learning and Individual Differences*, 45, 291–298.
- Gustavsson, P., Jirwe, M., Aurell, J., Miller, E., & Rudman, A. (2016). Autonomy-supportive interventions in schools: A review. *Stockholm: Karolinska Institutet*.
- Hamre, B. K., & Pianta, R. C. (2001). Early teacher–child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development*, 72(2), 625–638.
- Hamre, B. K., Pianta, R. C., Mashburn, A. J., & Downer, J. T. (2012). Promoting young children's social competence through the preschool PATHS curriculum and MyTeachingPartner professional resources. *Early Education and Development*, 23(6), 809–832.
- Jang, H., Kim, E. J., & Reeve, J. (2012). Longitudinal test of self-determination theory's motivation mediation model in a naturally occurring classroom context. *Journal of Educational Psychology*, 104(4), 1175–1188.
- Jennings, P. A., Brown, J. L., Frank, J. L., Doyle, S., Oh, Y., Davis, R., & Greenberg, M. T., et al. (2017). Impacts of the CARE for Teachers program on teachers' social and emotional competence and classroom interactions. *Journal of Educational Psychology*, 109(7), 1010.
- Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research*, 79(1), 491–525.
- Johnson, D. W., & Johnson, R. T. (1999). Making cooperative learning work. *Theory into Practice*, 38(2), 67–73.
- Jones, s. (2019). *A look inside the taxonomy project*. Harvard University. file:///C:/Users/Avi%20Assor/Downloads/JonesGTY_June13_v1.pdf.
- Jones et al. (2021). Navigating SEL from the inside out. The EASEL LAB @ Harvard University.
- Jones, S., & Bouffard, S. M. (2012). Social and emotional learning in schools: From programs to strategies. *Social Policy Report*, 26, 3–22.
- Kanat-Maymon, Y., Assor, A., & Roth, G. (2023). Conditional regard in development and relationships. In R. Ryan (Ed.), *The Oxford handbook of self determination theory* (pp. 548–570). Oxford University Press.
- Kaplan, H., & Assor, A. (2012). Enhancing autonomy-supportive I-Thou dialogue in schools: Conceptualization and socio-emotional effects of an intervention program. *Social Psychology of Education*, 15, 251–269.
- Kohlberg, L. (2013). The just community approach to moral education in theory and practice. In *Moral education* (pp. 27–87). Routledge.
- Korpershoek, H., Harms, T., de Boer, H., van Kuijk, M., & Doolaard, S. (2016). A meta-analysis of the effects of classroom management strategies and classroom management programs on students' academic, behavioral, emotional, and motivational outcomes. *Review of Educational Research*, 86(3), 643–680.

- MacKenzie, M. J., & Baumeister, R. F. (2014). Meaning in life: Nature, needs, and myths. In A. Batthyany & P. Russo-Netzer (Eds.), *Meaning in positive and existential psychology* (pp. 25–37). Springer Science.
- Maehr, M. L., & Midgley, C. (1996). *Transforming school cultures*. Westview Press.
- Marcia, J. E., Waterman, A. S., Matteson, D. R., Archer, S. L., Orlofsky, J. L., & Marcia, J. E. (1993). The status of the statuses: Research review. *Ego identity: A handbook for psychosocial research*, 22–41.
- Martela, F., Ryan, R. M., & Steger, M. F. (2018). Meaningfulness as satisfaction of autonomy, competence, relatedness, and beneficence: Comparing the four satisfactions and positive affect as predictors of meaning in life. *Journal of Happiness Studies*, 19(5), 1261–1282.
- Nathanson, L., Rivers, S. E., Flynn, L. M., & Brackett, M. A. (2016). Creating emotionally intelligent schools with RULER. *Emotion Review*, 8(4), 305–310.
- Noddings, N. (2010). Moral education and caring. *Theory and research in education*, 8(2), 145–151.
- Oberle, E., & Schonert-Reichl, K. A. (2017). Social and emotional learning: Recent research and practical strategies for promoting children's social and emotional competence in schools. In *Handbook of social behavior and skills in children* (pp. 175–197). Springer, Cham.
- Osher, D., Cantor, P., Berg, J., Steyer, L., & Rose, T. (2020). Drivers of human development: How relationships and context shape learning and development. *Applied Developmental Science*, 24(1), 6–36.
- Patall, E. A., Cooper, H., & Wynn, S. R. (2010). The effectiveness and relative importance of choice in the classroom. *Journal of Educational Psychology*, 102(4), 896–915.
- Patall, E. A., Steingut, R. R., Vasquez, A. C., Trimble, S. R., Pitch, K. A., & Freeman, J. L. (2018). Daily autonomy supporting or thwarting and students' motivation, engagement, and disaffection in the high school science classroom. *Journal of Educational Psychology*, 110(2), 268–288. <https://doi.org/10.1037/edu0000214>
- Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008). *Classroom assessment scoring system*. Baltimore: Paul H. Brookes.
- Pianta, R. C., Hamre, B. K., & Allen, J. P. (2012). Teacher-student relationships and engagement: Conceptualizing, measuring, and improving the capacity of classroom interactions. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement*. (pp. 365–386). Springer Science + Business Media.
- Power, F. C., & Higgins-D'Alessandro, A. (2008). The just community approach to moral education and the moral atmosphere of the school. In *Handbook of moral and character education* (pp. 246–263). Routledge.
- Reeve, J., Cheon, S. H., & Jang, H. R. (2019). A teacher-focused intervention to enhance students' classroom engagement. In *Handbook of student engagement interventions* (pp. 87–102). Academic Press.
- Reeve, J., Ryan, R. M., Cheon, S. H., Matos, L., & Kaplan, H. (2022). *Supporting students' motivation: Strategies for success*. Taylor & Francis.
- Reeve, J., & Cheon, S. H. (2014). An intervention-based program of research on teachers' motivating styles. *Advances in Motivation and Achievement*, 18, 293–339.
- Rimm-Kaufman, S. E., Larsen, R. A., Baroody, A. E., Curby, T. W., Ko, M., Thomas, J. B., et al. (2014). Efficacy of the responsive classroom approach: Results from a 3-year, longitudinal randomized controlled trial. *American Educational Research Journal*, 51(3), 567–603.
- Rogers, C. R., & Freiberg, H. J. (1970). *Freedom to learn*. Charles Merrill.
- RULER (2018). *Social emotional learning: RULER*. Yale Center for Emotional Intelligence.
- Russo-Netzer, P., & Shoshani, A. (2020). Authentic inner compass, well-being, and prioritization of positivity and meaning among adolescents. *Personality and Individual Differences*, 167, 110248.
- Ruzek, E. A., Hafen, C. A., Allen, J. P., Gregory, A., Mikami, A. Y., & Pianta, R. C. (2016). How teacher emotional support motivates students: The mediating roles of perceived peer relatedness, autonomy support, and competence. *Learning and Instruction*, 42, 95–103.

- Ryan, A. M., & Patrick, H. (2001). The classroom social environment and changes in adolescents' motivation and engagement during middle school. *American Educational Research Journal*, 38(2), 437–460.
- Ryan, R. M., & Deci, E. L. (2009). Promoting self-determined school engagement: Motivation, learning, and well-being. In K. R. Wenzel & A. Wigfield (Eds.), *Educational psychology handbook series: Handbook of motivation at school* (pp. 171–195). Routledge.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford.
- Schunk, D. H., & Miller, S. D. (2002). Self-efficacy and adolescents' motivation. *Academic Motivation of Adolescents*, 2, 29–52.
- Seligman, M. (2018). PERMA and the building blocks of well-being. *The Journal of Positive Psychology*, 13(4), 333–335.
- Shim, S. S., Cho, Y., & Wang, C. (2013). Classroom goal structures, social achievement goals, and adjustment in middle school. *Learning and Instruction*, 23, 69–77.
- Shulman, L. S., & Wilson, S. M. (2004). The wisdom of practice: Managing complexity in medicine and teaching. In S. M. Wilson (Ed.), *The wisdom of practice: Essays on teaching, learning and learning to teach* (pp. 251–271). Jossey-Bass.
- Sklad, M., Diekstra, R., de Ritter, M., Ben, J., & Gravesteyn, C. (2012). Effectiveness of school-based universal social, emotional, and behavioral programs: Do they enhance students' development in the area of skill, behavior, and adjustment? *Psychology in the Schools*, 49(9), 892–909.
- Soenens, B., Vansteenkiste, M., & Beyers, W. (2019). Parenting adolescents. In *Handbook of parenting: vol. 1: Children and parenting* (Vol. 1, pp. 101–167). Routledge.
- Solomon, D., Watson, M., Battistich, V., Schaps, E., & Delucchi, K. (1996). Creating classrooms that students experience as communities. *American Journal of Community Psychology*, 24(6), 719–748.
- Su, Y. L., & Reeve, J. (2011). A meta-analysis of the effectiveness of intervention programs designed to support autonomy. *Educational Psychology Review*, 23, 159–188.
- Taylor, G., Jungert, T., Mageau, G. A., Schattke, K., Dedic, H., Rosenfield, S., & Koestner, R. (2014). A self-determination theory approach to predicting school achievement over time: The unique role of intrinsic motivation. *Contemporary Educational Psychology*, 39(4), 342–358.
- Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting positive youth development through school-based social and emotional learning interventions: A meta-analysis of follow-up effects. *Child Development*, 88(4), 1156–1171.
- Tessier, D., Sarrazin, P., & Ntoumanis, N. (2010). The effect of an intervention to improve newly qualified teachers' interpersonal style, students motivation and psychological need satisfaction in sport-based physical education. *Contemporary Educational Psychology*, 35(4), 242–253.
- Thompson, R. A., Laible, D., Padilla-Walker, L. M., & Carlo, G. (2019). Early moral development and attachment theory. *The Oxford handbook of parenting and moral development*, 21–39.
- Tian, L., Chen, H., & Huebner, E. S. (2014). The longitudinal relationships between basic psychological needs satisfaction at school and school-related subjective well-being in adolescents. *Social Indicators Research*, 119(1), 353–372.
- Turner, J. C., & Meyer, D. K. (2000). Studying and understanding the instructional contexts of classrooms: Using our past to forge our future. *Educational psychologist*, 35(2), 69–85.
- Urda, T., & Schoenfelder, E. (2006). Classroom effects on student motivation: Goal structures, social relationships, and competence beliefs. *Journal of School Psychology*, 44(5), 331–349.
- Vansteenkiste, M., & Ryan, R. M. (2013). On psychological growth and vulnerability: Basic psychological need satisfaction and need frustration as a unifying principle. *Journal of Psychotherapy Integration*, 23(3), 263.
- Winnicott, D. W. (1965). *The maturational processes and the facilitating environment: Studies in the theory of emotional development*. International Universities Press.

Zins, J. E., Bloodworth, M. R., Weissberg, R. P., & Walberg, H. J. (2007). The scientific base linking social and emotional learning to school success. *Journal of Educational and Psychological Consultation, 17*(2-3), 191-210.

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Chapter 14

Self-determination and Socioemotional Learning Interventions on Educator's Psychological Health and Well-Being: A Systematic Review



Heon Jin Kang

Abstract There are a growing number of interventions based on socioemotional learning (SEL) which specifically target to promote educators' well-being and psychological health (Crain et al., 2017). The meta-analysis and literature reviews convince its application and outcomes toward positive health outcomes; however, there is still room for improvement to include theory proven psychotherapy for better effectiveness. In an autonomy-supportive therapy grounded in self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2017), therapists facilitate the process of clients organizing and self-regulating their actions without imposing their own agenda or values on them. The aim of this present systematic review is to examine the characteristics and curriculums of SEL and SDT interventions targeted at educators' psychological health and well-being. Nine studies met the inclusion criteria, capturing 6 programs which mainly combined SEL training, mindfulness, and self-compassion practice. The major strength of this review was the integration of the SEL and SDT which offer an overarching construct that provided a viewpoint of an efficient intervention strategy. The major limitation was although the review aimed to identify SDT components, it only found one component, mindfulness, which only relates to autonomy-supportive methods; thus, generalization of integration of SEL and SDT may be limited.

Introduction

Among professions, teaching has been considered one of the most demanding (Lomas et al., 2017). Educators experience the reality of its challenges and are faced with its stress and challenges (Herman et al., 2018; Oberle & Schonert-Reichl, 2016). In a national survey by the Canadian Teachers' Federation (2020), over 65% of respondents indicated that they are increasingly worried about their personal mental health,

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well-being, and ability to cope with heavy workloads. In addition, educators faced high levels of unhappiness and frustration with their work environment and conditions. However, these findings are unsurprising given their poor working environment and conditions. There is a lack of proper policies, support, resources, and funds in place to properly support the emotional and mental health of educators.

One major source of stress for educators has been attributed to negative teacher–student interactions, such as disciplinary problems and disruptive behaviors in the classroom. Despite being a major source of stress, research on the role of positive teacher–student relations and interactions has been scarce, particularly in constructs such as social and emotional competence (SEC; Jennings & Greenberg, 2009). Mutjaba and Reiss (2013) showed that certain teacher–student interactions may result in positive stress, improve well-being, and reduce negative emotions.

Improved SEC has been identified from a meta-analysis on teacher stress as a key factor in the prevention of teacher stress (Oliveira et al., 2021a, 2021b). While dealing with negative student–teacher interactions, teachers undergo emotional labor in managing their negative emotions which may result negatively in emotional burnout and exhaustion (Chang, 2009; Montgomery & Rupp, 2005; Skaalvik & Skaalvik, 2007) and negatively related to job satisfaction (Klassen et al., 2010; Robinson et al., 2019) and mental health (Schonfeld & Bianchi, 2016). Developing a structured training model to improve SEC may result in better well-being and work productivity for educators. Consequently, social and emotional learning (SEL) encompasses encouraging positive classroom and school culture which promotes safe, caring, and encourages participation (Collie, 2017; Humphrey, 2013; Weissberg et al., 2015).

SEL for Educators

SEL involves teaching students' competencies in the social and emotional domains such as relationship and self-management skills (Bridgeland et al., 2013; See Table 14.1). Oliveira et al., (2021a, 2021b) presents that SEL is advanced as a systematic framework to guide and assess student-targeted policies to promote the optimal development and reduce problem behaviors of children and youths and equip them with the tools to head on the challenges of the twenty-first century (Durlak et al., 2015; Tolan et al., 2016). Henceforth, most of the SEL interventions in the education context adopted a student centric approach (Domitrovich et al., 2016; Greenberg & Abenavoli, 2017; Oberle et al., 2016). Initially, a school-based approach was developed, through which teachers were identified as essential partners in SEL programs and assumed to be socially and emotionally competent to spearhead them (Durlak et al., 2015; Jennings & Greenberg, 2009). Consequentially, SEL programs were developed as sub-products of global interventions. These interventions prepared teachers to intervene with their students through teacher training on how to teach SEC to their students and also developed the teacher's own interpersonal SEC to better relate and deal with their students (Greenberg et al., 2003; Osher et al., 2016). It was only recently that interventions targeting educators' own SEC had been developed

Table 14.1 Description of teacher-specific social, emotional, and cognitive skills within each SEC

Domain	Specific skills
Self- and social awareness	To recognize and understand emotions and emotional patterns of their own and of others. To understand/be aware of how their emotional expressions affect their interactions with others. To have a realistic understanding of their abilities and recognize their emotional strengths and weaknesses. To be culturally sensitive and understand different perspectives. To motivate learning in themselves and others, though the promotion and use of emotions. To build strong and supportive relationships through mutual understanding and cooperation. To effectively negotiate solutions to conflict situations
Self- and relationship management	To manage their behavior even when emotionally aroused by challenging situations. To regulate their emotions in healthy ways that facilitate positive classroom outcomes without compromising their health. To effectively set limits firmly, yet respectfully. To be comfortable with a level of ambiguity and uncertainty that comes from letting students figure things out for themselves
Responsible decision-making	To display prosocial values and decide ethically, based on the assessment of factors such as the impact of their decisions on themselves and others. To respect others and take responsibility for their decisions and actions

Retrieved from Jennings and Greenberg (2009), p. 495

(Schonert-Reichl, 2017). The inclusion of teachers in SEL interventions is significant as their SEC plays a crucial role in how they perform in their work, social interactions, and their social and emotional well-being; it is through their SEC that teachers learn to adapt and overcome life challenges through their personal development and positive interpersonal relationships (Durlak et al., 2015; Tolan et al., 2016).

SEL Intervention to Educators' Health and Well-Being

SEC and the ability to manage and regulate emotions in relation to the classroom is key to optimizing teaching effectiveness. Teachers need to regulate their emotional reactivity in response to student disruptions by managing the social and emotional dynamics of the classroom in order to create a warm and caring emotional climate most conducive to learning. Educators function best when negative emotions such as anger and frustration can be minimized while positive emotions such as enthusiasm and interest can be enhanced (Jennings, 2015). Recent SEL interventions specifically developed for educators have drawn attention owing to the positive impact on both the educators' professional and personal development. The effects have extended beyond the educators' well-being and performance to include those of their students (Durlak et al., 2015; Schonert-Reichl, 2017). It was suggested that the intervention had an impact on educators' SEC, which contains specific outcomes related to the five key competencies of SEL.

On a personal level, higher SEC has been linked to decreased psychological distress (e.g., emotional exhaustion, psychological discomfort from stress, anxiety, depersonalization, and depression symptoms), physical distress (e.g., health complaints), and behavioral and physiological health indicators (e.g., sleep problem, cortisol level, blood pressure, and respiratory health) (Harris et al., 2016; Jennings et al., 2017; Roeser et al., 2013). Furthermore, studies (Carvalho et al., 2017; Crain et al., 2017; Domitrovich et al., 2016; Jennings et al., 2013) have shown that a higher level of SEC has also been associated with increase in well-being, specifically in outcomes relating to personal well-being (e.g., better job and life satisfaction, self-efficacy) and positive emotions (e.g., positive affect and personal accomplishment). Educators with higher SEC are more capable of taking on their job demands and achieving higher levels of work and personal life satisfaction and well-being (Crain et al., 2017; Talvio & Lonka, 2019).

The meta-analysis by Oliveira et al., (2021a, 2021b) evaluated the efficacy of interventions aiming to reduce burnout symptoms in teachers. The findings shed light on the possible impacts of SEL interventions on reducing burnout/stress symptoms in teachers; however, a theory-based approach is needed to investigate current research and drive future direction for more effective interventions that will complement traditional stress-reduction interventions such as cognitive-behavioral interventions and relaxation-based intervention techniques.

Autonomy Support and Mindfulness in Psychotherapy

To reduce stress and promote emotional well-being, autonomy support is a central concept in psychotherapy which aligns with the self-determination theory (SDT) by Deci and Ryan (1985). Autonomy support refers to the extent to which individuals feel that their actions and choices are self-endorsed and self-directed rather than externally driven (Brown & Ryan, 2003; Ryan, 1993). This concept is particularly relevant as the primary task of therapy is to support autonomous self-exploration, identification, initiation, and sustaining a process of change (Ryan & Deci, 2008).

The process of supporting autonomy in psychotherapy begins with therapists and clients understanding and validating the individuals' own internal frame of reference. This helps therapists facilitate the process of clients organizing and self-regulating their actions without imposing their own agenda or values on them. It also involves aiding the clients in understanding their own experiences and taking ownership of new behaviors without external agendas being imposed on them. Researchers (Brown & Ryan, 2003; Deci & Ryan, 1980; Kabat-Zinn, 1990) explained that mindfulness which is described as a quality of consciousness can (1) allow individuals to maintain steady attention and accept their prompt responses to thoughts, feelings, and physical sensations with non-judgment and (2) help individuals enhance their self-regulation skills and reduce reactivity by encouraging them to stay in the present moment and be aware of their thoughts and emotions while suspending judgment (Hölzel et al., 2011; Schussler et al., 2016). Individuals who are mindful tend to

maintain a consistent and steady level of attention, noticing and accepting immediate responses to thoughts, feelings, and physical stimuli, encompassing awareness of their own internal bodily sensations (Khanna & Greeson, 2013). In the context of psychotherapy, mindfulness techniques are often integrated into the principle of autonomy support to help clients' greater self-awareness, emotional regulation, and autonomy. The non-judgmental observation and acceptance fostered by mindfulness align with the principles of autonomy support, as clients learn to explore their inner experiences in a self-determined and non-coercive manner. This can contribute to more effective and empowering therapeutic experiences.

SDT and Educators' Health and Well-Being

When an individual is mindfully aware of their inherent needs and experiences, then he/she is less likely to less likely dominate intra-psychic interaction and fulfillment of the basic psychological needs for autonomy, competence, and relatedness (Hodgins & Knee, 2002). As a result of satisfying the psychological needs, one is more likely to experience more autonomous motivation to engage in those activities. Autonomous motivation refers to motivation that comes from within, where individuals engage in activities because they find them inherently satisfying and valuable, rather than being motivated by external rewards or pressures (Deci & Ryan, 2008; Ryan & Deci, 2000).

Research in the context of education supports the idea that autonomously motivated behavior is advantageous for psychological functioning and overall well-being (see Deci & Ryan, 2000; Ryan & Deci, 2017). Teachers who would be autonomously motivated tend to show higher levels of self-efficacy in their teaching roles (Dybowski et al., 2017) as well as job satisfaction (Aelterman et al., 2019; Collie et al., 2017; Moe & Katz, 2020) which are consequences that extend to those working in teaching careers (see Fernet et al., 2012; 2016; 2017; Soenens et al., 2012). In addition, research has demonstrated that more autonomous forms of teacher motivation are related to less teacher burnout (Cuevas et al., 2018; Fernet et al. 2012) and well-being (Pauli et al., 2018). Hence, autonomous motivation tends to coincide with indicators of positive wellbeing as well as reduced levels of teacher distress. Given that teachers tend to experience high levels of stress and disorder (Gallup, 2014), establishing motivational mechanisms in teacher mental health will yield valuable insight about ways to promote healthier and more productive teaching workforces.

Study Aim

In relation to SEL's components, fostering SDT concept such as mindful awareness would foster greater emotional regulation. Ryan and Deci (2008) stated that mindful awareness is a means for individuals to become more in touch with their

emotions, introjects, and painful experiences which have been suppressed. Through being aware, individuals can examine their emotions, experience, or introjects and integrate them together. Mindful awareness enhances the integration process through fostering fuller acknowledgment of the various parts of one's personality such that they can be brought into coherence and harmony (Deci & Ryan, 1991). Both SEL and SDT-based initiatives in education emphasize the development of positive self, moral, social, and emotional understanding.

Closer examination of the impact of using SDT with SEL on educators' well-being and psychological health may shed light on how to improve current SEL programs available to educators. The main aim of this present systematic review is to examine the characteristics of SEL and SDT interventions targeted for educators, and the additional aim is to investigate the program's curriculum for recommendation to future interventions.

Method

The systematic review was conducted and reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement (Moher et al., 2009).

Search Strategy and Study Selection

A comprehensive literature search was conducted using electronic databases: ERIC, PsycINFO, PsycARTICLES, PubMed, Scopus, Web of Science, and Google Scholar. We applied four sets of filters in the database search. The filters were applied to search for terms in the titles and abstracts of papers within the databases. The first filter was used to identify studies with an experimental design with the terms: experiment* OR trial* OR manipulate* OR intervention. The second filter was applied to identify SEL studies that the terms included SEL OR social emotional learning OR social, emotion*. The third filter was applied to identify SDT studies with the key terms: autonomy support* OR SDT OR self-determined motivation OR mindful* OR self-awareness. The third filters were used to identify populations with the following terms: adult OR educator OR teacher.

Review Procedure and Data Abstraction

The systematic search identified 1103 articles after the removal of duplicates (Fig. 14.1). All titles and abstracts were screened by two research team members

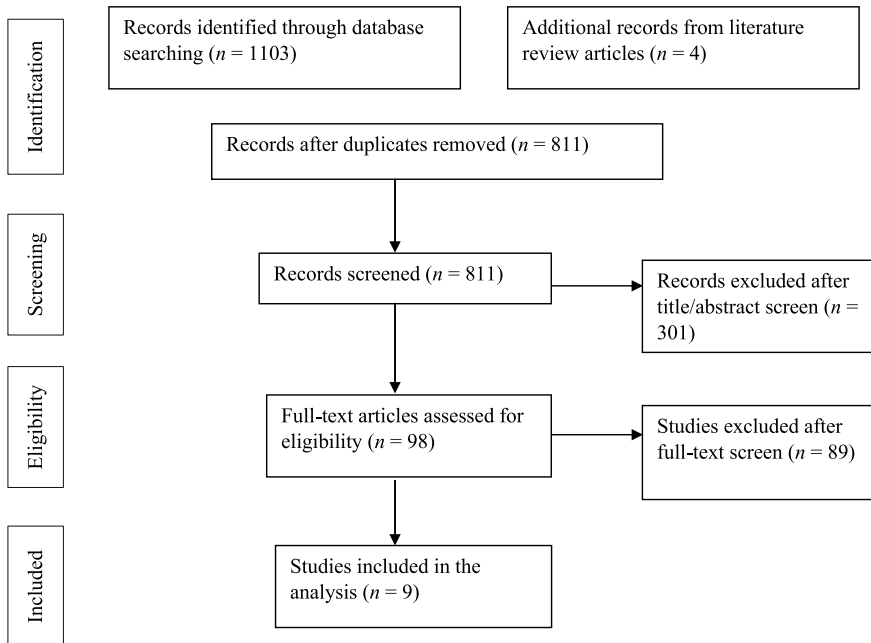


Fig. 14.1 Flow diagram of studies included in review

at Motivation and Educational Research lab in National Institute of Education, independently co-screening 10% of the titles and abstracts; articles to be read in full were agreed on by them after discussion. One hundred and ninety-nine papers were read in full, with 11 included in the review.

One review paper that provided data relating to the same study was combined (Oliveira et al., 2021a, 2021b). The following pre-specified data were extracted from each study: (i) setting; (ii) study design; (iii) sample size (number of participants); (iv) characteristics of participants; (v) type of control group; (vi) SEL program; (vii) program components; (viii) outcome, outcome measure, and informant; and (ix) findings, including effect sizes were reported by the authors.

Quality Assessment of Reviewed Articles

Study quality was assessed using the Effective Public Health Practice Project (EPHPP) Quality Assessment Tool for quantitative studies to assess for selection bias, study design, confounders, blinding, data collection methods, withdrawals, dropouts, intervention integrity, and analyses (Thomas et al., 2004). This tool was used in the recent review examining the impact of SEL interventions on teacher outcomes (Blewit et al., 2020) and is suitable for randomized, non-randomized, and

pre–post-designs. Components were rated as strong, moderate, or weak across each study, based on guidelines in the EPHPP Dictionary, and an overall global quality rating was assigned. Studies were being rated based on the presence or absence of weak ratings. If a study had no weak ratings, it was rated as strong. If it had one weak rating, it was considered of moderate quality, and if it had two or more weak ratings, it was rated as overall weak.

Results

Descriptive Synthesis

Table 14.2 contains general characteristics of the reviewed interventions, and Table 14.3 provides a summary of intervention characteristics. The pooled characteristics of the nine studies included in this review are provided. The studies were published after 2013 and written in English. Eligible interventions were delivered in USA ($n = 5$), Portugal ($n = 2$), Canada ($n = 1$), and Israel ($n = 1$). Table 14.2 describes detailed information. The studies involved a total of 714 educators, with sample sizes ranging from 6 (Palacios & Lemberger-Truelove, 2019) to 224 (Jennings et al., 2017). The participants ranged from early educators to teachers.

Intervention Design

As for the intervention features, most of the interventions were only targeted educators ($n = 8$). Sessions ranged from 3 sessions of 60–90 min (Cochran & Peters, 2023) to 30 h delivered through 10 weekly 2.5 h in-group sessions and a 5 h booster session 3 months after completion (Carvalho et al., 2021). Except for one qualitative study, all interventions have pre- and post-test assessments to measure effect (See Table 14.2).

Characteristics of Programs

Two interventions (Carvalho et al., 2017; Kim et al., 2021) examined Mindfulness-based SEL approach (MindUP). Two experimental studies (Jennings et al., 2013, 2017) examined Cultivating Awareness and Resilience in Education (CARE) which is a combination of emotional skill instruction, mindful awareness practices, caring, and compassion practices. Other papers used the brief mindfulness and SEL training (Cochran & Peters, 2023), the mindfulness, SEC, and self-compassion skills training (Carvalho et al., 2021), SEL and mindfulness-based consultation session (Palacios &

Table 14.2 Report on general characteristics of the nine reviewed interventions

Characteristics	<i>N</i> (% where applicable)
Location	
USA	5
Canada	2
Portugal	1
Israel	1
Sample size	
0–10	1
11–25	1
26–50	3
51–100	1
101–150	2
150+	1
Participant	
In-service teacher only	5
Pre-teacher only	2
Teacher and student	1
Teacher, student, and parent	1
Dosage of intervention	
< 6 h	1 (11%)
6–20 h	2 (22%)
21–40 h	5 (56%)
> 41 h	1 (11%)
Study type	
Experiment with self-report measures	5
Experiment with mixed-method measures	3
Experiment on phenomenological approach	1
Time of assessment	
Pre–post-test	9
Post-test	1

Lemberger-Truelove, 2019), and the Call to Care—Israel for Teachers (C2CIT) program employing mindfulness, self-compassion, and SEL skills (Tarrasch et al., 2020).

Table 14.3 Summary of intervention characteristics of the included studies

Authors (year) Source	Intervention design	Type of participants	Intervention characteristics and curriculum	Outcomes related with well-being and psychological health	Outcome instruments	Quality assessment
Carvalho et al. (2021). <i>Mindfulness</i>	Experiment with mixed measures (self-report, observational rating, and parents' reports) RCT Assessment at pre-post-test 30 h through 10 weeks, 2.5 h in-group sessions, and a 5 h booster session 3 months after completion	123 Portuguese teachers, students, and students' parents	Mindfulness, SEC, and self-compassion skills SEC (e.g., understanding, recognizing, and regulating emotions and the role of positive emotions were explored through experiential exercises, reflection, and self-induction) Mindfulness training (e.g., mindfulness of breathing, mindfulness of body sensations, and mindful listening) Self-compassion skills, caring exercises (e.g., active listening exercises) Activity (e.g., group reflection, role-playing, reflection on poetry or readings, lecture, and homework assignments)	The intervention group showed a significant increase in mindfulness and emotional regulation competencies, self-efficacy, and well-being and a decrease in burnout symptoms than control group	The Mindfulness Questionnaire (FFMQ; Baer et al., 2006; Portuguese version by Gregório & Gouveia, 2011) The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003; Portuguese version by Vaz & Martins, 2008) The Teachers' Sense of Efficacy Scale (TSES; Tschannen-Moran et al., 2001; Portuguese version by Conceição, 2008) The Mental Health Continuum—Short Form (MHC-SF; Keyes, 2006; Portuguese version by Matos et al., 2010) The Maslach Burnout Inventory—Educators Survey (MBI; Maslach et al., 1996; Portuguese version by Pinto et al., 2005)	S
Carvalho et al. (2017). <i>Mindfulness</i>	Experiment with self-report measures Assessment at pre-post-test 50 h course (consisting of 25 h delivered by an expert and 25 h of program implementation by teachers) over 6 sessions	20 Portuguese teachers Teacher and students	Mindfulness-based SEL approach (MindUP by Hawn Foundation, 2011) The content covered all SEC domains, mindfulness, neuroscience, and positive psychology The four themes in four separate units: (a) getting focused (learn the functions of brain parts, the difference between mindful and unmindful behavior, and breathing exercise) (b) sharpening your senses (practice mindful listening, seeing, smelling, tasting, and movement) (c) it is all about attitude (consider others' viewpoints, cultivate optimism, and appreciate happy experiences) (d) taking action mindfully (express gratitude and perform acts of kindness) Activity (e.g., discussions, interactive activities)	The intervention group reported a lower means for emotional exhaustion and higher in self-compassion than the control group	The MBI (Maslach et al., 1996; Portuguese version by Pinto et al., 2005) The Self-compassion Scale (SCS; Neff, 2003a; Portuguese version by Castilho & Pinto-Gouveia, 2011)	M

(continued)

Table 14.3 (continued)

Authors (year) Source	Intervention design	Type of participants	Intervention characteristics and curriculum	Outcomes related with well-being and psychological health	Outcome instruments	Quality assessment
Cochran and Peters (2023). <i>Teaching and Teacher Education</i>	One-fold intervention with mixed-method measures 3 sessions with 60–90 min	48 US preservice teachers Teacher only	Brief mindfulness and SEL training The program introduced to mindfulness, mindfulness strategies, emotion regulation and learning training, and all five components of SEL	Quantitative outcome showed no significant change in empathy	Teacher empathy data were collected through the Interpersonal Reactivity Index (IRI; Davis, 1980)	W
Gamer et al. (2018). <i>Psychology in the Schools</i>	Experiment with self-report measures Assessment at pre–post-test RCT Weekly 2 h session in 6 weeks Group 1-mindfulness and SEL Group 2-mindfulness only	87 US preservice teachers Preservice teacher only	Mindful practice and SEL intervention Mindfulness practice (1 week, 2 h) Introduction on mindfulness definitions, goal of mindfulness practice, acceptance skills, distress tolerance, and non-judgment Practice with breathing awareness meditation SEL (2–6 week, 2 h) Sessions focused on emotional competence, the role of emotions in relationship-building and coping with students' challenging classroom behavior, and promoting an awareness of SEL Activity (e.g., lectures, role-playing, hypothetical case studies, group discussions, and collaborative work)	Both groups showed an increase in mindfulness Emotional competence improved more significantly in the group 1	The Freiburg Mindfulness Inventory to assess mindfulness (Walach et al., 2006) The self-report emotional intelligence scale (SREIS; Brackett et al., 2006)	S

(continued)

Table 14.3 (continued)

Authors (year) Source	Intervention design	Type of participants	Intervention characteristics and curriculum	Outcomes related with well-being and psychological health	Outcome instruments	Quality assessment
Jemmings et al. (2013). <i>School Psychology Quarterly</i>	Experiment with self-report measures Assessment at pre-post-test RCT 30 h delivered in 5 sessions	50 US teachers Teacher only	<p>Cultivating Awareness and Resilience in Education (CARE)</p> <p>Emotional skill instruction, mindful awareness practice, caring, and compassion practice</p> <p>(a) Emotion skills instruction (40%)</p> <ul style="list-style-type: none"> – Introduction to emotions, purpose, universal expressions, relevant brain research – How emotions affect teaching and learning – Didactic information about anger, fear, sadness – Didactic information about “comfortable” or positive emotions – Exploring bodily awareness of emotions – Exploring individual differences in emotional experiences – Practice using mindful awareness and reflection to recognize and manage strong emotions <p>(b) Mindfulness and stress-reduction practices (40%)</p> <ul style="list-style-type: none"> – Body awareness reflection – Basic breath awareness practice – Mindfulness of thoughts and emotion practice – Mindful movement practices (standing, walking, stretching, centering) – Practice maintaining mindful awareness – Role plays to practice <p>(c) Listening and compassion exercises (20%)</p> <ul style="list-style-type: none"> – “caring practice”—a series of guided reflections focused on caring for self, loved one, colleague, challenging person – Mindful listening partner practices 	The intervention group reported improvement in teacher well-being, burnout/time-related stress, emotional exhaustion, and mindfulness	<p>General well-being measured by (a) the positive and negative affect schedule (PANAS; Watson et al., 1988), (b) the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), (c) the center for epidemiologic studies depression scale daily physical symptoms (DPS; Larsen & Kasimatis, 1997)</p> <p>Burnout and time pressure measured by (a) the MBI-ES (Maslach et al., 1996) and (b) the time urgency scale (TUS; Landy et al., 1991)</p> <p>The FFMQ (Baer et al., 2006)</p>	S

(continued)

Table 14.3 (continued)

Authors (Year) Source	Intervention design	Type of participants	Intervention characteristics and curriculum	Outcomes related with well-being and psychological health	Outcome instruments	Quality assessment
Jemmings et al. (2017). <i>Journal of Educational Psychology</i>	Experiment with self-report measures Assessment at pre-post-test RCT 30 h of in-person training in addition to intercession phone coaching	224 US teachers Teacher only	CARE program Emotion skills instruction Mindful awareness/stress-reduction practices Caring and listening practices Additional activity (e.g., workbook and homework)	Results showed significant direct positive effects on adaptive emotion regulation, mindfulness, and psychological distress	The ERQ (Gross & John, 2003) FFMQ (Baer et al., 2006) The Patient Health Questionnaire 8-item Depression Scale (PHQ-8; Kroenke et al., 2009)	S
Kim et al. (2021). <i>School Mental Health</i>	Experiment with mixed-method measures RCT Assessment at pre-post-test Group 1: two full day training Group 2: one full day training Group 3: control	112 Canadian educators Teacher only	Trauma-informed training and MindUP (mindfulness program-based SEL) (a) Getting focused (learn the functions of brain parts, the difference between mindful and unmindful behavior, and how to perform a breathing exercise) (b) Sharpening your senses (practice mindful listening, seeing, smelling, tasting, and movement) (c) It is all about attitude (consider others' viewpoints, cultivate optimism, and appreciate happy experiences) (d) Taking action mindfully (express gratitude and perform acts of kindness)	Results showed both intervention groups showed significant decreases in emotional exhaustion, and improvements in the trauma-informed attitudes	The MBI (Maslach et al., 1996) The attitudes related to trauma-informed care (ARTIC; Baker et al., 2015)	M

(continued)

Table 14.3 (continued)

Authors (year) Source	Intervention design	Type of participants	Intervention characteristics and curriculum	Outcomes related with well-being and psychological health	Outcome instruments	Quality assessment
Palacios and Lemberger-Tmelove (2019). <i>The Journal of Humanistic Counseling</i>	Experiment with semi structure based on phenomenological approach 45–60 min for 12 consecutive weeks	6 US early childhood teachers Teacher only	SEL and mindfulness-based consultation session General parameters for intervention (a) Eliciting and exploring the participants' actual experiences in the classroom, including experiences of the most immediate past week and general experiences accumulated over time (b) Psychoeducational instruction related to one of five progressive SEL skills (c) Facilitation of a guided meditation (d) Reflection and goal-setting opportunities	Results showed how the teachers experienced growth in emotional regulation	NA	W
Tarrasch et al. (2020). <i>Mindfulness</i>	Experiment with self-report measures RCT Assessment at pre–post-test Each session lasted 1.5 h in 20 weekly meeting sessions	44 Israel teachers Teacher only	The call to care—Israel for teachers (C2CIT) program Mindfulness, compassion, and SEL skills Each session included (a) Psychoeducational materials (e.g., mindfulness and compassion effects on brain activity and anatomy, correlates of mindfulness and compassion, or the concepts of fixed vs. growth mind-sets) (b) Contemplative practices (e.g., mindful breathing, body scan, or caring-figure meditation) (c) SEL skills (e.g., identifying and sharing emotions, learning to receive and give social support, or developing perspective-taking and empathy skills) Group activity (e.g., sharing positive and negative feelings with peers or role-playing difficult situations)	Intervention group showed a significant increase in mindfulness, decrease in perceived stress and rumination	The interpersonal mindfulness in teaching (IMTS; Greenberg et al., 2010) The Self-compassion Scale (SCS; Raes et al., 2011) The Perceived Stress Scale (PSS; Cohen et al., 1983) The rumination-reflection questionnaire (RRQ; Trapnell & Campbell, 1999)	S

Note: M = moderate, S = strong, W = weak

Curriculum of Programs

Regarding SEL training, five SEC domains (self-awareness, self-management, relationship skills, responsible decision-making, and social awareness) were introduced and practiced. Generally, the SEL skills in the review taught included: identifying and sharing emotions, learning to receive and provide social support, and developing perspective-taking and empathy skills (from C2CIT program in Tarrasch et al., 2020). Mindfulness-based training including mindfulness of breathing, mindfulness of body sensations, mindful listening, and mindful movement practices (standing, walking, stretching, centering) were employed in the interventions. Interventions imparting self-compassion skills utilized active listening exercises. The CARE program employed by Jennings et al., (2013, 2017) explained that compassion practice involves noticing emotional reactions while not acting upon the emotional reactions such as the urge to interrupt, offer advice, or judge others while listening. Activities such as group reflection, role-playing, reflection on poetry or readings, lecture, and homework assignments were used as part of psychoeducational content. The use of emotional journaling, self-care assessment, and nurturing activities were also used by Cochran and Peters (2023).

Outcomes Related with Well-Being and Psychological Health and Measures

The studies captured in this review examined the following psychological domains and well-being outcomes mainly, (i) mindfulness; (ii) burnout; (iii) self-compassion; (iv) affect, (v) empathy, (vi) well-being, (vii) mental health, and (viii) perceived stress and psychological distress. Measures for mindfulness utilized the Mindfulness Questionnaire (FFMQ; Carvalho et al., 2021; Jennings et al., 2013), the Interpersonal Mindfulness in Teaching (IMTS; Tarrasch et al., 2020). Burnout was measured by the Freiburg Mindfulness Inventory for burnout and the Maslach Burnout Inventory-Educators Survey (MBI) (Carvalho et al., 2017, 2021; Jennings et al., 2013; Kim et al., 2021; Tarrasch et al., 2020). Instruments to measure self-compassion included the Self-compassion Scale (SCS) invented by Neff, 2023 (Carvalho et al., 2017) and the Self-compassion Scale (SCS) invented by Raes et al., 2011 (Tarrasch et al., 2020). Perceived affect was measured by Affect the Positive and Negative Affect Schedule—Short Form (PANAS; Jennings et al., 2013); empathy was measured by the Interpersonal Reactivity Index (IRI; Cochran & Peters, 2023); well-being was measured by the Well-being the Mental Health Continuum-Short Form (MHC-SF; Carvalho et al., 2021); perceived stress and psychological distress were measured by The Perceived Stress Scale (PSS; Tarrasch et al., 2020) and the Patient Health Questionnaire 8-item Depression Scale (PHQ-8; (Jennings et al., 2017); and lastly, mental health was measured by The Mental Health Continuum-Short Form (MHC-SF; Carvalho et al., 2021). One study (Jennings et al., 2013) categorized the following four instruments

as measures for general well-being: The PANAS, the Emotion Regulation Questionnaire, the Center for Epidemiologic Studies Depression Scale (CES-D-20), and the Daily Physical Symptoms (DPS). Among the psychological domains and well-being outcomes, mindfulness and burnout were the mainly measured outcomes. Most of intervention groups in this review showed significant changes in their outcomes compared to their control groups. One study by Cochran and Peters (2023) which used a onefold intervention using mixed-method measures found no significant change in empathy. Garner et al. (2018)'s intervention compared mindfulness and SEL versus mindfulness only. Their findings showed that emotional competence improved more significantly in the mindfulness and SEL group. There was one experimental study (Palacios & Lemberger-Truelove, 2019) with phenomenological approach resulted how teachers experienced growth in emotional regulation from 12 consecutive weeks SEL and mindfulness-based consultation.

Discussion

The aim of this systematic review was to examine the characteristics of SEL and SDT interventions for educators. From SDT relating psychotherapy, mindfulness was mainly harmonized with SEL training as the components of interventions targeted at educators, with some studies including self-compassion skills. Mindfulness was popularly adapted in the interventions. Effective interventions reviewed in this paper contained the good integration of both mindfulness and SEL. Garner et al. (2018) explained that mindfulness and SEL trainings complement each other in the sense that they have similar goals of cultivating the ability of emotion regulation, empathy, and the capacity to remain resilient in challenging personal and professional situations (Lawlor, 2016). Carvalho et al. (2017)'s intervention explained that such similarities between the two trainings suggest that mindfulness and SEL skill trainings could be integrated together easily.

The use of mindfulness-based intervention may facilitate deepening the development of SEC. One view (Maloney et al., 2016) guided that mindfulness practice is theorized to develop one's ability to aware external factors. Through mindfulness practices, one can foster stillness and calm and reflect on the necessary conditions for self-exploration which results in self-awareness (Mind and Life Education Research Network, 2009), and this may develop school structured SEL programs by providing a practical way to improve SEC. There is another view by Jennings et al. (2016) is that "mindfulness practice itself engage and promote self-awareness and self-regulation by focusing on non-elaborative, non-judgmental, present-centered awareness of each thought, feeling, or sensation in the attentional field" (Bishop et al., 2004, p. 232). This practice engages self-regulation of attention and non-judgmental awareness which can help teachers to become more adjusted to their own emotions and to regulate them more effectively. This can help teachers to enhance positivity and acceptance toward themselves and their experiences which leads to improve their own well-being

and resilience in face of challenges. Consequently, the current review showed participation of SEL and mindfulness program aids in lowering levels of perceived stress, burnout, and psychological distress and in enhancing mindfulness, self-compassion, positive affect, empathy, and well-being. The review by Oliveira et al. (2021a, 2021b) showed the impact of SEC on the five key competencies (emotional acknowledgment, emotional regulation, social competence, and self-regulation) on educators' SEL. Teachers who have strong SEC may have better equipped to handle the challenges that arise in their work and are more likely to experience a sense of efficacy and fulfillment in their teaching. This, in turn, can lead to a more enjoyable and rewarding teaching experience. However, when teachers experience distress, whether it be related to their personal life or their work, it can impair their ability to provide emotional and instructional support to their students. This can have negative consequences for both the teacher and the students. These demonstrated improvements at both the teacher and classroom levels provide support for key components of the SEL programs.

There were two interventions (Carvalho et al., 2021; Tarrasch et al., 2020) which applied self-compassion skills into the intervention. Self-compassion can be defined as a positive attitude toward oneself, characterized by a non-judgmental attitude of openness, understanding, and acceptance of one's suffering, inadequacies, and shortcomings (Neff, 2003a, 2003b). It involves the expression of one's true and authentic self being attentive to their inner states in a kind and positive attitude, worthy of others, and having emotional balance derived from mindfulness (Neff, 2003b; Neff et al., 2005).

Mindfulness and self-compassion would be interrelated concepts as mindfulness is the practice of paying attention to the present moment with non-judgmental awareness, and compassion is the sensitivity to suffering in self and others, with a commitment to try to alleviate it. By practicing mindfulness, one becomes more aware of the suffering that exists in oneself and others. This awareness can then be used to develop compassion, which involves feeling empathy and sympathy for others who are suffering, and a desire to help alleviate their suffering (Dalai Lama, 1995; Tsering, 2008). Compassion, in turn, can lead to caring, which involves taking action to help others. This may involve providing physical or emotional support or simply being there for someone in need.

The other aim of the review was to investigate all the programs' curriculum. Most programs reviewed were designed to strengthen the theoretical premises of the belief that SEL and mindful activities or self-compassion skills may lead to new insights, emotional responsivity, and improved pedagogical practices. Furthermore, the programs were developed and evaluated by educational organizations (e.g., MindUP was developed by the Hawn Foundation). The MindUP curriculum was combined using various fields: cognitive developmental neuroscience, contemplative science, mindfulness, SEL, and positive psychology. Similar to other mindfulness programs, the MindUP curriculum centers around breathing practices and mindful awareness practices (e.g., mindful seeing and eating). Breathing activities and being aware of one's body and mind were core ingredients in the practice of mindfulness.

Breathing exercises have been found to help regulate the automatic nervous system, focus the mind, and increase self-awareness. The quality of teaching increases when teachers are more “present”. More focused teachers may be able to better deal with stress. Mindful listening is the practice of granting one’s full attention to what is being shared with oneself in any moment. As a mindful listener, one will take in what others are saying with openness, curiosity, and non-judgment. Most mindful listening components in the SEL and mindfulness-based interventions were adapted to develop empathy and compassion skills. Kim et al. (2021) utilized mindful listening practices to sharpen SEC senses, while Carvalho et al. (2021) utilized it as part of developing mindfulness practice.

Conclusion

The systematic review found that SEL and SDT programs may strengthen adult’s well-being and psychological health, particularly for those who are engaged in the education sector. The major strength of this review was the integration of the SEL and SDT which offers an overarching construct that provided a viewpoint of an efficient intervention strategy. Additionally, the quality appraisal of the reviewed articles provided evidence for the methodological rigor of the reviewed articles and strengthened the interpretation of the findings as all the articles were assessed from medium to high-quality studies. The major limitation was although the review aimed to identify SDT components including basic psychological needs support and motivational components, it only found one component, mindfulness, which only relates to autonomy-supportive methods; thus, generalization of integration of SEL and SDT may be limited.

References

- Aelterman, N., Vansteenkiste, M., Haerens, L., Soenens, B., Fontaine, J. R. J., & Reeve, J. (2019). Toward an integrative and fine-grained insight in motivating and demotivating teaching styles: The merits of a circumplex approach. *Journal of Educational Psychology, 111*(3), 497–521. <https://doi.org/10.1037/edu0000293>
- Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13*(1), 27–45. <https://doi.org/10.1177/1073191105283504>
- Baker, C. N., Brown, S. M., Wilcox, P. D., & Overstreet, S. (2015). Development and psychometric evaluation of the attitudes related to trauma-informed care (ARTIC) scale. *School Mental Health, 8*, 61–76. <https://doi.org/10.1007/s12310-015-9161-0>
- Bishop, S. R., Lau, M. A., Shapiro, S. L., Carlson, L., Anderson, N. D., Carmody, J., & Devins, G., et al. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology, 11*, 230–241. <https://doi.org/10.1093/clipsy/bph077>
- Blewitt, C., O’connor, A., Morris, H., Mousa, A., Bergmeier, H., Nolan, A., & Skouteris, H., et al. (2020). Do curriculum-based social and emotional learning programs in early childhood

- education and care strengthen teacher outcomes? A systematic literature review. *International Journal of Environmental Research and Public Health*, 17(3), 1049. <https://doi.org/10.3390/ijerph17031049>
- Brackett, M. A., Rivers, S. E., Shiffman, S., Lerner, N., & Salovey, P. (2006). Relating emotional abilities to social functioning: A comparison of self-report and performance measures of emotional intelligence. *Journal of Personality and Social Psychology*, 91, 780–795. <https://doi.org/10.1037/0022-3514.91.4.780>
- Bridgeland, J., Bruce, M., & Hariharan, A. (2013). *The Missing Piece: A National Teacher Survey on How Social and Emotional Learning Can Empower Children and Transform Schools*. A Report for CASEL. Civic Enterprises.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84, 822–848. <https://doi.org/10.1037/0022-3514.84.4.822>
- De Carvalho, J. S., Oliveira, S., Roberto, M. S., Gonçalves, C., Bárbara, J. M., de Castro, A. F., & Marques-Pinto, A., et al. (2021). Effects of a mindfulness-based intervention for teachers: A study on teacher and student outcomes. *Mindfulness*, 12(7), 1719–1732. <https://doi.org/10.1007/s12671-021-01635-3>
- Castilho, P., & Pinto-Gouveia, J. (2011). Auto-compaixão: Estudo da validação da versão Portuguesa da Escala de Auto-Compaixão [Self-compassion: Validation study of the Portuguese version of the Self-Compassion Scale]. *Psychological*, 54, 203–229. https://doi.org/10.14195/1647-8606_54_8
- Chang, M. L. (2009). An appraisal perspective of teacher burnout: Examining the emotional work of teachers. *Educational Psychology Review*, 21, 193–218. <https://doi.org/10.1007/s10648-009-9106-y>
- Cochran, L. M., & Peters, M. P. (2023). Mindful preparation: An exploration of the effects of mindfulness and SEL training on pre-service teacher efficacy and empathy. *Teaching and Teacher Education*, 123, 103986. <https://doi.org/10.1016/j.tate.2022.103986>
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24, 385–396. <https://doi.org/10.2307/2136404>
- Collie, R. J. (2017). Teachers' social and emotional competence: Links with social and emotional learning and positive workplace outcomes. In Frydenberg, E., Martin, A., & Collie, R. J. (2017). *Social and emotional learning in Australia and the Asia-Pacific*. Springer. <https://doi.org/10.1007/978-981-10-3394-0>
- Collie, R. J., Perry, N. E., & Martin, A. J. (2017). School context and educational system factors impacting educator stress. In: T. M. McIntyre, S. E. McIntyre, & D. J. Francis (Eds.), *Educator stress: An occupational health perspective*. (pp.3–22). Springer International Publishing.
- Conceição, A. C. (2008). *Auto-eficácia, mal-estar e comportamento interpessoal dos professores* [Teachers' self-efficacy, discomfort and interpersonal behavior]. Tese de mestrado não publicada (Unpublished master thesis), Universidade Nova de Lisboa.
- Crain, T. L., Schonert-Reichl, K. A., & Roeser, R. W. (2017). Cultivating teacher mindfulness: Effects of a randomized controlled trial on work, home, and sleep outcomes. *Journal of Occupational Health Psychology*, 22(2), 138. <https://doi.org/10.1037/ocp0000043>
- Cuevas, R., Ntoumanis, N., Fernandez-Bustos, J. G., & Bartholomew, K. (2018). Does teacher evaluation based on student performance predict motivation, well-being, and ill-being? *Journal of School Psychology*, 68, 154–162. <https://doi.org/10.1016/j.jsp.2018.03.005>
- Davis, M. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalogue of Selected Documents in Psychology*, 10, 85.
- De Carvalho, J. S., Pinto, A. M., & Marôco, J. (2017). Results of a mindfulness-based social-emotional learning program on Portuguese elementary students and teachers: A quasi-experimental study. *Mindfulness*, 8, 337–350. <https://doi.org/10.1007/s12671-016-0603-z>
- Deci, E. L., & Ryan, R. M. (2008). Self-Determination Theory: A macrotheory of human motivation, development, and health. *Canadian Psychology*, 49, 182–185.

- Deci, E. L., & Ryan, R. M. (1980). The empirical exploration of intrinsic motivational processes. In: L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 13, pp. 39–80). New York: Academic Press.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Plenum Press. <https://doi.org/10.1007/978-1-4899-2271-7>
- Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. Perspectives on motivation. In R. Dienstbier (Ed.), *Nebraska symposium on motivation* (Vol. 38, pp. 237–288). University of Nebraska Press.
- Domitrovich, C. E., Bradshaw, C. P., Berg, J. K., Pas, E. T., Becker, K. D., Musci, R., & Ialongo, N., et al. (2016). How do school-based prevention programs impact teachers? Findings from a randomized trial of an integrated classroom management and social-emotional program. *Prevention Science*, 17, 325–337. <https://doi.org/10.1007/s11121-015-0618-z>
- Durlak, J. A., Domitrovich, C. E., Weissberg, R. P., & Gulotta, T. P. (2015). *Handbook of social and emotional learning: Research and practice* (1st ed.). Guilford Publications.
- Dybowski, C., Sehner, S., & Harendza, S. (2017). Influence of motivation, self-efficacy and situational factors on the teaching quality of clinical educators. *BMC Medical Education*, 17(1), 1–8. <https://doi.org/10.1186/s12909-017-0923-2>
- Fernet, C., Guay, F., Senécal, C., & Austin, S. (2012). Predicting intraindividual changes in teacher burnout: The role of perceived school environment and motivational factors. *Teaching and Teacher Education*, 28(4), 514–525. <https://doi.org/10.1016/j.tate.2011.11.013>
- Fernet, C., Trépanier, S. G., Austin, S., Gagné, M., & Forest, J. (2015). Transformational leadership and optimal functioning at work: On the mediating role of employees' perceived job characteristics and motivation. *Work and Stress*, 29(1), 11–31. <https://doi.org/10.1080/02678373.2014.1003998>
- Fernet, C., Trépanier, S. G., Austin, S., & Levesque-Côté, J. (2016). Committed, inspiring, and healthy teachers: How do school environment and motivational factors facilitate optimal functioning at career start? *Teaching and Teacher Education*, 59, 481–491. <https://doi.org/10.1016/j.tate.2016.07.019>
- Fernet, C., Chanal, J., & Guay, F. (2017). What fuels the fire: Job- or task-specific motivation (or both)? On the hierarchical and multidimensional nature of teacher motivation in relation to job burnout. *Work & Stress*, 31(2), 145–163. <https://doi.org/10.1080/02678373.2017.1303758>
- Gallup (2014). State of America's schools: The Path to Winning Again in Education. Gallup Inc. Retrieved from <https://www.gallup.com/services/178709/state-america-schools-report.aspx>
- Garner, P. W., Bender, S. L., & Fedor, M. (2018). Mindfulness-based SEL programming to increase preservice teachers' mindfulness and emotional competence. *Psychology in the Schools*, 55(4), 377–390. <https://doi.org/10.1002/pits.22114>
- Greenberg, M. T., Weissberg, R. P., O'Brien, M. U., Zins, J. E., Fredericks, L., Resnik, H., & Elias, M. J. (2003). Enhancing school-based prevention and youth development through coordinated social, emotional, and academic learning. *American Psychologist*, 58(6–7), 466. <https://doi.org/10.1037/0003-066X.58.6-7.466>
- Greenberg, M. T., Jennings, P. A., & Goodman, B. (2010). *The interpersonal mindfulness in teaching Scale*. University Park, PA: Pennsylvania State University.
- Greenberg, M. T., & Abenavoli, R. (2017). Universal interventions: Fully exploring their impacts and potential to produce population-level impacts. *Journal of Research on Educational Effectiveness*, 10(1), 40–67. <https://doi.org/10.1080/19345747.2016.1246632>
- Gregório, S., & Gouveia, J. P. (2011). Facetas de mindfulness: Características psicométricas de nto de avaliação [Facets of mindfulness: Psychometric characteristics of an assessment tool]. *Psicologica*, 54, 259–279. https://doi.org/10.14195/1647-8606_54_10
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85, 348–362. <https://doi.org/10.1037/0022-3514.85.2.348>
- Harris, A. R., Jennings, P. A., Katz, D. A., Abenavoli, R. M., & Greenberg, M. T. (2016). Promoting stress management and well-being in educators: Feasibility and efficacy of a school-based yoga

- and mindfulness intervention. *Mindfulness*, 7, 143–154. <https://doi.org/10.1007/s12671-015-0451-2>
- Herman, K. C., Hickmon-Rosa, J. E., & Reinke, W. M. (2018). Empirically derived profiles of teacher stress, burnout, self-efficacy, and coping and associated student outcomes. *Journal of Positive Behavior Interventions*, 20(2), 90–100. <https://doi.org/10.1177/10983007177320>
- Hodgins, H. S., & Knee, C. R. (2002). The integrating self and conscious experience. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 87–100). University of Rochester Press.
- Hölzel, B. K., Carmody, J., Vangel, M., Congleton, C., Yerramsetti, S. M., Gard, T., & Lazar, S. W. (2011). Mindfulness practice leads to increases in regional brain gray matter density. *Psychiatry Research*, 191, 36–43. <https://doi.org/10.1016/j.psychres.2010.08.006>
- Humphrey, N. (2013). *Social and emotional learning: A critical appraisal*. Sage Publications Inc.
- Jennings, P. A. (2015). Early childhood teachers' well-being, mindfulness, and self-compassion in relation to classroom quality and attitudes towards challenging students. *Mindfulness*, 6, 732–743. <https://doi.org/10.1007/s12671-014-0312-4>
- Jennings, P. A. (2016). CARE for teachers: A mindfulness-based approach to promoting teachers' social and emotional competence and well-being. *Handbook of mindfulness in education: Integrating theory and research into practice*, 133–148. https://doi.org/10.1007/978-1-4939-3506-2_9
- Jennings, P. A., Brown, J. L., Frank, J. L., Doyle, S., Oh, Y., Davis, R., & Greenberg, M. T., et al. (2017). Impacts of the CARE for teachers program on teachers' social and emotional competence and classroom interactions. *Journal of Educational Psychology*, 109(7), 1010. <https://doi.org/10.1037/edu0000187>
- Jennings, P. A., Frank, J. L., Snowberg, K. E., Coccia, M. A., & Greenberg, M. T. (2013). Improving classroom learning environments by cultivating awareness and resilience in education (CARE): Results of a randomized controlled trial. *School Psychology Quarterly*, 28(4), 374–390. <https://doi.org/10.1037/spq0000035>
- Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research*, 79(1), 491–525. <https://doi.org/10.3102/00346543083256>
- Kabat-Zinn, J. (1990). *Full catastrophe living: The program of the stress reduction clinic at the University of Massachusetts Medical Center*. Dell.
- Keyes, C. (2006). Mental health in adolescence: Is America's youth flourishing? *American Journal of Orthopsychiatry*, 76(3), 395–402. <https://doi.org/10.1037/0002-9432.76.3.395>
- Khanna, S., & Greeson, J. M. (2013). A narrative review of yoga and mindfulness as complementary therapies for addiction. *Complementary Therapies in Medicine*, 21(3), 244–252. <https://doi.org/10.1016/j.ctim.2013.01.008>
- Kim, S., Crooks, C. V., Bax, K., & Shokoohi, M. (2021). Impact of trauma-informed training and mindfulness-based social-emotional learning program on teacher attitudes and burnout: A mixed-methods study. *School Mental Health*, 13(1), 55–68. <https://doi.org/10.1007/s12310-020-09406-6>
- Klassen, R. M., Usher, E. L., & Bong, M. (2010). Teachers' collective efficacy, job satisfaction, and job stress in cross-cultural context. *The Journal of Experimental Education*, 78, 464–486. <https://doi.org/10.1080/00220970903292975>
- Kroenke, K., Strine, T. W., Spitzer, R. L., Williams, J. B., Berry, J. T., & Mokdad, A. H. (2009). The PHQ-8 as a measure of current depression in the general population. *Journal of Affective Disorders*, 114, 163–173. <https://doi.org/10.1016/j.jad.2008.06.026>
- Lama, D. (1995). *The power of compassion*. Harper Collins.
- Landy, F. J., Rastegary, H., Thayer, J., & Colvin, C. (1991). Time urgency: The construct and its measurement. *Journal of Applied Psychology*, 76, 644–657. <https://doi.org/10.1037/0021-9010.76.5.644>

- Larsen, R. J., & Kasimatis, M. (1997). Day-to-day physical symptoms: Individual differences in the occurrence, duration, and emotional concomitants of minor daily illnesses. *Journal of Personality, 59*, 387–423. <https://doi.org/10.1111/j.1467-6494.1991.tb00254.x>
- Lawlor, M. (2016). Mindfulness and social emotional learning (SEL): A conceptual framework. In K. Schonert-Reichl & R. Roeser R. (Eds.), *Handbook of mindfulness in education* (pp. 65–80). Springer. https://doi.org/10.1007/978-1-4939-3506-2_5
- Lomas, T., Medina, J. C., Ivztan, I., Rupprecht, S., & Eiroa-Orosa, F. J. (2017). The impact of mindfulness on the well-being and performance of educators: A systematic review of the empirical literature. *Teaching and Teacher Education, 61*, 132–141. <https://doi.org/10.1016/j.tate.2016.10.008>
- Maloney, J. E., Lawlor, M. S., Schonert-Reichl, K. A., & Whitehead, J. (2016). A mindfulness-based social and emotional learning curriculum for school-aged children: the MindUP program. In K. A. Schonert Reichl & R. W. Roeser (Eds.), *Mindfulness in behavioral health: Handbook of mindfulness in education: Integrating theory and research into practice* (pp. 313–334). Springer. https://doi.org/10.1007/978-1-4939-3506-2_20
- Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach Burnout inventory manual*. (3rd ed.). Consulting Psychologists Press.
- Matos, A. P., André, R. S., Cherpe, S., Rodrigues, D., Figueira, C., & Pinto, A. M. (2010). Preliminary psychometric study of the mental health continuum—Short form—For youth, in a sample of Portuguese adolescents. *Psychologica, 53*, 131–156. https://doi.org/10.14195/1647-8606_53_7
- Mind and Life Education Research Network (MLERN); Davidson, R., Dunne, J., Eccles, J. S., Engle, A., Greenberg, M., Jennings, P., & Vago, D., et al. (2012). Contemplative practices and mental training: Prospects for American education. *Child Development Perspectives, 6*, 146–153. <https://doi.org/10.1111/j.1750-8606.2012.00240.x>
- Moe, A., & Katz, I. (2020). Self-compassionate teachers are more autonomy supportive and structuring whereas self-derogating teachers are more controlling and chaotic: The mediating role of need satisfaction and burnout. *Teaching and Teacher Education, 96*, 103173. <https://doi.org/10.1016/j.tate.2020.103173>
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group*, T. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Annals of Internal Medicine, 151*(4), 264–269. <https://doi.org/10.7326/0003-4819-151-4-200908180-00135>
- Montgomery, C., & Rupp, A. A. (2005). A meta-analysis for exploring the diverse causes and effects of stress in teachers. *Canadian Journal of Education/Revue canadienne de l'éducation, 458–486*. <https://doi.org/10.2307/4126479>
- Mutjaba, T., & Reiss, M. (2013). Factors that lead to positive stress in secondary school teachers of mathematics and science. *Oxford Review of Education, 39*(3), 627–648. <https://doi.org/10.1080/03054985.2013.840279>
- Neff, K. D. (2008). Self-compassion: Moving beyond the pitfalls of a separate self-concept. In H. A. Wayment & J. J. Bauer (Eds.), *Transcending self-interest: Psychological explorations of the quiet ego* (pp. 95–105). American Psychological Association. <https://doi.org/10.1037/11771-009>
- Neff, K. D. (2003a). The development and validation of a scale to measure self-compassion. *Self and Identity, 2*(3), 223–250. <https://doi.org/10.1080/15298860309027>
- Neff, K. D. (2003b). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity, 2*(2), 85–101. <https://doi.org/10.1080/15298860309032>
- Neff, K. D., Hsieh, Y. P., & Dejitterat, K. (2005). Self-compassion, achievement goals, and coping with academic failure. *Self and identity, 4*(3), 263–287. <https://doi.org/10.1080/13576500444000317>
- Nie, Y., Chua, B. L., Yeung, A. S., Ryan, R. M., & Chan, W. Y. (2015). The importance of autonomy support and the mediating role of work motivation for well-being: Testing self-determination

- theory in a Chinese work organisation. *International Journal of Psychology*, 50(4), 245–255. <https://doi.org/10.1002/ijop.12110>
- Oberle, E., Domitrovich, C. E., Meyers, D. C., & Weissberg, R. P. (2016). Establishing systemic social and emotional learning approaches in schools: A framework for schoolwide implementation. *Cambridge Journal of Education*, 46, 277–297. <https://doi.org/10.1080/0305764X.2015.1125450>
- Oberle, E., & Schonert-Reichl, K. A. (2016). Stress contagion in the classroom? The link between classroom teacher burnout and morning cortisol in elementary school students. *Social Science and Medicine*, 159, 30–37. <https://doi.org/10.1016/j.socscimed.2016.04.031>
- Oliveira, S., Roberto, M. S., Pereira, N. S., Marques-Pinto, A., & Veiga-Simão, A. M. (2021). Impacts of social and emotional learning interventions for teachers on teachers' outcomes: A systematic review with meta-analysis. *Frontiers in Psychology*, 12, 677217. <https://doi.org/10.3389/fpsyg.2021.677217>
- Oliveira, S., Roberto, M. S., Veiga-Simão, A. M., & Marques-Pinto, A. (2021b). A meta-analysis of the impact of social and emotional learning interventions on teachers' burnout symptoms. *Educational Psychology Review*, 33(4), 1779–1808. <https://doi.org/10.1007/s10648-021-09612-x>
- Palacios, A. F., & Lemberger-Truelove, M. E. (2019). A counselor-delivered mindfulness and social-emotional learning intervention for early childhood educators. *The Journal of Humanistic Counseling*, 58(3), 184–203. <https://doi.org/10.1002/johc.12119>
- Pauli, J., Chambel, M. J., Capellari, M. R., & Rissi, V. (2018). Motivation, organisational support and satisfaction with life for private sector teachers in Brazilian higher education. *Higher Education Quarterly*, 72(2), 107–120. <https://doi.org/10.1111/hequ.12152>
- Pinto, A. M., Lima, M. L., & da Silva, A. L. (2005). Fuentes de estrés, burnout y estrategias de coping en profesores portugueses. *Revista De Psicología Del Trabajo y De Las Organizaciones*, 21(1–2), 125–143.
- Radloff, L. S. (1977). The CES-D scale: A self report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385–401. <https://doi.org/10.1177/014662167700100306>
- Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Construction and factorial validation of a short form of the self-compassion scale. *Clinical Psychology and Psychotherapy*, 18(3), 250–255. <https://doi.org/10.1002/cpp.702>
- Robinson, O. P., Bridges, S. A., Rollins, L. H., & Schumacker, R. E. (2019). A study of the relation between special education burnout and job satisfaction. *Journal of Research in Special Educational Needs*, 19(4), 295–303. <https://doi.org/10.1111/1471-3802.12448>
- Roeser, R. W., Schonert-Reichl, K. A., Jha, A., Cullen, M., Wallace, L., Wilensky, R., & Harrison, J., et al. (2013). Mindfulness training and reductions in teacher stress and burnout: Results from two randomized, waitlist-control field trials. *Journal of Educational Psychology*, 105(3), 787–804. <https://doi.org/10.1037/a0032093>
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist*, 55(1), 68.
- Ryan, R. M. (1993). Agency and organization: Intrinsic motivation, autonomy and the self in psychological development. In J. Jacobs (Ed.), *Nebraska symposium on motivation: Developmental perspectives on motivation*, 40 (pp. 1–56). University of Nebraska Press.
- Ryan, R. M., & Deci, E. L. (2017). Self-determination theory: Basic psychological needs in motivation, development, and wellness. New York: Guilford publications.
- Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality*, 63, 397–427. <https://doi.org/10.1111/j.1467-6494.1995.tb00501.x>
- Ryan, R. M., & Deci, E. L. (2008). From ego depletion to vitality: Theory and findings concerning the facilitation of energy available to the self. *Social and Personality Psychology Compass*, 2(2), 702–717. <https://doi.org/10.1111/j.1751-9004.2008.00098.x>

- Schonert-Reichl, K. A. (2017). Social and emotional learning and teachers. *The Future of Children*, 137–155. [Special Issue: Social and Emotional Learning]. Retrieved from <https://www.jstor.org/stable/44219025>
- Schonfeld, I. S., & Bianchi, R. (2016). Burnout and depression: Two entities or one? *Journal of Clinical Psychology*, 72, 22–37. <https://doi.org/10.1002/jclp.22229>
- Schussler, D. L., Jennings, P. A., Sharp, J. E., & Frank, J. L. (2016). Improving teacher awareness and well-being through CARE: A qualitative analysis of the underlying mechanisms. *Mindfulness*, 7, 130–142. <https://doi.org/10.1007/s12671-015-0422-7>
- Skaalvik, E. M., & Skaalvik, S. (2007). Dimensions of teacher self-efficacy and relations with strain factors, perceived collective teacher efficacy, and teacher burnout. *Journal of Educational Psychology*, 99, 611–625. <https://doi.org/10.1037/0022-0663.99.3.611>
- Slemp, G. R., Field, J. G., & Cho, A. S. (2020). A meta-analysis of autonomous and controlled forms of teacher motivation. *Journal of Vocational Behavior*, 121, 103459. <https://doi.org/10.1016/j.jvb.2020.103459>
- Soenens, B., Sierens, E., Vansteenkiste, M., Dochy, F., & Goossens, L. (2012). Psychologically controlling teaching: Examining outcomes, antecedents, and mediators. *Journal of Educational Psychology*, 104(1), 108. <https://doi.org/10.1037/a0025742>
- Talvio, M., & Lonka, K. (2019). How to create a flourishing classroom? An intervention protocol for enhancing teachers' social and emotional learning. *Positive Psychological Intervention Design and Protocols for Multi-cultural Contexts*, 315–339. https://doi.org/10.1007/978-3-030-20020-6_14
- Tarrasch, R., Berger, R., & Grossman, D. (2020). Mindfulness and compassion as key factors in improving teacher's well being. *Mindfulness*, 11, 1049–1061. <https://doi.org/10.1007/s12671-020-01304-x>
- The Hawm Foundation. (2011). *The MindUp curriculum: Brain-focused strategies for learning—And living*. Scholastic Inc.
- Thomas, B. H., Ciliska, D., Dobbins, M., & Micucci, S. (2004). A process for systematically reviewing the literature: Providing the research evidence for public health nursing interventions. *Worldviews on Evidence-Based Nursing*, 1(3), 176–184. <https://doi.org/10.1111/j.1524-475X.2004.04006.x>
- Tolan, P., Ross, K., Arkin, N., Godine, N., & Clark, E. (2016). Toward an integrated approach to positive development: Implications for intervention. *Applied Developmental Science*, 20(3), 214–236. <https://doi.org/10.1080/10888691.2016.1146080>
- Trapnell, P. D., & Campbell, J. D. (1999). Private self-consciousness and the five-factor model of personality: Distinguishing rumination from reflection. *Journal of Personality and Social Psychology*, 76(2), 284–304. <https://doi.org/10.1037/0022-3514.76.2.284>
- Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, 17, 783–805. [https://doi.org/10.1016/S0742-051X\(01\)00036-1](https://doi.org/10.1016/S0742-051X(01)00036-1)
- Tsering, G. T. (2008). *The awakening mind: Foundations of Buddhist thought*. Wisdom Publications.
- Vaz, F., & Martins, C. (2008). Diferenciação e regulação emocional na idade adulta. [Differentiation and emotional regulation in adulthood]. In A. P. Noronha, C. Machado, L. S. Almeida, M. Gonçalves, S. Martins, & V. Ramalho (Eds.), *Actas da XIII Conferência Internacional Avaliação Psicológica* [Proceedings of the XIII International Conference on Psychological Assessment]. Psiquilíbrios.
- Walach, H., Buchheld, N., Buettenmuller, V., Kleinknecht, N., & Schmidt, S. (2006). Measuring mindfulness—The Freiburg Mindfulness Inventory (FMI). *Personality and Individual Differences*, 40, 1543–1555. <https://doi.org/10.1016/j.paid.2005.11.025>
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063–1070. <https://doi.org/10.1037//0022-3514.54.6.1063>
- Weissberg, R. P., Durlak, J. A., Domitrovich, C. E., & Gullotta, T. P. (2015). Social and emotional learning: Past, present, and future. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P.

Gullotta (Eds.), *Handbook of social and emotional learning: Research and practice* (pp. 3–19). Guilford.

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Chapter 15

The Relationship Between Social Support and Physical Activity: A Moderated Mediation Model Based on the Self-Determination Theory



Cecilia M. S. Ma, Moon Y. M. Law, and Ada M. Y. Ma

Abstract The purpose of the study was to test the relationships between social support on physical activity via basic needs satisfaction. It explored the moderating role of exercise self-efficacy between basic needs satisfaction and physical activity. A total of 2023 students ($M_{\text{age}} = 19.73$; $SD_{\text{age}} = 1.29$) were recruited from a university in Hong Kong. Participants were asked to complete a self-reported questionnaire assessing their perception of social support, basic needs satisfaction, exercise self-efficacy, and physical activity. Results showed that basic need satisfaction was a significant mediator in the relationship between social support and PA ($b = .64$, $SE = .05$, $p < .01$). This relationship was moderated by exercise self-efficacy ($b = .10$, $SE = .03$, $p < .01$) while controlling the effect of demographic variables (i.e., age, gender, and past physical activity). Participants with high exercise self-efficacy reported higher levels of physical activity, perception of social support, and needs satisfaction compared to those with low exercise self-efficacy. Findings showed the importance of exercise self-efficacy and needs satisfaction on physical activity among young adults. Implications on the development and design of effective socio-emotional learning interventions were discussed.

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Introduction

The benefits of regular physical activity on physical and mental health outcomes, such as reduced risk of chronic disease and mortality, better sleep, and improved quality of life, have been well documented (Bell et al., 2019; Biddle et al., 2019). To improve overall well-being and prevent sedentary-related chronic diseases, a minimum of 150 min of moderate-intensity physical activity a week or at least 75 min of vigorous-intensity activity a week is recommended (WHO, 2022). Despite empirical evidence showing the positive outcomes of physical activity, approximately 27.5% of adults failed to meet the recommendation (Guthold et al., 2018) and about 80% of adolescents are considered as physically inactive (Guthold et al., 2020). Low physical activity is particularly shown among females (Troiano et al., 2008) and those who encountered adjustment problems during college transition (Irwin, 2004). Young adulthood is a crucial period for promoting and maintaining a healthy active lifestyle as it predicts overall physical activity levels in later life (Hallal et al., 2012; Sierra-Díaz et al., 2019).

Empirical findings show that low physical activity and increased daily screen time have linked to unhealthy lifestyle among college students (ACHA, 2019; Caestine et al., 2017; Wilson et al., 2021). Around 75% of students gained weight during the first year of university (Grooper et al., 2012). Additionally, Vella-Zarb and Elgar (2009) found that freshmen gained an average of 1.75 kg when entering university. To reduce the risk of a sedentary lifestyle, researchers call for understanding individual motives in physical activity and exercise settings by using the humanistic approach, such as the self-determination theory (Gil-Pfritz et al., 2021; Kwasnicka et al., 2016; Nogg et al., 2021). In this study, we adopted self-determination theory as a framework to explore the determinants of students' motivation and behavioral outcomes in the university context.

Self-Determination Theory

Self-determination theory (SDT) posits that individuals will be intrinsically motivated to engage in certain behaviors when their innate psychological needs are satisfied (Deci & Ryan, 2000; Whitehead, 1995). Deci and Ryan (2000) suggested that an individual has three basic psychological needs, including relatedness, competence, and autonomy. The need for relatedness refers to the feeling of closeness with significant others or connection with a social environment. The need for autonomy denotes the feeling of volition in one's decisions and behaviors, whereas the need for competence represents the feeling of capability in performing a task effectively or achieving a desired outcome (Vansteenkiste et al., 2020). These psychological needs are "innate psychological nutrients that are essential for on-going psychological growth, integrity, and well-being" (Ryan & Deci, 2002, pp. 229). According to SDT (Ryan & Deci, 2002; Vallerand, 2007), self-determined motivation (autonomous)

will be nurtured when all these basic needs are satisfied. It serves as a motivational resource that is linked to domain specific affective, cognitive, and behavioral outcomes (Sun et al., 2020). SDT proposes that the degree to which individuals experience psychological needs satisfaction may increase one's motivation and contribute to adaptive developmental and learning outcomes (Ryan & Deci, 2002).

Many researchers have explored the motivational nature of these psychological needs on individual outcomes. Specifically, studies showed that needs satisfaction can predict social-emotional learning and well-being outcomes (Chen & Zhang, 2022; Dincer et al., 2019; Tarbetsky et al., 2017). A robust body of literature supported the positive relationships between needs satisfaction and behavioral outcomes. Furthermore, meta-analysis and systematic reviews show that individual needs satisfaction is associated with a set of positive outcomes, such as greater enjoyment, autonomous motivation, increased physical activity intention, and better social relationships (Hagger & Chatzisarantis, 2016; Vasconcellos et al., 2020). Past work mostly focused on the direct impact of needs satisfaction on PA either by conceptualizing as a global factor (Abós et al., 2021; Weman-Josefsson et al., 2015) or multidimensional variables (Aldrup et al., 2018; Morano et al., 2020).

Recently, there is a growing attention to test the indirect impact of needs satisfaction on well-being and behavioral outcomes. Specifically, it investigates how factors related to behavioral outcomes via need satisfaction (Aldrup et al., 2018; Kalajas-Tilga et al., 2020; Orkibi & Ronen, 2017; Ma et al., 2018; Ntoumanis et al., 2021). Past studies have examined the role of basic psychological needs in different life transitions, such as retirement (Tang et al., 2021) and pregnancy (Migliorini et al., 2019). Little is known among college students, except one (Gil-Píriz et al., 2021). Additional research is warranted to understand how social factors, such as social support, influence individual physical activity level in tertiary education (Cerin, 2010; Preacher & Hayes, 2008; Schumacher et al., 2021). Contextual support was found to be associated with need satisfaction which in turn predicted academic outcomes (Edward & Konold, 2020; Sun et al., 2020; Zhou et al., 2019). However, studies focused on the underlying mechanisms between contextual support (social support) and behavioral outcomes in the field of PA are scarce. In view of promoting physical activity, especially during college (Niedermeier et al., 2018), more research to understand the motivational process among this target population is warranted.

Social Support

Social support is defined as the assistance and care from people around an individual's social network (Cohen & Matthews, 1987). It can be conceptualized as three different types of support in terms of emotional, instrumental, and informational (Schwarzer & Knoll, 2007). The role of social support on exercise adherence and intention physical activity has been shown among university students (Ma et al., 2018; Trost et al., 2002) and further demonstrated in a recent systematic review (Van

Luchene & Delens, 2021). In particular, support from social network (e.g., classmates, roommates, friends) plays an important role for individuals during young adulthood (Mishra, 2020; Nelson, 2019). Social support, especially from friends and peers, becomes more influential on student decision-making and behavioral outcomes, such as PA, compared to their parental support (Hefner & Esienberg, 2009; Haidar et al., 2019; LaCaille et al., 2011). Studies found that the impact of peer supports on physical activity level and well-being among adolescents (Haidar et al., 2019), especially for females (Laird et al., 2016; Schumacher et al., 2021) and with weight problems (Fitzgerald et al., 2012). Contextual support, such as social support, has been demonstrated to predict motivational variables, such as need satisfaction, self-efficacy, academic performance, and school engagement (Sun et al., 2020; Zhou et al., 2019). Perceived social support may influence one's attitude toward physical activity (e.g., emotional support, praise), beliefs about capacities to engage the specific behavior (e.g., instructional feedback, suggestions), and mobilizing resources to translate their action (e.g., instrumental resources/aids) (Duncan et al., 2005; Scarapicchia et al., 2017). Results of meta-analysis found that participants, who received high social support, predicted physical activity motives leading to better well-being, increase health-conducive behaviors and less social-emotional adjustment problems (Bender et al., 2019; Mendonça et al., 2014; Smith et al., 2017). Similar findings were also found in intervention studies (Alshehri et al., 2021; Kirby et al. 2022).

Recently, Cho et al. (2020) assessed the mediating role of need satisfaction on the relationships between social support, intrinsic motivation toward exercise, attitude, and intention toward physical activity. They found that need satisfaction significantly predicted intention to participate in physical activity through intrinsic motivation. It is noteworthy that only intention was tested in this study. Researchers argued that individuals may stay physically inactive even with a high level of physical activity intention (Conroy et al., 2011). Schumacher et al. (2021) posited that individuals may not be motivated to engage in physical activity when they feel incompetent to achieve desired goals (i.e., low self-efficacy) even if they received social support from significant others or peers. This approach is commonly adopted in the studies of academic performance and socio-emotional learning (Chen & Zhang, 2022; Zhou et al., 2019). Clearly, other factors may play a key role in influencing an individual's behavioral outcomes. This line of research question has been noted as the future direction in the SDT context (Çinar-Tanriverdi & Karabacak-Çelik, 2023; Guitierrez et al., 2018). Therefore, the present study attempts to explore the impact of potential moderators, such as self-efficacy.

Self-Efficacy as a Moderator

Self-efficacy is defined as an individual's self-evaluation of his/her ability to perform a task successfully (Bandura, 1997). Exercise self-efficacy refers to an individual judgment to complete a specific task in physical activity and exercise contexts (Carron

et al., 2002). It is conceptualized as an individual perception of ability to perform a desired goal effectively (Schunk & Usher, 2011). Researchers argue that self-efficacy influences individuals' intention to implement their plans (Dishman et al., 2004). Studies show that self-efficacy is associated with higher PA (Rauff & Kumazawa, 2022), fewer unhealthy behaviors (Du & Zhang, 2022; Lin et al., 2022), and better social emotional learning skills (Crozer et al., 2015; Ertuarn et al., 2020; Li et al., 2022). The moderating role of self-efficacy is demonstrated in a recent longitudinal study by Su et al. (2022). Based on a sample of university students, Su et al. (2022) showed that the effect of supervisor developmental feedback on student creativity through intrinsic motivation was moderated by creative self-efficacy. In other words, students receiving more developmental feedback from their supervisors reported a stronger belief in their ability to generate creative ideas and methods, more intrinsically motivated, which in turn leads to higher creativity level. Yet, this result was not shown among students with low creative self-efficacy. It is possible that domain-specific motivation (exercise self-efficacy) plays a moderating role between needs satisfaction and behavioral outcomes.

Despite the salient role of self-efficacy on behavioral outcomes (Elliott et al., 2022; McAuley & Blissmer, 2000), there are two limitations in this area of research. First, past SDT studies on physical activity have mostly tested self-efficacy either as a mediator (Joseph et al., 2014; Ren et al., 2020) or outcome (Li et al., 2022; Rauff & Kumazawa, 2022). Past work has demonstrated how social-cognitive factors (e.g., self-efficacy) outperform social support in predicting health-related behaviors in physical activity contexts (Arigo & Cavanaugh, 2016; Schmacher et al., 2021). For example, Schumacher et al. (2021) found that the impact of social comparison (i.e., booster self-efficacy) was a stronger and significant predictor, but not overall "general" social support, of physical activity intentions among college students. Second, past research mostly employed traditional approaches, such as linear regression models to investigate the effects of SDT factors on physical activity (Haidar et al., 2019). Researchers argued that integration of moderating and mediating approaches would help us to understand the dynamics among these SDT factors. Furthermore, past work mostly tested the moderating effect of demographic factors, such as gender and age (Vasconcellos et al., 2020). Based on the literature (Ren et al., 2020; Sun et al., 2020; Weman-Josefsson et al., 2015), individuals who have higher social support may be more likely to engage in physical activity through basic psychological needs satisfaction and domain-specific self-efficacy comparing to those who have lower social support. Yet, relevant empirical findings are scarce. There is a lack of research on how self-efficacy is associated with social support and behavioral outcomes in physical contexts and how this underlying mechanism is mediated by SDT factors. Clearly, exploring the moderating effect of self-efficacy will shed light on how individual cognitive factors are related to behavioral outcome.

Researchers argued the use of a moderated-mediating approach to explore the motivational process on an individual's outcomes (Cerin, 2010; Preacher & Hayes, 2008). A review study by Teixeira et al., (2012) noted that more advanced analyses could extend the SDT literature by testing the role of potential moderators such as self-efficacy in the pathways between contextual support, need satisfaction and outcomes.

For example, Zhang (2021) conducted structural equation modeling and found the indirect effect of academic self-efficacy (self-regulated learning) between student perception of the test and academic achievement, which in turn being moderated by perception of exam approaching. A recent study has demonstrated the indirect effect of inter-personal problems on the relationship between loneliness and problematic internet use (Wongpakaran et al., 2021). Consistent with Zhang's work (2021), the mediation effect of inter-personal problems was moderated by motivation of internet use. In the field of physical activity, Ren et al. (2020) reported that exercise self-efficacy mediated the relationship between social support and adolescent physical activity across gender. A limitation of this study is that only the mediator was tested in the hypothesized model. Little is known whether the pathway will be moderated by other individual factors, such as domain-specific self-efficacy.

Scholars proposed the use of moderated mediation models to explore the complex mechanism between contextual support, need satisfaction, and behavioral outcomes in SDT research. This method not only investigates the interactions between personal and social-contextual factors comprehensively, but also captures the simultaneous effects of both moderators and mediators in social science research (Edwards & Konold, 2020; Teixeira et al., 2012). To fill the research gaps, we sought to investigate the role of motivational variables between contextual support and individuals in the university physical activity and exercise context. We hypothesized the SDT-based model in which the inter-relationships between social support, need satisfaction, self-efficacy, and physical activity were tested by using a moderated mediation analysis.

Purpose of the Study

This study investigates (a) the mediating role of need satisfaction between social support and physical activity and (b) whether the effects of need satisfaction on physical activity will be moderated by exercise self-efficacy. To test the above SDT mechanisms, an integration of mediation and moderation analyses was adopted in the present study. The following research questions (RQs) were proposed:

RQ1: Does needs satisfaction mediate the relationship between social support and physical activity?

RQ2: Does exercise self-efficacy moderate the relationship between need satisfaction and physical activity?

Based on the literature, the following hypotheses were posited:

H1: Social support would positively predict need satisfaction (Hypothesis 1a) and physical activity level (Hypothesis 1b).

H2: Needs satisfaction positively would predict physical activity level (Hypothesis 2a) and mediate the relationship between social support and physical activity level (Hypothesis 2b).

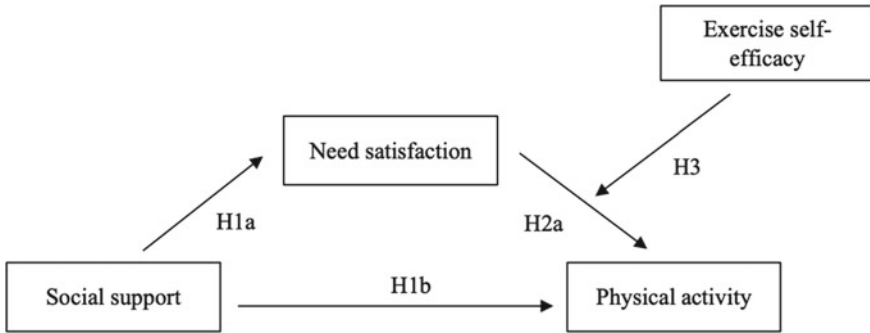


Fig. 15.1 Hypothesized model

H3: Exercise self-efficacy would moderate the relationship between need satisfaction and physical activity level. That is, the effect of social support on physical activity through need satisfaction would be much stronger when individuals perceive a higher level of exercise self-efficacy.

A hypothesized model is shown in Fig. 15.1.

Methodology

Participants

A total of 2,023 university students (male: 47.7%; female: 52.2%) were recruited from several freshmen non-credit bearing general education courses. The mean age was 19.73 ($SD = 1.29$). The demographics of all participants are shown in Table 15.1.

Measures

Psychological Need Satisfaction in Exercise Scale

The Psychological Need Satisfaction in Exercise Scale (PNSES, Wilson et al., 2006) was adopted to assess participants' psychological need satisfaction. The scale consists of 18 items assessing three subscales: relatedness (six items, e.g., "I feel connected to people I interact with"), competence (six items, e.g., "I feel confident I can do challenging exercise"), and autonomy (six items, e.g., "I have a say in choosing exercise I do"). Participants were asked to rate their responses using a six-point scale (1—"strongly disagree" to 6—"strongly agree") with higher scores

Table 15.1 Demographic information of the participants ($N = 2023$)

Variable	<i>M</i>	<i>SD</i>	Range	Missing (<i>n</i>)
Age	19.73	1.289	16–38	6
	<i>n</i> (%)			
Gender				1
Male	965 (47.7%)			
Female	1057 (52.2%)			
Discipline				5
Engineering	609 (30.2%)			
Humanities and social sciences	646 (32.0%)			
Design and textile	273 (13.5%)			
Business	490 (24.3%)			
Mode				7
Full-time	2013 (99.9%)			
Part-time	3 (0.1%)			
Level				5
Undergraduate	2004 (99.3%)			
Post-graduate	4 (0.2%)			
Others	10 (0.5%)			
Year				5
1	1952 (96.7%)			
2	26 (1.3%)			
3	23 (1.1%)			
4	17 (0.8%)			

suggesting greater satisfaction of basic psychological needs. The psychometric properties of the scale have been demonstrated among participants in Canada (Wilson et al., 2006), Greece (Vlachopoulos & Michailidou, 2006), Hong Kong (Ma et al., 2017), Iraq (Sevari, 2017) and further supported by using multigroup confirmatory factor analysis (Vlachopoulos et al., 2013; Sabo et al., 2022). In the present study, the internal consistency of the scale is 0.95.

Multidimensional Scale of Perceived Support Scale

Perception of social support was assessed by the Multidimensional Scale of Perceived Support Scale (MSPSS, Zimet et al., 1988). Three sources of social support, including family (four items, e.g., “*My family is willing to help me make decisions*”), friends (four items, e.g., “*I have friends with whom I can share my joys and sorrows*”), and significant others (four items, e.g., “*There is a special person in my life that cares about my feelings*”), were tested using a seven-point scale (1—“*strongly disagree*”

to 7—“*strongly agree*”). The validity and reliability of the scale have been supported among samples in Columbia (Trejos-Herrera et al., 2018), Hong Kong (Ma, 2020), Russia (Pushkarev et al., 2020), Turkey (Basol, 2008), and Thailand (Wongpakaran et al, 2011). A higher score indicates a higher level of perceived social support. The internal consistency of the scale is 0.93.

Exercise Self-efficacy

Exercise self-efficacy was assessed using four items (Sallis et al., 1988). Participants responded on a seven-point scale (1—“*not at all confident*” to 7—“*very confident*”). Sample item included “*In the next 2 weeks, I am confident that I will participate in physical activity or exercise when I am in a bad mood*”. This scale has been used among adolescents (Dishman et al., 2010; Norman et al., 2004) and young adults (D’Alonzo et al., 2004; Sallis et al., 1992, 1999; Sidman et al., 2009). The psychometric properties have been reported in Sallis and Owen’s study (1999). The Cronbach’s alpha value of the scale is 0.79. A higher score suggests a higher level of exercise self-efficacy.

Physical Activity

Physical activity was assessed by using one item “*How often you engaged in moderate to vigorous physical activities, such as jogging, cycling, and playing basketball, for more than 30 min over the past 7 days*”. The psychometric properties of this self-administered single item question have been shown (Iwai et al., 2001) and further reported by Milton and her colleagues (2011, 2013). A higher score indicates a higher physical activity level.

Demographic Variables

Participants were asked to provide demographic information, including age, gender (0 = male; 1 = female), past physical activity (0 = yes; 1 = no), year of study (0 = first year; 1 = second year; 2 = third year; 3 = fourth year), and discipline (0 = engineering; 1 = humanities and social sciences; 2 = design and textile; 3 = business). Table 15.2 shows descriptive statistics, including the means and standard deviations, and Pearson’s correlation coefficients of all variables. As expected, social support was significantly related to other three variables (need satisfaction: $r = 0.25$, $p < 0.01$; physical activity: $r = 0.11$, $p < 0.01$; exercise self-efficacy: $r = 0.19$, $p < 0.01$). Also, needs satisfaction was positively correlated with physical activity ($r = .39$, $p < 0.01$) and exercise self-efficacy ($r = 0.49$, $p < 0.01$). Lastly, physical activity was positively linked to exercise self-efficacy ($r = 0.41$, $p < 0.01$). In general, the correlation coefficients of all variables range from 0.11 to 0.40, indicating no sign of severe multicollinearity.

Table 15.2 Descriptive statistics among the study's variables

Variable	<i>M</i>	<i>SD</i>	α	1	2	3	4
1. Social support	3.21	0.54	0.93	–			
2. Need satisfaction	4.26	0.81	0.95	0.25**	-		
3. Physical activity	2.05	1.65	–	0.11**	0.39**	–	
4. Exercise self-efficacy	4.44	1.18	0.79	0.19**	0.49**	0.41**	-

** $p < 0.01$

Procedure

The study was approved by the university research ethics committee. Participants took part in the study voluntarily and informed consent was obtained prior to the survey. Data were collected in fall semester 2014. Adopting a paper-and-pencil format, the survey took approximately 15 min to complete.

Data Analysis

Descriptive statistics were calculated via SPSS 28.0. The inter-relationships among variables were examined using the Pearson's correlation (r). The prediction effects of social support and needs satisfaction on physical activity were tested using linear regression analysis after controlling for gender, age, and past physical activity. To analyze the influences of need satisfaction and exercise self-efficacy on physical activity, simple mediation (Model 4) and moderated mediation analyses (Model 14) were conducted via PROCESS macro 4.1 (Hayes, 2012, 2013, 2018). An advantage of the PROCESS macro is to test both direct and indirect effect mechanisms simultaneously via bootstrapping procedure. As recommended by Hayes (2009), all bootstrapping procedures were performed with 5000 resamples to obtain bias-corrected 95% confidence intervals (CIs). An effect was significant when the 95% confidence intervals did not contain zero. All continuous variables (age, needs satisfaction and social support, and exercise self-efficacy) were pre-centered. Prior the moderating analysis, assumptions related to a multiple regression analysis (e.g., normality, linearity, and homoscedasticity of residuals and multicollinearity among variables) were tested. These assumptions are not violated. The statistical significance level for all analyses was set at $p < 0.05$.

Results

The predictive effects of social support and basic needs satisfaction on physical activity are shown in Table 15.3. Results of linear regression (Model 1) showed that social support was positively associated with need satisfaction ($b = 0.42, SE = 0.05, p < 0.01$) and exercise self-efficacy ($b = 0.37, SE = 0.03, p < 0.01$) after controlling for the covariates (i.e., age, gender, past physical activity). It is noteworthy that the effect of social support on physical activity is not significant ($b = 0.08, SE = 0.06, p > 0.05$). Therefore, H1 was partially supported.

Table 15.3 Results of all models

	Model 1 (multiple regression model)		Model 2 (simple mediation model)				Model 3 (moderated mediation model)			
	PA		NSD		PA		NSD		PA	
Predictor	b^{\wedge}	SE^{\sim}	b^{\wedge}	SE^{\sim}	b^{\wedge}	SE^{\sim}	b^{\wedge}	SE^{\sim}	b^{\wedge}	SE^{\sim}
SS	0.08	0.06	0.36**	0.03	0.15*	0.07	0.36	0.03	0.07	0.07
NSD	0.42**	0.05			0.64**	0.05			0.42	0.05
ESE	0.37**	0.03							0.37	0.03
Gender	– 0.54**	0.07	– 0.38**	0.03	– 0.63**	0.07	–0.38	0.03	– 0.55	0.07
Age	– 0.01	0.03	0.02	0.02	– 0.00	0.03	0.02	0.02	– 0.02	0.03
Past PA	– 0.15	0.08	– 0.57**	0.04	– 0.24**	0.08	–0.57	0.04	– 0.15	0.08
NSD*ESE									0.10**	0.03
R^2	0.12		0.23		0.19		0.23		0.25	
Pathway			b^{\wedge}	SE	LLCI	ULCI	b^{\wedge}	SE	LLCI	ULCI
SS*PA			0.15*	0.07	0.02	0.28	0.07	0.07	– 0.06	0.20
SS*NSD*PA			0.23*	0.03	0.18	0.29				
Index of moderated mediation							0.04*	0.01	0.02	0.06
SS*NSD*PA@ low ESE							0.11*	0.03	0.06	0.16
SS*NSD*PA@ high ESE							0.20*	0.03	0.14	0.26

\wedge Unstandardized Beta.

\sim Robust standard errors.

LLCI: lower level confidence interval; ULCI: upper level confidence interval.

SS: social support; NSD: need satisfaction; PA: physical activity; ESE: exercise self-efficacy.

** $p < 0.01$; * $p < 0.05$.

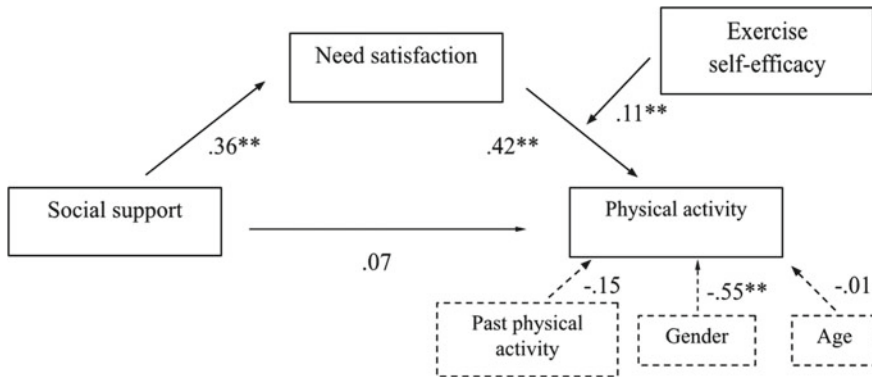


Fig. 15.2 Moderated mediation model

To test the mediation effect of basic need satisfaction, a simple mediation analysis was employed (Model 2). As shown in Table 15.3, the effect of need satisfaction on physical activity level ($b = 0.64$, $SE = 0.05$, $p < 0.01$) was significant. Social support has a significant positive effect on physical activity level ($b = 0.15$, $SE = 0.07$, $p < 0.05$). We also tested the mediating effect of need satisfaction on the relationship between social support and physical activity level. The path from social support to physical activity level through basic need satisfaction was significant while controlling demographic variables as covariates ($b = 0.23$, $SE = 0.03$, $p < 0.05$). Therefore, H2 is supported.

Lastly, a moderated mediation analysis was employed to test the role of exercise self-efficacy on the relationships between social support, needs satisfaction, and physical activity level (Fig. 15.2). Results showed that the interaction effect of self-efficacy and need satisfaction is significant in Model 3 ($b = 0.10$, $SE = 0.03$, $p < 0.01$). All variables explained 25% of the variance of physical activity among university students.

To visualize this interaction effect, the moderating effect of self-efficacy is graphed for two levels ($-1SD$ from exercise self-efficacy and $+1SD$ from exercise self-efficacy). As shown in Fig. 15.3, a stronger indirect effect (i.e., steeper slope) was found among participants with high exercise self-efficacy level ($b = 0.20$, $SE = 0.03$, 95% CI [0.14 to 0.26]) compared to those with low exercise self-efficacy level ($b = 0.11$, $SE = 0.03$, 95% CI [0.06 to 0.16]). This was further supported by the results of pairwise contrast analysis, suggesting that the indirect effect of needs satisfaction was stronger among those with high exercise self-efficacy than on those with low exercise self-efficacy ($b = 0.09$, $SE = 0.03$, 95% CI [0.03 to 0.14]). All bootstrapping confidence interval (95% CI) did not include zero, suggesting that the moderated mediation effect is significant ($p < 0.05$). These results supported the effect of need satisfaction on physical activity which is moderated by exercise self-efficacy, indicating that H3 was supported.

Additionally, we explored how perceived social support, needs satisfaction, and physical activity differed by self-efficacy level ($-1SD$ from exercise self-efficacy and

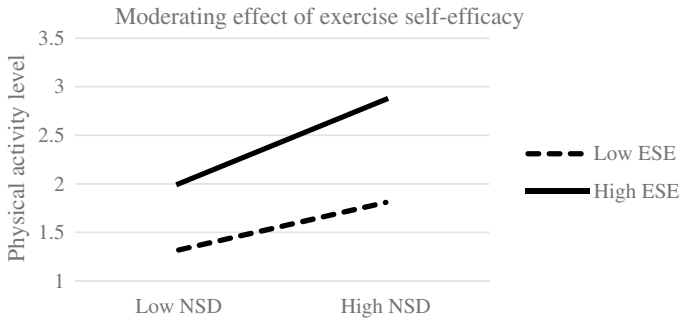


Fig. 15.3 Moderating effect of exercise self-efficacy on the relationships between social support, basic needs satisfaction, and physical activity. Note *NSD* need satisfaction; *ESE* exercise self-efficacy

Table 15.4 Results of independent t-test among the study’s variables by exercise self-efficacy

Variable	Low ESE (n = 347)		High ESE (n = 436)		t	df
	M	SD	M	SD		
Social support	3.10	0.55	3.38	0.55	- 7.05**	776
Needs satisfaction	3.76	0.79	4.85	0.74	- 19.63**	769
Physical activity	1.19	1.24	3.09	1.81	- 16.62**	781

Low ESE (- 1SD from ESE); High ESE (+ 1 SD from ESE).

Note. *NSD*: need satisfaction; *ESE*: exercise self-efficacy.

***p* < 0.01.

+ 1SD from exercise self-efficacy). As presented in Table 15.4, compared to those with low exercise self-efficacy, social support need has a stronger effect on need satisfaction and a tendency to engage in physical activity among students with high exercise self-efficacy participants (*p* < 0.01). Hence, the moderated mediation model is supported.

Discussion

The objectives of the present study were (a) to test the relationships between social support and physical activity through needs satisfaction and (b) to investigate whether exercise self-efficacy moderates the effect of needs satisfaction on physical activity. Results of the study demonstrated the inter-relationships among SDT variables in university contexts. First, participants, who perceived high social support, reported greater need satisfaction and were likely to engage in an active lifestyle. This is in line with the SDT, and individuals’ needs satisfaction and behavior will be influenced

by the social environment (Deci & Ryan, 1985; Fatoba & Bdzikot, 2015; Lai & Ma, 2016).

Consistent with past SDT research (Aldrup et al., 2018; Kalajas-Tilga et al., 2020; Orkibi & Ronen, 2017; Sheeran et al., 2020), the present study demonstrated the effects of motivational variables on physical activity among university students. As predicted by H1, social support showed both direct and indirect effects on motivational factors and associated outcomes. Our findings suggested that those who received social support were more satisfied with their psychological needs and likely to engage in an active lifestyle.

With the presence of a supportive environment, individuals are more likely to experience psychological need satisfaction, which in turn promotes their engagement in physical activity. Studies of motivation have predominantly focused on the direct effect of basic psychological needs on behavioral outcomes with little attention given to the social–contextual factors in the university environment. Findings of the present study highlighted the role of providing a supportive environment to predict individual healthy behavior by satisfying their needs and were consistent with the SDT literature. This is in line with past studies, showing that contextual support was associated with need satisfaction, and in turn related to positive outcomes, such as perceived competence, psychological resilience, adaptive learning, coping mechanism in academic studies (Chen, 2019; Clark et al., 2020; Jacobson & Newman, 2016; Pfeiffer et al., 2016; Zhou et al., 2019), and supported our hypotheses (H1 and H2). In addition, prior research found that social support was related to greater social–emotional learning skills, better academic performance, fewer dropouts, and positive well-being among middle school (Orgurlu et al., 2016), high school (Davis et al., 2014), and university students (Barros & Sacau-Fontenla, 2021). For example, Çınar-Tanriverdi and Karabacak-Çelik (2023) tested the association between academic stress, social support, and needs satisfaction in college students. It was seen that perceived social support was positively associated with psychological need satisfaction, academic motivation, and academic success and lower stress level. Taken together, the present results are in line with past research in SDT-academic based studies.

As predicted by H2, our findings showed that satisfaction of basic psychological needs was a key mediator in the association between social support and individual behavioral outcomes. According to the SDT (Ryan & Deci, 2002), need satisfaction could be a potential driving force that predicts an individual's well-being and positive outcomes, such as academic engagement, active lifestyle, and achievement goals (Chen & Zhang, 2022). It is possible that individuals who received social support have a sense of satisfaction with basic psychological needs which in turn tend to be physically active later. The present study extends the SDT literature by indicating the role of contextual factors in the field of physical activity research.

Second, we found differences in the effect of needs satisfaction on the relationship between social support and behavioral outcomes. Results of moderated mediation analysis demonstrated that exercise self-efficacy was an important factor in predicting the relationships between social support, needs satisfaction, and physical activity. Specifically, the impact of needs satisfaction on health-related behavior

was moderated by exercise self-efficacy. When compared to those with low exercise self-efficacy, the magnitude of the relationship between social support, needs satisfaction, and physical activity was stronger among individuals with high exercise self-efficacy. That is, individuals with high exercise self-efficacy perceived a supportive environment, reported greater needs satisfaction, and tended to stay physically active than those with low exercise self-efficacy. This is in line with the SDT and existing theoretical frameworks, such as the theory of planned behavior (TPB; Ajzen, 1991; Chatzisarantis & Hagger, 2009) and studies in academic (Su et al., 2022; Pianta et al., 2012; Travis et al., 2020; Sun et al., 2020) and physical activity and exercise contexts (Erturan et al., 2020; Rauff & Kumazawa, 2022). A possible explanation for the stronger effect of psychological needs satisfaction on physical activity among individuals with high self-efficacy level may be related to their past physical activity.

Self-efficacy refers to one's belief of their ability to achieve a goal (Bandura, 1997). Past sports experience could act as a significant factor in predicting one's exercise self-efficacy and future physical activity level (Pekemzi et al., 2009). Students who seldom engage in physical activity or exercise may perceive themselves as less physically competent and are unlikely to stay active, even if their psychological needs are satisfied. The impacts of sports history and participation on self-esteem and perceived competence have been demonstrated in cross-sectional (Koh et al., 2012) and longitudinal studies (Felton & Jowett, 2017). This influence was salient among females (Kim & Ahn, 2021). The current study highlighted the role of domain-specific self-efficacy on an individual's behavior in physical contexts.

This study contributes to the literature in two ways. First, it demonstrated the SDT mechanisms between social support, needs satisfaction, and physical activity using a moderated mediation model. Individuals, who receive high social support, are more satisfied with their psychological needs and likely to engage in an active lifestyle. This highlights the researchers' interest in disentangling the underlying mechanisms of SDT factors on physical activity and exercise. Second, this study explored how individuals' factor (exercise self-efficacy) moderates the association between needs satisfaction and behavioral outcomes. In line with social cognitive theory (Bandura, 1997), self-efficacy is associated with social and emotional well-being (Erturan et al., 2020; Li et al., 2022; Wang et al., 2022) and health-related behaviors (Lin et al., 2022). In the present study, the influence of need satisfaction on physical activity will be stronger among individuals with high self-efficacy compared to those with low self-efficacy. Individuals with high self-efficacy level reported a high level of psychological needs satisfaction, and in turn, were more likely to stay physically active. Consistent with past research (Alshehri et al., 2021; Ren et al., 2020), this study enriched our understanding about the impact of self-efficacy on physical activity among university students.

Our findings provide practical implications in physical activity and exercise settings. First, health practitioners should make efforts to create a supportive atmosphere which satisfies students' basic needs and motivates them to engage in a healthy active lifestyle by modifying the malleable constructs, such as social support and self-efficacy, within the social emotional learning-based interventions (Fortier et al., 2012). From the practical perspective, contextual support and needs satisfaction serve

as important motivational sources of physical activity. Practitioners not only provide a self-determined atmosphere, but also explore ways to boost one's self-efficacy when designing effective health-related interventions. Results of this study extended the SDT literature by indicating the interplay between social and personal factors which is associated with physical activity. Hence, educators could provide an appropriate social-emotional and/or behavioral evidence-based program by considering the interaction of contextual and personal SDT-related factors.

Second, it is necessary to establish an efficacious environment which promotes participants' belief to adopt a healthy lifestyle via social emotional learning skills. Our findings suggested that students with lower exercise self-efficacy levels are less likely to engage in an active lifestyle even if their needs are satisfied. Clearly, this group deserves our attention. If practitioners would like young adults to stay physically active during young adulthood college, which is likely to sustain after graduation (Hein et al., 2004), they should satisfy their psychological needs and develop their perceived exercise self-efficacy. Past studies showed that students' social emotional learning skills (e.g., emotional regulation, self-regulation) and behavioral outcomes (academic performance) could be enhanced via self-efficacy (Pool & Qualter, 2012; Ma & Shek, 2019). The protective effect of self-efficacy on COVID-19-related stressors is further supported in recent studies (Carcía-Álvarez et al., 2021; Gulley et al., 2021). Additionally, the efficacy of a peer-based intervention has been demonstrated in a qualitative study (Kirby et al., 2022). The present study highlights the development of health-related behaviors and social-emotional competencies via self-efficacy in future research (Pool & Qualter, 2012; Yüksel et al., 2019).

Lastly, this chapter highlights how social support and SDT are related to positive behavioral outcomes within physical contexts. Traditionally, SEL skills have been taught in classroom settings (Durlak et al., 2011). Researchers argue that student SEL skills, such as self-awareness, emotional regulation and peer relationships, can also be addressed when they encounter challenges and failures during the structured or unstructured sport activities (Ang & Penny, 2013; Hellison, 2011; Olive et al., 2021). Physical activity interventions incorporated SEL competencies have been designed to promote positive intra- (e.g., self-management, resilience) and inter-personal (social skills) competencies among students in Singapore (Ang et al., 2011, Ang & Penny, 2013) and the USA (Goh et al., 2022; Ji et al., 2021). This study sheds light on the interaction between individual and social antecedents in the physical activity setting, which allows students to apply SEL competencies (Olive et al., 2021). Considering SEL as a lifelong process of learning, educators or practitioners should be encouraged to integrate SEL skills into physical activity programs or sport activities (Goh et al., 2022; Olive et al., 2021).

Limitations and Future Research

Several limitations are noted in the present study. All variables were assessed by self-reported measures. Future studies could employ other methods (e.g., observation, interviews) to capture a better picture of the physical atmosphere and further investigate the possible behavioral consequences in tertiary education contexts. Second, despite the use of path analysis, no causality is inferred in the present study. Indeed, the relationship between social support, needs satisfaction, and physical activity may vary across time (e.g., before and end of semester). Future studies should adopt a longitudinal design to explore the temporal effects of mediator and moderator on the relationship between social support and physical activity. Past studies showed that the impact of social support varies across sources and types of social support (Cho et al., 2020; Haidar et al., 2019) and is further supported in a recent meta-analysis (van Luchene & Delens, 2021). It is noteworthy that our respondents reported lower perceived social support score compared to past studies (Akanni & Oduaran, 2018; Ruthig et al., 2009). This might be related to our participants' characteristics. In the present study, over 96% of our participants were freshmen. Past studies show that first year undergraduate students tend to report higher levels of loneliness, stress, and depressive symptoms than non-freshmen (Lu et al., 2015; Xu et al., 2022). It is noteworthy that the data were collected in the first semester of the freshman year. Perhaps, our respondents found difficulties to adjust to this new environment, experienced greater loneliness, and were less likely to establish new social ties with peers when facing this transition. Future research should replicate our study among non-freshmen or in other universities.

Another limitation of our study is that need satisfaction was assessed as a global factor. Using a parallel mediation model, Çınar-Tanriverdi and Karabacak-Çelik (2023) showed that academic stress was associated by the three dimensions of psychological needs satisfaction (i.e., autonomy, competence, and relatedness). Also, Yang et al. (2021) found that adolescents' online social media multitasking was associated with better peer relationship quality and positive well-being through competence needs satisfaction. Future research might adopt a prospective design and explore the temporal changes of these relationships that differ in terms of dimensions of social support and psychological needs satisfaction.

Finally, this study focused on the influence of needs satisfaction on physical activity. Past studies show that individual motivational outcomes may be affected by other factors (e.g., achievement motivation, personality) (Erturan et al., 2020; Gil-Pérez et al., 2021). Future research can explore the moderating effects of other potential contextual factors among university students' health-related behavior and well-being. Lastly, the present findings were confined to a university student population, which might not be generalized to other populations.

The present study demonstrated novel insights by integrating moderating mediation analysis to understand physical activity among university students. The findings showed that self-efficacy moderates the mediation effect of need satisfaction on physical activity. This extended the theoretical framework of SDT and provided a

new direction to understand the association between SDT factors and outcomes. Weman-Josefsson et al. (2015, p. 10) argued that “making use of the SDT to design effective interventions which understand the influence of potential pathways that motivate individuals moving from inactive to active lifestyle” will be a new direction in this area of research. Clearly, the present study serves as a positive response to this call. By using an integration of mediation and moderation analyses, we tested the hypothesized relationships among SDT-related components and their impacts on behavioral outcomes. Our results indicated the mechanisms of the SDT process vary depending on exercise self-efficacy. The current study demonstrates the importance of taking both contextual and personal factors into account in the field of SDT research. Considering the benefits of physical activity, more research in this area is warranted to promote our next generation of students to adopt an active and healthy lifestyle and reduce risk of mortality throughout their lives.

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References

- Abós, Á., García-González, L., Aibar, A., & Sevil-Serrano, J. (2021). Towards a better understanding of the role of perceived task variety in physical education: A self-determination theory approach. *Psychology of Sport and Exercise*, *56*, 101988. <https://doi.org/10.1016/j.psychsport.2021.101988>
- Akanni, A. A., & Oduaran, C. A. (2018). Perceived social support and life satisfaction among freshmen: Mediating roles of academic self-efficacy and academic adjustment. *Journal of Psychology in Africa*, *28*(2), 89–93.
- Aldrup, K., Klusmann, U., Lüdtke, O., Göllner, R., & Trautwein, U. (2018). Student misbehavior and teacher well-being: Testing the mediating role of the teacher-student relationship. *Learning and Instruction*, *58*(58), 126–136. <https://doi.org/10.1016/j.learninstruc.2018.05.006>
- Alshehri, M. A., Kruse-Diehr, A. J., McDaniel, J., Partridge, J. A., & Null, D. (2021). Impact of social support on the physical activity behaviors of international college students in the United States. *International Journal of Exercise Science*, *14*(5), 1305–1319.
- American College Health Association (ACHA, 2019). National college health assessment II: Spring 2019 reference group executive summary. https://www.acha.org/NCHA/ACHA-NCHA_Data/Publications_and_Reports/NCHA/Data/Reports_ACHA-NCHAIIC.aspx
- Ang, S. C., Penney, D., & Swabey, K. (2011). Pursuing social and emotional learning outcomes through sport education: An Australian case study. In P. Hastie (Ed.), *Sport education: International perspectives* (pp. 116–132). Routledge.
- Ang, S. C., & Penny, D. (2013). Promoting social and emotional learning outcomes in physical education: Insights from a school-based research project in Singapore. *Asia-Pacific Journal of Health, Sport and Physical Education*, *4*, 267–286.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Arigo, D., & Cavanaugh, J. (2016). Social perceptions predict change in women’s mental health and health-related quality of life during the first semester of college. *Journal of Social and Clinical Psychology*, *35*(8), 643–663. <https://doi.org/10.1521/jscp.2016.35.8.643>

- Barros, C., & Sacau-Fontenla, A. (2021). New insights on the mediating role of emotional intelligence and social support on university students' mental health during COVID-19 pandemic: Gender matters. *International Journal of Environmental Research and Public Health*, 18(24), 12935. <https://doi.org/10.3390/ijerph182412935>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.
- Başol, G. (2008). Validity and reliability of the multidimensional scale of perceived social support-revised, with a Turkish sample. *Social Behavior and Personality: An International Journal*, 36(10), 1303–1313.
- Bender, M., van Osch, Y., Slegers, W., & Ye, M. (2019). Social support benefits psychological adjustment of international students: Evidence from a meta-analysis. *Journal of Cross-Cultural Psychology*, 50(7), 827–847.
- Bell, S. L., Audrey, S., Gunnell, D., Cooper, A., & Campbell, R. (2019). The relationship between physical activity, mental well-being, and symptoms of mental health disorder in adolescents: A cohort study. *The International Journal of Behavioral Nutrition and Physical Activity*, 16(1), 138. <https://doi.org/10.1186/s12966-019-0901-7>
- Biddle, S. J. H., Ciacconioni, S., Thomas, G., & Vergeer, I. (2019). Physical activity and mental health in children and adolescents: An updated review of reviews and an analysis of causality. *Psychology of Sport and Exercise*, 42, 146–155. <https://doi.org/10.1016/j.psychsport.2018.08.011>
- Calestine, J., Bopp, M., Bopp, C. M., & Papalia, Z. (2017). College student work habits are related to physical activity and fitness. *International Journal of Exercise Science*, 10(7), 1009–1017.
- Carron, A. V., Hausenblas, H. A., Estabrooks, P. A. (2002). *The Psychology of Physical Activity*. New York, NY: McGrawHill.
- Chen, S. (2019). Chinese adolescents' emotional intelligence, perceived social support, and resilience: The impact of school type selection. *Frontiers in Psychology*, 10, 1299. <https://doi.org/10.3389/fpsyg.2019.01299>
- Cerin, E. (2010). Ways of unravelling how and why physical activity influences mental health through statistical mediation analyses. *Health and Physical Activity*, 3(2), 51–60. <https://doi.org/10.1016/j.mhpa.2010.06.002>
- Chatzisarantis, N. L. D., & Hagger, M. S. (2009). Effects of an intervention based on self-determination theory on self-reported leisure-time physical activity participation. *Psychology & Health*, 24(1), 29–48. <https://doi.org/10.1080/08870440701809533>
- Cho, H., Hussain, R. S. B., & Kang, H. (2020). The role of social support and its influence on exercise participation: the perspective of self-determination theory and the theory of planned behavior. *The Social Science Journal*, 1–15. <https://doi.org/10.1080/03623319.2020.1756176>
- Chen, H., & Zhang, M. H. (2022). The relationship between basic psychological needs satisfaction and university students' academic engagement: The mediating effect of emotional intelligence. *Frontiers in Psychology*, 13, 917578.
- Çınar-Tanrıverdi, E., & Karabacak-Çelik, A. (2023). Psychological need satisfaction and academic stress in college students: Mediator role of grit and academic self-efficacy. *European Journal of Psychology of Education*, 38, 131–160. <https://doi.org/10.1007/s10212-022-00658-1>
- Clark, K. N., Dorio, N. B., Eldridge, M. A., Malecki, C. K., & Demaray, M. K. (2020). Adolescent academic achievement: A model of social support and grit. *Psychology in the Schools*, 57(2), 204–221.
- Crozier, A. J., Gierc, M. S. H., Locke, S. R., & Brawley, L. R. (2015). Physical activity in the transition to university: The role of past behavior and concurrent self-regulatory efficacy. *Journal of American College Health*, 63(6), 380–387.
- Cohen, S., & Matthews, K. A. (1987). Social support, type A behavior, and coronary artery disease. *Psychosomatic Medicine*, 49(4), 325–330. <https://doi.org/10.1097/00006842-198707000-00001>
- Conroy, D. E., Elavsky, S., Hyde, A. L., & Doerksen, S. E. (2011). The dynamic nature of physical activity intentions: A within-person perspective on intention-behavior coupling. *Journal of Sport & Exercise Psychology*, 33(6), 807–827. <https://doi.org/10.1123/jsep.33.6.807>

- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behaviour*. New York: Plenum.
- D'Alonzo, K. T., Stevenson, J. S., & Davis, S. E. (2004). Outcomes of a program to enhance exercise self-efficacy and improve fitness in black and hispanic college-age women. *Research in Nursing & Health*, 27, 357–369.
- Davis, A., Solberg, V. S., de Baca, C., & Gore, T. H. (2014). Use of social emotional learning skills to predict future academic success and progress toward graduation. *Journal of Education for Students Placed at Risk*, 19, 169–182.
- Deci, E. L., & Ryan, R. M. (2000). The “What” and “Why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Dincer, A., Yeşilyurt, S., Noels, K. A., & Vargas Lascano, D. I. (2019). Self-determination and classroom engagement of EFL learners: A mixed-methods study of the self-system model of motivational development. *SAGE Open*, 9(2), 2158244019853913.
- Dishman, R. K., Motl, R. W., Saunders, R., Felton, G., Ward, D. S., Dowda, M., & Pate, R. R. (2004). Self-efficacy partially mediates the effect of a school-based physical-activity intervention among adolescent girls. *Preventive Medicine: An International Journal Devoted to Practice and Theory*, 38(5), 628–636. <https://doi.org/10.1016/j.ypmed.2003.12.007>
- Dishman, R. K., Dunn, A. L., Sallis, J. F., Vandenberg, R. J., & Pratt, C. A. (2010). Social-cognitive correlates of physical activity in a multi-ethnic cohort of middle-school girls: Two-year prospective study. *Journal of Pediatric Psychology*, 35, 188–198.
- Du, Z., & Zhang, X. (2022). Analysis of the mediating effects of self-efficacy and self-control between physical activity and Internet addiction among Chinese college students. *Frontiers in Psychology*, 13, 1002830–1002830. <https://doi.org/10.3389/fpsyg.2022.1002830>
- Duncan, S. C., Duncan, T. E., & Strycker, L. A. (2005). Sources and types of social support in youth physical activity. *Health psychology: Official journal of the division of health psychology. American Psychological Association*, 24(1), 3–10. <https://doi.org/10.1037/0278-6133.24.1.3>
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82(1), 405–432. <https://doi.org/10.1111/j.1467-8624.2010.01564.x>
- Elliott, L. D., Tran, B., Dzieniszewski, E., Duffey, M., Wilson, O. W. A., & Bopp, M. (2022). Differences in United States college student physical activity and exercise self-efficacy based on gender and race/ethnicity. *Journal of American College Health*. <https://doi.org/10.1080/07448481.2022.2093117>
- Erturan, G., McBride, R., & Agbuga, B. (2020). Self-regulation and self-efficacy as mediators of achievement goals and leisure time physical activity: A proposed model. *Pedagogy of Physical Culture and Sports*, 24(1), 12–20. <https://doi.org/10.15561/18189172.2020.0102Fatoba>
- Fatoba, E. O., & Bdzikot, D. (2015). Stress and social support systems among final year medical students of Medical University of Silesia. *BMC Proceedings*, 9(S1), A57–A57. <https://doi.org/10.1186/1753-6561-9-S1-A57>
- Fitzgerald, A., Fitzgerald, N., & Aherne, C. (2012). Do peers matter? A review of peer and/or friends' influence on physical activity among American adolescents. *Journal of Adolescence*, 35(4), 941–958. <https://doi.org/10.1016/j.adolescence.2012.01.002>
- Fortier, M. S., Duda, J. L., Guerin, E., & Teixeira, P. J. (2012). Promoting physical activity: Development and testing of self-determination theory-based interventions. *The International Journal of Behavioral Nutrition and Physical Activity*, 9(1), 20–20. <https://doi.org/10.1186/1479-5868-9-20>
- Edwards, K. D., & Konold, T. R. (2020). Moderated mediation analysis: A review and application to school climate research. *Practical Assessment, Research, and Evaluation*, 25, Article 5.
- Felton, L., & Jowett, S. (2017). Self-determination theory perspective on attachment, need satisfaction, and well-being in a sample of athletes: A longitudinal study. *Journal of Clinical Sport Psychology*, 11(4), 304–323.

- García-Álvarez, D., Hernández-Lalinde, J., & Cobo-Rendón, R. (2021). Emotional intelligence and academic self-efficacy in relation to the psychological well-being of university students during COVID-19 in Venezuela. *Frontiers in Psychology, 12*, 759701. <https://doi.org/10.3389/fpsyg.2021.759701>
- Gil-Píriz, D., Leyton-Román, M., Mesquita, S., & Jiménez-Castuera, R. (2021). Barriers to the practice of sport and physical activity from the perspective of self-determination theory. *Sustainability (Basel, Switzerland), 13*(14), 7665–. <https://doi.org/10.3390/su13147665>
- Goh, T. L., Leong, C. H., Fede, M., & Ciotto, C. (2022). Before-school physical activity program's impact on social and emotional learning. *Journal of School Health, 92*, 674–680.
- Gropper, S. S., Newell, F. H., Zaremba-Morgan, A., Keiley, M. K., White, B. D., Huggins, K. W., Simmons, K. P., Connell, J. L., & Ulrich, P. V. (2012). The impact of physical activity on body weight and fat gains during the first 3 years of college. *International Journal of Health Promotion and Education, 50*(6), 296–310. <https://doi.org/10.1080/14635240.2012.724190>
- Gulley, T., Hall, T., Newsome, A., Sidle, M. W., & Simpson, M. R. (2021). Perceived self-efficacy among nursing students during a pandemic: A pilot study. *Teaching and Learning in Nursing, 16*, 215–219. <https://doi.org/10.1016/j.teln.2021.03.001>
- Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2020). Global trends in insufficient physical activity among adolescents: A pooled analysis of 298 population-based surveys with 1.6 million participants. *The Lancet Child & Adolescent Health, 4*(1), 23–35. [https://doi.org/10.1016/S2352-4642\(19\)30323-2](https://doi.org/10.1016/S2352-4642(19)30323-2)
- Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2018). Worldwide trends in insufficient physical activity from 2001 to 2016: A pooled analysis of 358 population-based surveys with 1.9 million participants. *The Lancet Global Health, 6*(10), e1077–e1086. [https://doi.org/10.1016/S2214-109X\(18\)30357-7](https://doi.org/10.1016/S2214-109X(18)30357-7)
- Gutierrez, M., Sancho, P., Galiana, L., & Tomas, J. M. (2018). Autonomy support, psychological needs satisfaction, school engagement and academic success: A mediation model. *Universitas Psychologica, 17*(5), 1–12.
- Hagger, M. S., & Chatzisarantis, N. L. (2016). The trans-contextual model of autonomous motivation in education: Conceptual and empirical issues and meta-analysis. *Review of Educational Research, 86*, 360–407. <https://doi.org/10.3102/0034654315585005>
- Hallal, P. C., Andersen, L. B., Bull, F. C., Guthold, R., Haskell, W., & Ekelund, U. (2012). Global physical activity levels: Surveillance progress, pitfalls, and prospects. *The Lancet (british Edition), 380*(9838), 247–257. [https://doi.org/10.1016/S0140-6736\(12\)60646-1](https://doi.org/10.1016/S0140-6736(12)60646-1)
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the New Millennium. *Communication Monographs, 76*(4), 408–420.
- Hayes, A. F. (2012). *Process: A versatile computational tool for observed variable mediation, moderation, and conditional process modelling*. [White paper]. <http://www.afhayes.com/public/process2012.pdf>
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis*. Guilford Press.
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach (methodology in the social sciences)* (2nd ed.). The Guilford Press.
- Haidar, A., Ranjit, N., Archer, N., & Hoelscher, D. M. (2019). Parental and peer social support is associated with healthier physical activity behaviors in adolescents: A cross-sectional analysis of Texas School Physical Activity and Nutrition (TX SPAN) data. *BMC Public Health, 19*(1), 640–640. <https://doi.org/10.1186/s12889-019-7001-0>
- Hefner, J., & Eisenberg, D. (2009). Social support and mental health among college students. *The American Journal of Orthopsychiatry, 79*(4), 491–499. <https://doi.org/10.1037/a0016918>
- Hein, V., Müür, M., & Koka, A. (2004). Intention to be physically active after school graduation and its relationship to three types of intrinsic motivation. *European Physical Education Review, 10*(1), 5–19.
- Hellison, D. (2011). Teaching responsibility through physical activity. (3rd ed.). *Human Kinetics*.

- Irwin, J. D. (2004). Prevalence of university students' sufficient physical activity: A systematic review. *Perceptual & Motor Skills*, 98(3), 927–943. <https://doi.org/10.2466/pms.98.3.927-943>
- Iwai, N., Hisamichi, S., Hayakawa, N., Inaba, Y., Nagaoka, T., Sugimori, H., Seki, N., Sakata, K., Suzuki, K., Tamakoshi, A., Nakamura, Y., Yamamoto, A., Nishino, Y., Ogihara, A., Okamoto, N., Suzuki, H., Morioka, S., Ito, Y., Wakai, K., Ojima, T., Tanaka, H., Nose, T., Ohno, Y. (2001). Validity and reliability of single-item questions about physical activity. *Journal of Epidemiology*, 11(5), 211–218. <https://doi.org/10.2188/jea.11.211>
- Ji, P., DuBois, D. L., & Flay, B. R. (2013). Social-emotional and character development scale: Development and initial validation with urban elementary school students. *Journal of Research in Character Education*, 9(2), 121–147. <https://doi.org/10.1016/j.childyouth.2021.106124>
- Ji, P., DuBois, D. L., & Flay, B. R. (2021). Social-emotional and character development scale: Validation with urban middle school students. *Children and Youth Services Review*, 127, 106124. <https://doi.org/10.1016/j.childyouth.2021.106124>.
- Joseph, R. P., Royse, K. E., Benitez, T. J., & Pekmezi, D. W. (2014). Physical activity and quality of life among university students: Exploring self-efficacy, self-esteem, and affect as potential mediators. *Quality of Life Research*, 23(2), 661–669. <https://doi.org/10.1007/s11136-013-0492-8>
- Kalajas-Tilga, H., Koka, A., Hein, V., Tilga, H., & Raudsepp, L. (2020). Motivational processes in physical education and objectively measured physical activity among adolescents. *Journal of Sport and Health Science*, 9(5), 462–471. <https://doi.org/10.1016/j.jshs.2019.06.001>
- Kwasnicka, D., Dombrowski, S. U., White, M., & Sniehotta, F. (2016). Theoretical explanations for maintenance of behavior change: A systematic review of behavior theories. *Health Psychology Review*, 10(3), 277–296. <https://doi.org/10.1080/17437199.2016.1151372>
- Kirby, J. B., Babkes Stellino, M., Lewis, C., Humphrey, K., Gordon, K., & Lindsay, K. G. (2022). You've got a friend in me: Fostering social connection among college students through peer-led physical activity. *Health Promotion Practice*. <https://doi.org/10.1177/15248399211072535>
- Kim, I., & Ahn, J. (2021). The effect of changes in physical self-concept through participation in exercise on changes in self-esteem and mental well-being. *International Journal of Environmental Research and Public Health*, 18(10), 5224. <https://doi.org/10.3390/ijerph18105224>
- Koh, K. T., Wang, J. C. K., Erikson, K., & Côté, J. (2012). Experience in competitive youth sport and needs satisfaction: The Singapore story. *International Journal of Sport Psychology*, 43(1), 15–32.
- LaCaille, L. J., Dauner, K. N., Krambeer, R. J., & Pedersen, J. (2011). Psychosocial and environmental determinants of eating behaviors, physical activity, and weight change among college students: A qualitative analysis. *Journal of American College Health*, 59(6), 531–538. <https://doi.org/10.1080/07448481.2010.523855>
- Lai, C. C. W., & Ma, C. M. S. (2016). The mediating role of social support in the relationship between psychological well-being and health-risk behaviors among Chinese university students. *Health Psychology Open*, 3(2), 2055102916678106–2055102916678106. <https://doi.org/10.1177/2055102916678106>
- Laird, Y., Fawkner, S., Kelly, P., McNamee, L., & Niven, A. (2016). The role of social support on physical activity behavior in adolescent girls: A systematic review and meta-analysis. *International Journal of Behavioral Nutrition and Physical Activity*, 13(79), 1–14. <https://doi.org/10.1186/s12966-016-0405-7>
- Li, C., Hu, Y., & Ren, K. (2022). Physical activity and academic procrastination among Chinese university students: A parallel mediation model of self-control and self-efficacy. *International Journal of Environmental Research and Public Health*, 19(10), 6017. <https://doi.org/10.3390/ijerph19106017>
- Lin, B., Teo, E. W., & Yan, T. (2022). The impact of smartphone addiction on Chinese university students' physical activity: Exploring the role of motivation and self-efficacy. *Psychology Research and Behavior Management*, 15, 2273–2290. <https://doi.org/10.2147/PRBM.S375395>

- Lu, W., Bian, Q., Song, Y. Y., Ren, J. Y., Xu, X. Y., & Zhao, M. (2015). Prevalence and related risk factors of anxiety and depression among Chinese college freshmen. *Journal of Huazhong University of Science and Technology [medical Sciences]*, 35, 815–822.
- Ma, C. M. S. (2020). Measurement invariance of the multidimensional scale of perceived social support among Chinese and South Asian ethnic minority adolescents in Hong Kong. *Frontiers in Psychology*, 11, 596737–596737. <https://doi.org/10.3389/fpsyg.2020.596737>
- Ma, C. M. S., & Shek, D. T. L. (2019). Objective outcome evaluation of a positive youth development program: The project P.A.T.H.S. in Hong Kong. *Research on Social Work Practice*, 29(1), 49–60.
- Ma, C. M. S., Shek, T. L., & Lai, C. C. W. (2017). Psychological needs, self-regulation, and motivation profiles among a sample of Hong Kong Chinese university students: A person-centered approach. *International Journal on Disability and Human Development*, 16(4), 407–416. <https://doi.org/10.1515/ijdh-2017-7009>
- Ma, C. M. S., Kwan, M. W. Y., Ma, A. M. Y., & Lai, C. C. W. (2018). The role of motivation and social support in health-related behaviors among Chinese university students. In: *Paper presented at international society for quality of life studies 16th ISQOL annual conference: Promotion of quality of life in the changing world*. The Hong Kong Polytechnic University, Hong Kong.
- McAuley, E., & Blissmer, B. (2000). Self-efficacy determinants and consequences of physical activity. *Exercise and Sport Sciences Review*, 28(2), 85–88.
- Mendonça, G., Cheng, L. A., Mélo, E. N., & de Farias Júnior, J. C. (2014). Physical activity and social support in adolescents: A systematic review. *Health Education Research*, 29(5), 822–839. <https://doi.org/10.1093/her/cyu017>
- Migliorini, L., Cardinali, P., & Rania, N. (2019). How could self-determination theory be useful for facing health innovation challenges? *Frontiers in Psychology*, 10, 1870–1870. <https://doi.org/10.3389/fpsyg.2019.01870>
- Milton, K., Bull, F. C., & Bauman, A. (2011). Reliability and validity testing of a single-item physical activity measure. *British Journal of Sports Medicine*, 45(3), 203–208. <https://doi.org/10.1136/bjism.2009.068395>
- Milton, K., Clemes, S., & Bull, F. (2013). Can a single question provide an accurate measure of physical activity? *British Journal of Sports Medicine*, 47(1), 44–48. <https://doi.org/10.1136/bjports-2011-090899>
- Mishra, S. (2020). Social networks, social capital, social support and academic success in higher education: A systematic review with a special focus on ‘underrepresented’ students. *Educational Research Review*, 2020(29), 100307. <https://doi.org/10.1016/j.edurev.2019.100307>
- Moreno-Agostino, D., Daskalopoulou, C., Wu, Y. T., Koukounari, A., Haro, J. M., Tyrovolas, S., Panagiotakos, D. B., Prince, M., & Prina, A. M. (2020). The impact of physical activity on healthy ageing trajectories: Evidence from eight cohort studies. *The International Journal of Behavioral Nutrition and Physical Activity*, 17(1), 92. <https://doi.org/10.1186/s12966-020-00995-8>
- Nelson, I. A. (2019). Starting over on campus or sustaining existing ties? Social capital during college among rural and non-rural college graduates. *Qualitative Sociology*, 42(1), 93–116 (2019). <https://doi.org/10.1007/s11133-018-9399-6>
- Niedermeier, M., Fröhlich, A., Kopp-Wilfling, P., Rumpold, G., & Kopp, M. (2018). Alcohol consumption and physical activity in Austrian college students—A cross-sectional study. *Substance Use & Misuse*, 53, 1581–1590.
- Nogg, K. A., Vaughn, A. A., Levy, S. S., & Blashill, A. J. (2021). Motivation for Physical activity among U.S. adolescents: A self-determination theory perspective. *Annals of Behavioral Medicine*, 55(2), 133–143. <https://doi.org/10.1093/abm/kaaa037>
- Norman, G. J., Vaughn, A. A., Roesch, S. C., Sallis, J. F., Calfas, K. J., & Patrick, K. (2004). Development of decisional balance and self-efficacy measures for adolescent sedentary behaviors. *Psychology & Health*, 19(5), 561–575.

- Ntoumanis, N., Ng, J., Prestwich, A., Quested, E., Hancox, J. E., Thøgersen-Ntoumani, C., Deci, E. L., Ryan, R. M., Lonsdale, C., & Williams, G. C. (2021). A meta-analysis of self-determination theory-informed intervention studies in the health domain: Effects on motivation, health behavior, physical, and psychological health. *Health Psychology Review, 15*(2), 214–244. <https://doi.org/10.1080/17437199.2020.1718529>
- Olive, C., McCullick, B. A., Tomporowski, P., Gaudreault, K. L., & Simonton, K. (2020). Effects of an after-school program focused on physical activity and social-emotional learning. *Journal of Youth Development, 15*(6), 292–305. <https://doi.org/10.5195/jyd.2020.889>
- Olive, C., Gaudreault, G. K., McCullick, B. A., & Tomporowski, P. (2021). Promoting social-emotional learning through physical activity. *Strategies, 34*, 20–25. <https://doi.org/10.1080/08924562.2021.1948474>
- Orkibi, H., & Ronen, T. (2017). Basic psychological needs satisfaction mediates the association between self-control skills and subjective well-being. *Frontiers in Psychology, 8*, 936–936. <https://doi.org/10.3389/fpsyg.2017.00936>
- Ogurlu, Ü., Sevgi-Yalın, H., & Yavuz-Birben, F. (2018). The relationship between social-emotional learning ability and perceived social support in gifted students. *Gifted Education International, 34*(1), 76–95. <https://doi.org/10.1177/0261429416657221>
- Pekmezi, D., Jennings, E., & Marcus, B. H. (2009). Evaluating and enhancing self-efficacy for physical activity. *Acsm's Health & Fitness Journal, 13*(2), 16–21.
- Pfeiffer, J. P., Pinquart, M., & Krick, K. (2016). Social relationships, prosocial behavior, and perceived social support in students from boarding schools. *Canadian Journal of School Psychology, 31*, 279–289.
- Pianta, R. C., Hamre, B. K., & Allen, J. P. (2012). Teacher-student relationships and engagement: Conceptualizing, measuring, and improving the capacity of classroom interactions. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 365–386). Spring.
- Pool, L. D., & Qualter, P. (2012). Improving emotional intelligence and emotional self-efficacy through a teaching intervention for university students. *Learning and Individual Differences, 22*(3), 306–312.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879–891. <https://doi.org/10.3758/BRM.40.3.879>
- Pushkarev, G. S., Zimet, G. D., Kuznetsov, V. A., & Yaroslavskaya, E. I. (2020). The multidimensional scale of perceived social support (MSPSS): Reliability and validity of Russian version. *Clinical Gerontologist, 43*(3), 331–339.
- Rauff, E. L., & Kumazawa, M. (2022). Physical activity motives and self-efficacy to overcome physical activity barriers in first-year undergraduates: Do they differ based on physical activity levels? *Journal of American College Health, 1–8*. <https://doi.org/10.1080/07448481.2022.2109032>
- Ren, Z., Hu, L., Yu, J. J., Yu, Q., Chen, S., Ma, Y., Lin, J., Yang, L., Li, X., & Zou, L. (2020). The influence of social support on physical activity in Chinese adolescents: The mediating role of exercise self-efficacy. *Children (Basel), 7*(3), 23–. <https://doi.org/10.3390/children7030023>
- Ruthig, J. C., Haynes, T. L., Stupnisky, R. H., & Perry, R. P. (2009). Perceived academic control: Mediating the effects of optimism and social support on college students' psychological health. *Social Psychology of Education, 12*, 233–249.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *The American Psychologist, 55*(1), 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>
- Ryan, R. M., Deci, E. L. (2002). Overview of self-determination theory: An organismic dialectical perspective. In: R. M. Ryan & E. L. Deci (Eds.), *Handbook of self-determination research*. Rochester: University of Rochester Press.

- Sallis, J. F., Calfas, K. J., Alcaraz, J. E., Gehrman, C., & Johnson, M. F. (1999). Potential mediators of change in a physical activity promotion course for university students: Project GRAD. *Annals of Behavioral Medicine, 21*, 149–158.
- Sallis, J. F., Hovell, M. F., & Hofstetter, C. R. (1992). Predictors of adoption and maintenance of vigorous physical activity in men and women. *Preventive Medicine, 21*(2), 237–251.
- Sallis, J. F., Pinski, R. B., Grossman, R. M., Patterson, T. L., & Nader, P. R. (1988). The development of self-efficacy scales for health-related diet and exercise behaviors. *Health Education Research, 3*(3), 283–292. <https://doi.org/10.1093/her/3.3.283>
- Sallis, J. F., & Owen, N. (1999). *Physical activity and behavioral medicine*. Sage.
- Sabo, A., Kueh, Y. C., Musa, R. M., Lu, F. J. H., & Kuan, G. (2022). Factorial validity and measurement invariance of the psychological need satisfaction in exercise scale across gender. *PLoS One, 17*(6), e0269155. <https://doi.org/10.1371/journal.pone.0269155>
- Scarpacchia, T. M. F., Amireault, S., Faulkner, G., & Sabiston, C. M. (2017). Social support and physical activity participation among healthy adults: a systematic review of prospective studies. *International Review of Sport and Exercise Psychology, 10*(1), 50–83. <https://doi.org/10.1080/1750984X.2016.1183222>
- Schumacher, L. M., Thomas, C., Ainsworth, M. C., & Arigo, D. (2021). Social predictors of daily relations between college women's physical activity intentions and behavior. *Journal of Behavioral Medicine, 44*(2), 270–276. <https://doi.org/10.1007/s10865-020-00166-x>
- Schunk, D., & Usher, E. (2011). Assessing self-efficacy for self-regulated learning. In: Zimmerman, B., Schunk, D. (Eds.), *Handbook of self-regulation of learning and performance* (pp. 282–297). New York, NY: Routledge.
- Schwarzer, R., & Knoll, N. (2007). Functional roles of social support within the stress and coping process: A theoretical and empirical overview. *International Journal of Psychology, 42*(4), 243–252. <https://doi.org/10.1080/00207590701396641>
- Sevari, K. (2017). Construction & validation of main psychological needs scale. *American Journal of Applied Psychology, 5*(1), 7–11.
- Sidman, C. L., D'Abundo, M. L., & Hritz, N. (2009). Exercise self-efficacy and perceived wellness among college students in a basic studies course. *International Electronic Journal of Health Education, 12*, 162–174.
- Sierra-Díaz, M. J., González-Víllora, S., Pastor-Vicedo, J. C., & López-Sánchez, G. F. (2019). Can we motivate students to practice physical activities and sports through models-based practice? A systematic review and meta-analysis of psychosocial factors related to physical education. *Frontiers in Psychology, 10*, 2115–2115. <https://doi.org/10.3389/fpsyg.2019.02115>
- Smith, G. L., Banting, L., Eime, R., O'Sullivan, G., & van Uffelen, J. (2017). The association between social support and physical activity in older adults: A systematic review. *The International Journal of Behavioral Nutrition and Physical Activity, 14*(1), 56. <https://doi.org/10.1186/s12966-017-0509-8>
- Sheeran, P., Wright, C. E., Avishai, A., Villegas, M. E., Lindemans, J. W., Klein, W. M. P., Rothman, A. J., Miles, E., & Ntoumanis, N. (2020). Self-determination theory interventions for health behavior change: Meta-analysis and meta-analytic structural equation modelling of randomized controlled trials. *Journal of Consulting and Clinical Psychology, 88*(8), 726–737. <https://doi.org/10.1037/ccp0000501>
- Su, W., Qi, Q., & Yuan, S. (2022). A moderated mediation model of academic supervisor developmental feedback and postgraduate student creativity: Evidence from China. *Behavioral Sciences, 12*(12), 484. <https://doi.org/10.3390/bs12120484>
- Sun, Y., Liu, R. D., Oei, T. P., Zhen, R., Ding, Y., & Jiang, R. (2020). Perceived parental warmth and adolescents' math engagement in China: The mediating roles of need satisfaction and math self-efficacy. *Learning and Individual Differences, 78*, 101837. <https://doi.org/10.1016/j.lindif.2020.101837>
- Tang, M., Wang, D., & Guerrien, A. (2021). The contribution of basic psychological need satisfaction to psychological well-being via autonomous motivation among older adults: A cross-cultural

- study in china and France. *Frontiers in Psychology*, *12*, 734461. <https://doi.org/10.3389/fpsyg.2021.734461>
- Tarbetsky, A. L., Martin, A. J., & Collie, R. J. (2017). Social and emotional learning, social and emotional competence, and students' academic outcomes: The roles of psychological need satisfaction, adaptability, and buoyancy. *Social and emotional learning in Australia and the Asia-Pacific: Perspectives, programs and approaches*, pp. 17–37.
- Teixeira, P. J., Carraca, E. V., Markland, D., Silva, M. N., & Ryan, R. M. (2012). Exercise, physical activity, and self-determination theory: A systematic review. *International Journal of Behavioral Nutrition and Physical Activity*, *9*, 78.
- Travis, J., Kaszycki, A., Geden, M., & Bunde, J. (2020). Some stress is good stress: The challenge-hindrance framework, academic self-efficacy, and academic outcomes. *Journal of Educational Psychology*, *112*(8), 1632–1643. <https://doi.org/10.1037/edu0000478>
- Trejos-Herrera, A. M., Bahamón, M. J., Alarcón-Vásquez, Y., Vélez, J. I., & Vinaccia, S. (2018). Validity and reliability of the multidimensional scale of perceived social support in Colombian adolescents. *Psychosocial Intervention*, *27*(1), 56–63.
- Troiano, R. P., Berrigan, D., Dodd, K. W., Mâsse, L. C., Tilert, T., & McDowell, M. (2008). Physical activity in the United States measured by accelerometer. *Medicine and Science in Sports and Exercise*, *40*(1), 181–188. <https://doi.org/10.1249/mss.0b013e31815a51b3>
- Trost, S. G., Owen, N., Bauman, A. E., Sallis, J. F., & Brown, W. (2002). Correlates of adults' participation in physical activity: Review and update. *Medicine & Science in Sports & Exercise*, *34*(12), 1996–2001. <https://doi.org/10.1097/00005768-200212000-00020>
- Vallerand, R. J., & Losier, G. F. (1999). An integrative analysis of intrinsic and extrinsic motivation. *Journal of Applied Sport Psychology*, *11*, 142–169.
- Vallerand, R. J. (2007). A hierarchical model of intrinsic and extrinsic motivation for sport and physical activity. In M. Chatzisarantis (Ed.), *Intrinsic Motivation and Self-Determination in Exercise and Sport*. Champaign, IL: Human Kinetics.
- Van Luchene, P., & Delens, C. (2021). The influence of social support specific to physical activity on physical activity among college and university students: A systematic review. *Journal of Physical Activity and Health*, *18*(6), 737–747. <https://doi.org/10.1123/jpah.2020-0713>
- Vansteenkiste, M., Ryan, R. M., & Soenens, B. (2020). Basic psychological need theory: Advancements, critical themes, and future directions. *Motivation and Emotion*, *44*(1), 1–31. <https://doi.org/10.1007/s11031-019-09818-1>
- Vasconcellos, D., Parker, P. D., Hilland, T., Cinelli, R., Owen, K. B., Kapsal, N., Lee, J., Antczak, D., Ntonmanis, N., Ryan, R. M., & Lonsdale, C. (2020). Self-determination theory applied to physical education: A systematic review and meta-analysis. *Journal of Educational Psychology*, *112*(7), 1444
- Vella-Zarb, R. A., & Elgar, F. J. (2009). The 'Freshman 5': A meta-analysis of weight gain in the freshman year of college. *Journal of American College Health*, *58*(2), 161–166. <https://doi.org/10.1080/07448480903221392>
- Vlachopoulos, S. P., Ascí, F. H., Cid, L., Ersoz, G., González-Cutre, D., Moreno-Murcia, J. A., & Moutão, J. (2013). Cross-cultural invariance of the basic psychological needs in exercise scale and need satisfaction latent mean differences among Greek, Spanish, Portuguese and Turkish samples. *Psychology of Sport and Exercise*, *14*(5), 622–631. <https://doi.org/10.1016/j.psychsport.2013.03.002>
- Vlachopoulos, S. P., & Michailidou, S. (2006). Development and initial validation of a measure of autonomy, competence, and relatedness in exercise: The Basic Psychological Needs in Exercise Scale. *Measurement in Physical Education and Exercise Science*, *10*(3), 179–201.
- Wang, K., Li, Y., Zhang, T., & Luo, J. (2022). The relationship among college students' physical exercise, self-efficacy, emotional intelligence, and subjective well-being. *International Journal of Environmental Research and Public Health*, *19*(18), 11596. <https://doi.org/10.3390/ijerph191811596>

- Weman-Josefsson, K., Lindwall, M. & Ivarsson, A. (2015). Need satisfaction, motivational regulations and exercise: Moderation and mediation effects. *The International Journal of Behavioral Nutrition and Physical Activity*, 12(1), 67–67. <https://doi.org/10.1186/s12966-015-0226-0>
- World Health Organization. (2022). Physical activity. <https://www.who.int/news-room/fact-sheets/detail/physical-activity>
- Whitehead, J. R. (1995). A study of children's physical self-perceptions using an adapted physical self-perception profile questionnaire. *Pediatric Exercise Science*, 7(2), 132–151. <https://doi.org/10.1123/pes.7.2.132>
- Wilson, O., Holland, K. E., Elliott, L. D., Duffey, M., & Bopp, M. (2021). The impact of the COVID-19 pandemic on US college students' physical activity and mental health. *Journal of Physical Activity & Health*, 18(3), 272–278. <https://doi.org/10.1123/jpah.2020-0325>
- Wilson, P. M., Rogers, W. T., Rodgers, W. M., & Wild, T. C. (2006). The psychological need satisfaction in exercise scale. *Journal of Sport & Exercise Psychology*, 28(3), 231–251. <https://doi.org/10.1123/jsep.28.3.231>
- Wongpakaran, T., Wongpakaran, N., & Ruktrakul, R. (2011). Reliability and validity of the multi-dimensional scale of perceived social support (MSPSS): Thai version. *Clinical Practice and Epidemiology in Mental Health*, 7, 161.
- Wongpakaran, N., Wongpakaran, T., Pinyopornpanish, M. et al. (2021). Loneliness and problematic internet use: Testing the role of interpersonal problems and motivation for internet use. *BMC Psychiatry*, 21, 447. <https://doi.org/10.1186/s12888-021-03457-y>
- World Health Organization (2022, October 5). *Physical activity*. <https://www.who.int/news-room/fact-sheets/detail/physical-activity>
- Xu, L., Wang, Z., Li, Z., et al. (2022). Mediation role of work motivation and job satisfaction between work-related basic need satisfaction and work engagement among doctors in China: A cross-sectional study. *BMJ Open*, 12, 060599. <https://doi.org/10.1136/bmjopen-2021-060599>
- Yang, C., Pham, T., Ariati, J. et al. (2021). Digital social multitasking (DSMT), friendship quality, and basic psychological needs satisfaction among adolescents: Perceptions as mediators. *Journal of Youth and Adolescence*, 50, 2456–2471. <https://doi.org/10.1007/s10964-021-01442-y>
- Yüksel, M., Okan, N., Eminoğlu, Z., & Akça-Koca, D. (2019). The mediating role of self-efficacy and hope on primary school students' social-emotional learning and primary mental abilities. *Universal Journal of Educational Research*, 7(3), 729–738.
- Zhang, J. (2021). A moderated mediation analysis of the relationship between a high-stakes English test and test takers' extracurricular English learning activities. *Language Testing in Asia*, 11, 5. <https://doi.org/10.1186/s40468-021-00120-x>
- Zhang, J., & Mao, E. (2016). From online motivations to ad clicks and to behavioral intentions: An empirical study of consumer response to social media advertising. *Psychology & Marketing*, 33(3), 155–164.
- Zhou, L. H., Ntoumanis, N., & Thøgersen-Ntoumani, C. (2019). Effects of perceived autonomy support from social agents on motivation and engagement of Chinese primary school students: Psychological need satisfaction as mediator. *Contemporary Educational Psychology*, 58, 323–330
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988) The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment*, 52(1), 30–41. https://doi.org/10.1207/s15327752jpa5201_2

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Chapter 16

The Role of Mindfulness in Promoting Socioemotional Outcomes: A Self-determination Perspective



Betsy Ng and Leng Chee Kong

Abstract Due to the coronavirus pandemic and uncertainties globally, individuals are facing great anxiety including physiological and psychological distress. As such, there has been an increasing need to investigate how self-determination theory (SDT) and mindfulness could promote socioemotional learning (SEL) among university students and adult learners. Mindfulness helps in reducing psychological distress and promoting resilience and well-being through stress coping. Most mindfulness studies have primarily been conducted in the clinical and scientific settings, and research with university students and adult learners is still in its infancy. The purpose of this chapter is to provide a preliminary review of empirical studies on SDT and mindfulness in promoting socioemotional outcomes, thereby contributing to better self-management, emotion regulation and resilience in university students and adult learners. This review chapter reveals the relations between mindfulness and socioemotional outcomes (e.g., stress, anxiety). It also provides insights on the role of mindfulness based on the SDT's perspective in promoting SEL in higher education and the future workplace.

Introduction

Studies have reported that university students are consistently experiencing high stress levels that could impact their quality of life, when compared to the general population (Hepburn et al., 2021). Keckojevic et al. (2020) found that female university students experienced considerably greater stress than male students. Senior undergraduates also reported more anxiety than the first-year students. Their findings suggest that undergraduates having difficulties in focusing on their university study could lead to increased levels of stress, anxiety, and even depression. As such, universities should provide relevant support for students' mental health and well-being.

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Mindfulness enables individuals to experience social and self-awareness, by noticing the connection between the environment and self. Mindfulness can be referred to as the “space” that allows individuals to act responsibly and consciously, rather than to react reflexively (Palmer & Roger, 2009). Mindful individuals experience a meta-process of action such as self-regulation, cognitive, and socioemotional skills that in turn lead to well-being (Xu et al., 2022). Hence, mindfulness is important in promoting socioemotional outcomes.

A recent study examined whether mindfulness was associated with empathy, resilience, and perceived self-efficacy in a sample of university students (Rodríguez & Morales-Rodríguez, 2023). Their results showed significant associations among all variables, suggesting that mindfulness could contribute to improving the university students’ well-being and resilience. This is congruent to previous studies that found that mindfulness was positively related to resilience and negatively related to stress (e.g., Jones et al., 2019; Roulston et al., 2018). Mindfulness also promoted emotion regulation (Marshall et al., 2015), which contributes to resilience in university students and allows them to adjust to stress with adaptive coping strategies (Finkelstein-Fox et al., 2018).

Self-determination Theory and Mindfulness

Self-determination is important in the development of individuals in becoming more effective and refined in their reflection of ongoing experiences (Ryan & Deci, 2008). Based on the self-determination theory (SDT), individuals have three basic psychological needs, namely autonomy, competence, and relatedness. Autonomy refers to being the source of one’s behavior, competence is experiencing optimal self-proficiency, while relatedness refers to a sense of belongingness with individuals and community (Deci & Ryan, 1985). To facilitate individuals’ psychological needs, creating a need-supportive environment that fosters autonomous motivation is important and needs satisfaction is associated with positive outcomes such as better mental health and well-being (Levesque-Bristol, 2023; Ng & Abbas, 2020). Autonomous motivation refers to identified and integrated regulations. Identified regulation is internalized motivation as individuals engage in activities in which they endorse the value of task as personally important (Ryan & Deci, 2000). Integrated regulation is fully internalized into the individual’s self and is considered innate.

The abovementioned types of motivation are referred to as self-regulation. Palmer and Rodger (2009) conceptualized mindfulness as a feature of self-regulation, which relates to the individual process of regulating oneself to achieve specific goals. This implies to self-regulatory skills that allow the individual to cope with stressful events and consequently promote well-being in which the individual is likely to exhibit healthy and adaptive behaviors (Brown & Ryan, 2004). Brown and Ryan (2003) defined mindfulness as “a receptive attention to and awareness of present events and experience” (p. 822). Mindfulness can be viewed as “present-centered attention-awareness”, indicating that our mind is deployed to focus attention on the present

moment with the awareness of our feelings and experiences. Mindfulness can occur at both the trait and state levels (Brown & Ryan, 2003). Trait mindfulness is a dispositional characteristic that differs between individuals which describes the interpersonal variation in attention and awareness. On the other hand, state mindfulness that changes within individuals relates to the intrapersonal variation in attention and awareness. Simply, mindfulness is about observing our perceptions, thoughts, emotions, and other contents of consciousness in the present moment.

Socioemotional Learning

Socioemotional learning (SEL) is defined as the individual's capacity to effectively identify and manage emotions, solve problems, as well as establish and maintain positive relationships with others (Ragozzino et al., 2003; Schonert-Reichl, 2017). SEL is also referred to as "social-emotional learning" or "social and emotional learning". SEL encompasses the processes in which individuals could effectively make responsible decisions, understand others' perspectives, and display empathy for them (Lawlor, 2016). Socioemotional skills play an important role in driving lifetime successes (OECD, 2018). These skills are also referred to as socioemotional outcomes that include emotion regulation, self-management, and stress coping.

Based on extensive research, the Collaborative for Academic, Social, and Emotional Learning (CASEL, 2022) identified five interrelated social-emotional competencies (SECs) namely self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. These five domains include cognitive, affective, and behavioral competencies. First, self-awareness includes identifying and recognizing emotions, recognizing strengths, needs and values, as well as self-efficacy. Second, social awareness comprises perspective-taking, empathy, respect for others, and appreciating diversity. Third, self-management encompasses impulse control and stress management, self-motivation, goal setting, and organizational skills. Fourth, relationship management involves communication, social engagement, building relationships, and conflict management. Finally, responsible decision-making entails problem-solving, evaluation, reflection, as well as personal and moral responsibility.

Taken together, both SEL and SDT-based mindfulness play the key role in equipping individuals the capacity to self-regulate and manage their emotions and well-being, thereby developing positive self, moral, social, and emotional understanding. In a similar vein, it is important to focus on developing individuals' mindful awareness, values for moral living, caring for others, learning, and personal growth (Lawlor, 2016).

Relations Among SDT, Mindfulness, and Socioemotional Outcomes

Brown and Ryan (2003) developed the Mindful Attention Awareness Scale (MAAS) to measure an individual's attention and awareness of the present experience. The MAAS, a 15-item scale, has been widely used in empirical research, ranging from non-mediators to individual and group differences studies. The MAAS focuses on the present-centered attention to and awareness which contributes to well-being in cognitive, emotional, and behavioral domains. It could be used to predict self-regulated behaviors and well-being outcomes. According to Brown and Ryan (2003), individuals with higher mindfulness reported lower levels of mood disturbance and stress, thereby contributing to socioemotional well-being.

Higher dispositional mindfulness can provide a buffer against negative emotions in relational contexts (Dixon & Overall, 2018). For instance, mindfulness fostered adaptive emotion regulation through recovering from unpleasant emotions (Arch & Landy, 2015), as well as promoted adaptive coping behaviors of stress and negative emotions (e.g., Arch & Landy, 2015; Skinner & Beer, 2016). As such, mindfulness plays a role in regulating self-coping strategy in relation to stress or negative reactivity (Palmer & Rodger, 2009), thereby supporting emotional benefits, enhanced attentiveness and awareness, as well as faster recovery from negative emotions. Furthermore, mindful individuals are better in accepting emotions and are sensitive to emotional responses (Arch & Landy, 2015).

Whilst a recent study by Neufeld and Malin (2022) had highlighted the importance of basic psychological need satisfaction and its associations with mindfulness in SEL, such as in coping with stress and in nurturing resilience, SDT and mindfulness-based research in SEL is still in its infancy.

Purpose of the Study

The purpose of this chapter is to review empirical studies on the role of mindfulness in promoting university students' and adult learners' socioemotional outcomes from the SDT's perspective. In line with SDT, the MAAS was related to the fulfillment of autonomy, competence, and relatedness (Brown & Ryan, 2003). SDT also relates to individuals' self-regulation of awareness and attention in order to maintain and enhance our psychological and behavioral functioning.

In this review, the MAAS is the key instrument used in the search of the literature, as it was developed by scholars in the SDT community (Brown & Ryan, 2003). Through this review, this chapter aims to provide information and insight into the possible role of mindfulness in nurturing socioemotional competencies in university students and adult learners, thereby preparing them for the challenges they would face in their future and current dynamic workplaces, respectively.

The key research question is “How can self-determination and mindfulness support the SECs of university students and adult learners in self-regulation, emotion regulation and resilience?”

Method

This scoping review was conducted based on the framework by Arksey and O’Malley (2005). According to the framework, there are five stages to conducting a scoping review. First, the research question(s) should be identified. Second, relevant studies ought to be reviewed. Third, the selection of empirical articles needs to be studied. Fourth, the collected data have to be recorded. Fifth, the results are to be collated, summarized, and reported.

The search for empirical studies was conducted using Scholar’s Portal, EBSCO, and PsycINFO. To survey the range of SDT and mindfulness-based SEL research, available studies were selected based on psychometrically validated MAAS. Search terms included “Mindful Attention Awareness Scale”; “MAAS”; “emotions”; “socioemotional well-being”; “social-emotional”; “social and emotional”; “anxiety”; “stress”; “undergraduates”; “university students”; “universities”; “workplaces”; “adults”; and “adult learners”. Boolean connectors (AND, OR) were used to combine search terms. Dissertations, theses, and conference papers were not accessed. Only samples of undergraduates and adults, as well as empirical studies written in English were reviewed. Cross-sectional, longitudinal, and mindfulness-based intervention studies that utilized the MAAS were included. Table 16.1 presents the inclusion and exclusion criteria for the selection of relevant studies.

Twenty-six articles emerged from the search. After reviewing them, 11 articles that met the criteria remained. Of the 11 articles, nine articles used the MAAS in relation to SEL. Two articles that did not use the MAAS were included as the contents were relevant to SDT and SEL. The publication year ranged from 2009 to 2023.

Table 16.1 Inclusion and exclusion criteria for search of empirical papers

Inclusion criteria	Exclusion criteria
Peer-reviewed publications and journals in English	Non-English publications
Full paper	Only abstract accessible, dissertations, theses, and conference papers
Study population of higher education, including university students and adult learners	Study population of school-aged students, non-university students and other subjects (including clinical settings)
Cross-sectional, longitudinal, and mindfulness-based intervention studies	–
Published between 2009 and 2023	–

Results

A total of 11 empirical papers was reviewed. Of the 11 articles, ten used university students as the samples and one sampled teachers (as adult learners). Table 16.2 summarizes the 11 empirical papers that surfaced from our search. These empirical papers are discussed subsequently, in accordance to the type of studies namely mindfulness interventions, mixed method, cross-sectional studies, and multi-studies.

SDT-Based Mindfulness Intervention Studies

Out of the 11 empirical papers, six intervention studies showed some evidence to suggest that mindfulness could bring about reduced stress and improve well-being by supporting the basic psychological needs and emotional control of teachers and university students. Out of the six articles, only one intervention study was conducted on teachers. The remaining five studies were conducted on undergraduates and graduate students.

The first intervention study explored the implementation of a classroom program integrated with mindfulness practices (MindUP) on 20 Portuguese teachers' mindfulness, self-compassion, emotion regulation skills, and burnout (de Carvalho et al., 2017). Multivariate analysis of covariance (MANOVA) showed that there was no significant difference between the experimental and the control groups in emotional control, self-compassion, mindfulness, and burnout. However, follow-up analysis of variance (ANOVA) for emotional control, burnout, self-compassion, and mindfulness in the MindUP group revealed significant improvement in mindfulness (observing). The lack of significant findings could be due to the small sample size of the teachers.

Second, Cohen and Miller (2009) investigated the effect of a 6-week Mindfulness-Based Stress Reduction (MBSR) program (adapted) on graduate students taking a psychology course. From the semester long intervention, they found that the graduate students showed an increase in mindfulness, social connectedness (i.e., interpersonal well-being) and emotional intelligence, and a decrease in perceived stress and anxiety. However, there was no significant effect on satisfaction with life, meaning in life-searching and presence, as well as depression. Despite the significant changes in some outcome variables, the sample size of the study was small and the statistical powers of the differences were not reported. There was also no control group to allow a causal attribution that the changes of the scores were due to the mindfulness intervention.

Third, Gendron et al. (2016) designed an experimental mindfulness program targeted at first year university students to develop their emotional capital or competencies such as the self-management of emotions, external situations and relationships, which the researchers believed could in turn promote better mental health and greater resilience to stressful academic or work situation. Through the use of the Acceptance and Commitment Therapy (ACT; Kabat-Zinn et al., 1992; Hayes et al.,

Table 16.2 Eleven empirical studies reviewed

Author(s), Year	Aim(s) of the study	Study location, study population	Research design (e.g., intervention)	Methodology (tools)	Outcome measures	Key findings
Cohen and Miller (2009)	To investigate the feasibility and helpfulness of a novel adaptation of MBSR that emphasizes relational awareness	Two waves of data collection: 1st Wave: $N = 12$ psychology students enrolled in a graduate-level psychology course offered at an urban university 2nd Wave: $N = 16$ graduate students enrolled in the same course the following year	Intervention; pre-post design A 6-week interpersonal mindfulness training (IMT) program adapted from MBSR	15-item Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003) 14-item Perceived Stress Scale (PSS; Cohen et al., 1983) 10-item Meaning in Life Questionnaire (MLQ; Steger et al., 2006) 5-item Satisfaction with Life Scale (SWLS; Pavot & Diener, 1993) 20-item Social Connectedness Scale-Revised (SCS-R; Lee et al., 2001) 33-item Self-Report of Emotional Intelligence (SREIT; Schutte et al., 1998) 21-item Beck Anxiety Inventory (BAI; Beck, 1990) 20-item Center for Epidemiological Studies-Depression (CESD; Radloff, 1977)	Mindfulness Perceived stress Meaning in life- searching Social connectedness Satisfaction with life Emotional intelligence Anxiety Depression	Significant increase in scores for mindfulness, social connectedness and emotional intelligence Significant decrease in scores for perceived stress and anxiety The intervention increased mindfulness and interpersonal well-being (social connectedness) No significant effect on satisfaction with life, meaning in life-searching, presence, and depression

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Table 16.2 (continued)

Author(s), Year	Aim(s) of the study	Study location, study population	Research design (e.g., intervention)	Methodology (tools)	Outcome measures	Key findings
de Carvalho et al. (2017)	To explore how the MindUP program (an evidence-based curriculum developed by experts from cognitive developmental neuroscience, SEL and positive psychology) impacts on teachers' outcomes	Portuguese teachers $N = 20$; $M = 40.37$, $SD = 6.30$	Intervention, quasi-experimental	10-item Emotion Regulation Questionnaire (ERQ) (Gross & John 2003; Portuguese version by Vaz et al. 2008) 26-item Self-Compassion Scale (SCS; Neff 2003; Portuguese version by Castilho and Pinto-Gouveia 2011) 39-item Five Facets of Mindfulness Questionnaire (FFMQ) (Baer et al. 2006; Portuguese version by Gregório and Gouveia 2011) Maslach burnout inventory—educators survey (Maslach et al. 1996; Portuguese version by Marques Pinto et al. 2005)	No MAAS Emotional control Reappraisal; Suppression Burnout Emotional exhaustion Self-compassion Self-kindness; Self-judgment; Common humanity; Mindfulness; Isolation; Over-identification Mindfulness Observing; Describing; Acting with awareness; Non-judgmental; Non-reactive	Teachers who participated in the MindUP program ($n = 13$) reported higher scores for emotion control, self-compassion and mindfulness than the control group. The intervention group ($n = 7$) also reported lower score for burnout than the control group No significant intervention effect Lack of statistical power due to small sample size

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Table 16.2 (continued)

Author(s), Year	Aim(s) of the study	Study location, study population	Research design (e.g., intervention)	Methodology (tools)	Outcome measures	Key findings
Gendron et al. (2016)	To develop first year university students' social and personal emotional competencies such as empathy through a designed experimental program (based on Acceptance and Commitment Therapy intervention)	First year university students, University Montpellier 3, France <i>N</i> = 97, 11 males, 86 women	Intervention (Experimental versus control)	28-item Academic Motivation Scale—AMS (Vallerand et al., 1989) 10-item Generalized Self-efficacy Scale (Schwarzer & Jerusalem, 1995) 153-item Trait Emotional Intelligence Questionnaire (TEIQue; Petrides, 2009) 15-scenario Emotion Regulation Profile-Revised (ERP-R; Nelis et al., 2011) 15-item MAAS 10-item Acceptance and Action Questionnaire 2 (AAQ 2; Bond et al., 2011) 42-item Depression, Anxiety, Stress Scale (DASS; Lovibond and Lovibond, 1995)	Intrinsic motivation Self-efficacy Emotional intelligence Emotion regulation Mindfulness Acceptance and Action Depression, anxiety, stress	Students in the experimental group had higher levels of intrinsic motivation, self-control, optimism, empathy, and stress, but lower levels of emotion regulation than the control group Students in the experimental group seemed to have a greater awareness of level of anxiety and stress than the control group

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Table 16.2 (continued)

Author(s), Year	Aim(s) of the study	Study location, study population	Research design (e.g., intervention)	Methodology (tools)	Outcome measures	Key findings
Hepburn et al. (2021)	To identify the associations of pre-service teachers' (PSTs) mindful attention awareness (cognitive state) with their perceived stress and subjective well-being	Undergraduates from the University of Queensland, Australia $N = 241$; 82.2% between 20–29 years, 5.4% between 30–34 years and 12.4% between 35–59 years	Cross-sectional	15-item MAAS 8-item Personal Well-being Index (PWI; Cummins et al., 1994) 14-item PSS	Mindfulness Personal Well-being Index Perceived stress	Weak association between mindfulness and subjective well-being Well-being was negatively correlated with perceived stress Mindful PSTs may be associated with low perceived stress and high subjective well-being
Moè (2022)	To examine the effectiveness of a 7-week online well-being practice based on recalling and elaborating episodes of gratitude, self-affirmation, and goal setting	Students from University of Padua, Italy $N = 120$; $M = 22.99$, $SD = 4.53$	Intervention	No MAAS 24-item Basic Psychological Need Satisfaction and Frustration scale (BPNSNF; Chen et al., 2015) 26-item Self-Compassion Scale (Neff, 2003) 10-item Emotion Regulation Questionnaire (Gross & John, 2003) 6-item Gratitude Questionnaire (McCullough et al., 2002),	Need satisfaction and frustration Self-compassion Emotional reappraisal Grateful disposition	The 7-week intervention of well-being practices increased participants' need satisfaction, self-compassion, emotional reappraisal, a grateful disposition, and reduced need frustration, self-derogation, and emotional suppression, with effects maintained one month later

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Table 16.2 (continued)

Author(s), Year	Aim(s) of the study	Study location, study population	Research design (e.g., intervention)	Methodology (tools)	Outcome measures	Key findings
Neufeld and Malin (2022)	To examine how medical students' mindfulness and need fulfillment impact their perceived stress To evaluate the impact of basic psychological need fulfillment and resilience as mediators between mindfulness and coping behaviors	First to fourth year medical students from University of Saskatchewan, Canada $N = 197$; 105 females, 92 males; $M = 25.9$ years, $SD = 3.7$	Cross-sectional study	15-item Mindful Attention Awareness Scale (MAAS, Brown & Ryan, 2003) 24-item Basic Psychological Needs Satisfaction and Frustration Scale (BPNSF) 10-item Connor Davidson Resilience Scale (CD-RISC 10) 28-item The Brief COPE (Carver, 1997)	Mindfulness Psychological needs satisfaction and frustration Resilience scale Coping strategies; Active coping; Planning; Positive reframing; Acceptance; Emotional and instrumental support; Humor; Religion; Denial; Venting; Self-distraction; Behavioral disengagement; Self-blame	Medical students with higher mindfulness was related with more adaptive and less maladaptive coping behaviors Basic psychological need fulfillment and resilience were significant mediators between mindfulness and coping behaviors
Palmer and Rodger (2009)	To measure students' perception of mindfulness, stress and coping at the transitional phase of university	First-year students from University of Western Ontario, Canada $N = 135$; 91 females, 44 males; $M = 17.9$ years, $SD = 1.24$	Cross-sectional study	14-item Perceived Stress Scale (PSS; Cohen et al., 1983) 60-item Coping Style Questionnaire (CSQ; Roger et al., 1993) is a 60-item 15-item MAAS (Brown & Ryan, 2003)	Perceived stress Coping styles: Rational coping; Detached coping; Emotional coping; Avoidant coping	Mindfulness has significant negative correlations with perceived stress, emotional and avoidant coping Mindfulness has significant positive correlations with rational coping Only emotional coping is a significant predictor for mindfulness in females Mindful students rated low perceived stress and avoidant coping

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Table 16.2 (continued)

Author(s), Year	Aim(s) of the study	Study location, study population	Research design (e.g., intervention)	Methodology (tools)	Outcome measures	Key findings
Schelhorn et al. (2023)	To evaluate whether emotional competence training would have higher levels of emotional competence, emotional awareness, emotion regulation, and mindfulness	Pre-service teachers, undergraduates from University of Regensburg, Germany $N = 186$, $M = 22.11$, $SD = 2.26$	Intervention study (experimental versus control)	20-item Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT; Mayer et al., 2003; German version; Steinmayr et al., 2011) 20-item German Emotional Competence Questionnaire (EKF; Rindermann, 2009) 15-item MAAS	Emotional competence Emotion awareness in self; Emotion awareness in others; Emotion regulation; Emotion expression Strategic intelligence Emotion knowledge; Emotion regulation Mindfulness	The experimental group reported improved emotion regulation abilities and emotion regulation
Shannon et al. (2019)	To determine the effect of a mindfulness intervention for reducing stress, increasing competence in mental health self-management and promoting well-being	Student athletes from Ulster University $N = 238$ ($n = 108$ intervention, $n = 130$ control); 57.6% males; $M = 20.47$ years, $SD = 3.30$	Intervention study: 2 (groups) \times 2 (time-point) non-randomized controlled trial	15-item MAAS 4-item Perceived Competence Scale (PCS; Williams & Deci, 1996) 14-item PSS (Cohen et al., 1983) 14-item Warwick-Edinburgh Mental Well-being Scale (WEMWBS; Tennant et al., 2007)	Mindfulness Competence satisfaction Stress Well-being	Mindfulness intervention reduced stress and improved well-being through competence satisfaction Competence satisfaction mediated the effects of mindfulness, which in turn predicted reduced stress and improved well-being

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Table 16.2 (continued)

Author(s), Year	Aim(s) of the study	Study location, study population	Research design (e.g., intervention)	Methodology (tools)	Outcome measures	Key findings
Weinstein et al. (2009)	To examine if mindfulness relates to both stress appraisal or adaptive coping approach in stressful situations	Undergraduates from a university, USA $N = 65-141$ (11-65 males, 54-75 females); $M = 18-20$, $SD = 0.69-1.21$	4 studies 1st study: laboratory setting	15-item MAAS Perceived stress (Rate on 7-point Likert): "How much stress are you experiencing right now?" 24-item COPE inventory (Carver et al., 1989) 5-item anxiety (Wegner et al., 1997) 8-item Life Orientation Test (LOT; Scheier & Carver, 1985) 10-item brief big-5 traits (Gosling et al., 2003) Positive and Negative Affect Schedule (PANAS; Watson et al., 1988)	Trait mindfulness State mindfulness Perceived stress Stress responses Approach coping Avoidance coping Ill-being Well-being Optimism Neuroticism	More mindful and optimistic individuals used more approach coping and less avoidant coping, while those high in neuroticism used more avoidant coping and less approach coping Trait mindfulness predicts lower perceived stress, less avoidance and less anxiety Mindfulness mediated threat and coping More adaptive stress responses and coping fully mediated the relation between mindfulness and well-being (positive affect and vitality)

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Table 16.2 (continued)

Author(s), Year	Aim(s) of the study	Study location, study population	Research design (e.g., intervention)	Methodology (tools)	Outcome measures	Key findings
Wolfé and Batoyun, (2022)	To examine if fully online, short-term class in contemplative neuroscience is effective in promoting neuroscience understanding and competencies	Undergraduates University of St. Thomas $N = 57$ (n $= 21$ intervention, 76% female; $n =$ 36 control, 47% female)	Intervention Mixed method	15-item MAAS 17-item Determinants of Meditation Practice Inventory (DMPI; Williams et al., 2011) Self-regulation Psychological well-being measures	Mindfulness Meditation Self-regulation Psychological well-being	The fully online class strongly improved dispositional mindfulness and perceived barriers to meditation, which in turn predict positive behavioral and psychological outcomes (well-being and self-regulation) It also enhanced academic and social-emotional learning, and effective in promoting neuroscience understanding and competencies

1999), their findings showed that students in the experimental group reported higher levels of intrinsic motivation, self-control, optimism, empathy, but also greater stress and lower level of emotion regulation than the students in the control group. However, the students in the experimental group seemed to have a greater awareness of their anxiety and stress than the students in the control group. This could explain why the students in the experimental group reported more stress than students in the control group, as the mindfulness training might have helped the students to become more aware of their stress levels.

Fourth, Shannon et al. (2019) investigated a mental health intervention comprising a mindfulness training program on psychological well-being. Their study aimed to enhance mindfulness and mental health competence, reduce stress and improve well-being. The mental health intervention was designed around the principles of SDT through a need-supportive environment that included positive instructional feedback with empathy. It also included vignettes of famous athletes to improve participants' stress management and promote their mental health. Findings from this study reported that the mindfulness intervention reduced stress and improved well-being through competence satisfaction. Competence satisfaction which was measured by the Perceived Competence Scale (PCS; Williams & Deci, 1996) was used to measure the participants' competence in self-managing mental health. Competence satisfaction is strongly related to improved well-being (Ryan & Deci, 2017). Competence satisfaction mediated the effects of mindfulness, which in turn predicted reduced stress and improved well-being.

Fifth, Moè (2022) investigated a seven-week intervention of weekly practice grounded in SDT. The weekly practice included recalling and elaborating episodes of gratitude, self-affirmation, or goal setting. It was an online well-being program targeted at improving need satisfaction, self-compassion, emotional reappraisal, and grateful disposition, as well as to decrease need frustration, self-derogation, and emotional suppression. The 7-week intervention of well-being practices increased participants' need satisfaction, self-compassion, emotional reappraisal, a grateful disposition, and reduced need frustration, self-derogation, and emotional suppression, with effects maintained one month later. Moè's follow-up findings suggested that well-being practices could improve individual emotion regulation abilities by decreasing suppression and increasing reappraisal from week 0 to week 8. The follow-up also showed that grateful disposition increased over the 8 weeks.

Finally, Schelhorn et al. (2023) investigated the effect of a mindfulness-cum-emotional training on pre-service teachers' understanding of emotions and emotion regulation strategies. Findings from this study revealed that the experimental group showed improved emotion regulation abilities and emotion regulation, suggesting that the training can improve pre-service teachers' emotional competence. However, there was no significant effect of training on mindfulness, awareness, emotion knowledge, and motivation. This could be due to the research design as the team did not assign the 186 pre-service teachers randomly into experimental and control groups.

Intervention and Mixed-Method Study

Out of the 11 reviewed articles, only one paper utilized a mixed-method design. Wolfe and Batoyun (2022) conducted an online contemplative neuroscience class that was a four-credit course integrating scientific material with first-hand experience of contemplation. This fully online course which included contemplative practices such as mindfulness, loving kindness and yoga, was taught over the four-week January term of 2021. The fully online class strongly improved dispositional mindfulness and perceived barriers to meditation, which in turn predicted positive behavioral and psychological outcomes (well-being and self-regulation). It also enhanced academic and social-emotional learning as well as was effective in promoting neuroscience understanding and competencies. Despite the lack of main effect size, their qualitative findings showed that students had improved dispositional mindfulness (increased awareness) and stress coping (through mindfulness practice). Most of the students experienced less anxiety and improved attention, which in turn enhanced their mental and physical health. Findings in this study suggested that the online class was effective in promoting neuroscience understanding and proficiency, while dispositional mindfulness seemed to predict positive behavioral and psychological outcomes.

Cross-sectional Studies

There are three cross-sectional studies that used regression models and correlations for investigating the relations of mindfulness and socioemotional outcomes (e.g., perceived stress). First, Palmer and Rodger (2009) investigated whether individuals with higher level of mindfulness would display less perceived stress and employ less maladaptive strategies such as emotional and avoidant coping when dealing with stress. They found that mindfulness correlated negatively with perceived stress, and emotional and avoidant coping, and positively with rational coping. Individuals with higher level of mindfulness reported lower perceived stress and avoidant coping, suggesting that mindfulness can help in reducing perceived stress. Additionally, they found that mindfulness reduced emotional and avoidant coping strategies, and enhanced adaptive coping strategy, which is pertinent for cognitive, emotional, and behavioral flexibility, relevant to socioemotional competence.

Second, Hepburn et al. (2021) investigated the relationships between mindfulness and perceived stress, and between mindfulness and subjective well-being of pre-service teachers. They conducted an online survey with 257 university students who were enrolled in initial teacher training. Subjective well-being is related to a hedonic approach that refers to life satisfaction and quality of life, with presence of positive affect and affect. Their findings reported that higher attention awareness was negatively associated with perceived stress and positively associated with subjective

well-being. However, there was a weak association between mindfulness and subjective well-being, and well-being was negatively correlated with perceived stress. Findings from this study suggest that mindful pre-service teachers may be associated with low perceived stress and high subjective well-being. A mindful disposition in pre-service teachers is likely to facilitate the ability to re-appraise situations and decrease negative reactivity or stress response. This implies that mindfulness could account for health-enhancing behaviors and contribute to the individuals' well-being.

Finally, Neufeld and Malin (2022) used the SDT's lens to examine whether medical students' resilience and need satisfaction would mediate the relationship between mindfulness and perceived stress. They also investigated whether mindfulness impacted students' coping reactions to stress. The two types of coping reactions to stress are adaptive coping and maladaptive coping behaviors. Adaptive coping behaviors included active coping, planning, positive reframing, acceptance, emotional and instrumental support, humor, as well as religion. Maladaptive coping behaviors included denial, venting, self-distraction, behavioral disengagement, and self-blame. Findings showed that resilience and need satisfaction mediated the relationship between mindfulness and perceived stress, indicating that mindful students displayed more adaptive and less maladaptive coping behaviors. This means that when students' resilience and basic psychological needs were met, their coping reactions to stress also improved. Findings from this study suggest that implementing mindfulness programs in medical education might foster university students' resilience and coping reactions to stress as well as support their basic psychological needs, which in turn enhance their psychological development and well-being.

Multi-studies and Laboratory Setting

There is one paper that included four studies to investigate the relations of mindfulness and socioemotional outcomes (perceived stress and anxiety). With the intent to answer our research question, one study in the laboratory setting is discussed here. Weinstein et al. (2009) examined whether individuals with higher level of mindfulness would use more adaptive coping and less avoidant coping of stress situation. They found that individuals who were more mindful and optimistic adopted more approach coping and less avoidant coping, while those high in neuroticism used more avoidant coping and less approach coping. In addition, mindfulness was associated with lower perceived stress, less avoidance, and less anxiety. Further, mindfulness mediated the relationship between threat and coping, suggesting that this regulatory effort could explain why mindful individuals exhibited lower anxiety and higher performance in the aftermath of social appraising threat. Findings also revealed that more adaptive stress responses and coping fully mediated the relation between mindfulness and well-being (positive affect and vitality).

General Discussion

Due to limited research on SDT-based mindfulness and SEL, 11 studies were found of which 9 papers utilized the MAAS and two empirical papers (de Carvalho et al., 2017; Moè, 2022) without the utilization of MAAS were included. Based on the review of the 11 studies, there is still a lack of investigation on the five SECs, and strong conclusions might not be drawn from them. Despite the drawback of the limited studies, this chapter supports that SDT-based mindfulness research could potentially have positive impacts on social and emotional well-being for university students and adults across a wide range of disciplines.

Findings of the 11 studies highlight the role of mindfulness in supporting emotion regulation and self-management. For instance, mindfulness is related to coping approach that in turn supports students' socioemotional outcomes. Palmer and Roger (2009) found some evidence to support the important role of mindfulness in relation to perceived stress and adaptive coping approach, indicating that levels of mindfulness are associated with levels of perceived stress and coping. Mindful individuals were reported to engage in less avoidant or maladaptive coping approach. Through stress coping, there is an involvement of emotion regulation that requires both social and self-awareness. Using this coping mechanism, individuals are empowered to apply the adaptive strategies that include making responsible decisions and relationship management.

The results from six intervention studies designed based on the principles of SDT suggest that mindfulness intervention may foster SEL by supporting the basic psychological needs and intrinsic motivation of individuals, thereby reducing their perceived stress and negative emotions. This may imply that mindfulness practice enhances one's awareness and ability to self-control, self-regulate, and self-manage negativities in terms of thoughts and feelings. Although the findings of these reviewed studies did not explicitly report SECs as the outcome variables, the links between mindfulness and socioemotional outcomes are still evident. Mindfulness thus plays an important role in supporting the individual in self-regulation of emotions as well as in self-management of decisions and actions.

One key aspect in this chapter is to highlight the importance of self-awareness which is one of the five SECs and having the ability to manage one's emotions. Especially in this evolving global economy, we should remain steadfast through life's volatility, uncertainty, complexity, and ambiguity. Our reviewed literature suggests that one possible way to develop SECs is through mindfulness (e.g., Shannon et al., 2019). Indeed, a preliminary review of the 11 papers in the context of university and higher education revealed a clear, positive relationships among mindfulness, emotion regulation, and stress coping. Potentially, the SEL program involving mindfulness and caring for others would reduce stress, promote well-being, and produce positive outcomes. Our review also identified some coping strategies that not only reduce stress, but also cultivate individual well-being and competence.

In general, this review chapter provides insights into how mindfulness could reduce anxiety and stress (Shannon et al., 2019; Weinstein et al., 2009), as well

as improve psychological well-being (Wolfe & Batoyun, 2022). Mindfulness also nurtures the individual SECs such as social and self-awareness. For instance, mindful individuals are likely to become aware of the present experience including their mind of emotions such as frustration or anger. By acknowledging the negative emotions and being aware of their presence to the individuals can then introspect and understand the cause of their own emotions. They can then learn to self-manage and self-regulate their emotions such as using emotional reappraisal. By stepping back and relooking at our actions, mindfulness practice is also a way of life in appreciating not just the present, but also the past and future.

Implications and Limitations

This chapter highlighted the importance of mindfulness whereby individuals could stay cognizant of their present moment experience, to regulate and manage their emotions effectively. This is an adaptive approach that enables university students to cope with stress, and it is particularly relevant when they are undergoing university transition. It is also a means to support adult learners who are likely to experience anxiety or stress when they need to upskill despite having work, family and personal commitments to juggle. Mindfulness practice is a useful approach in supporting the individual with self-regulation of emotions and self-management of actions. Regular mindfulness practice can provide the individuals with the opportunity to practice social and self-awareness, to experience less stress through acting harmoniously with their environments, and to make responsible decisions. In this manner, mindfulness plays an important role in meeting our needs and acting consistently with our thoughts and actions.

Our findings are pertinent for university students and adult learners who face challenges that may impede their academic and careers success, which in turn could contribute to their socioemotional well-being. Through mindfulness practice, we could self-regulate our emotions and self-manage stress through adaptive coping behaviors. Despite limited studies on SDT-based mindfulness and SEL, these 11 empirical studies provided some direction to help support university students' mental health and well-being through stress coping strategies.

Conclusion

This chapter offers a review of SDT-based mindfulness and SEL research dated from 2009 to 2023 conducted on university students and adult learners. When taken together, the 11 papers did suggest that SDT-based mindfulness can have some effects on SEL. However, given the limited number of papers reviewed, our opinion is that the efficacy of SDT-based mindfulness on SEL is not conclusive. Nevertheless, we recommend pursuing this line of research to further understand if and how we can

tap on this regulatory skill which is mindfulness to enhance SECs among university students and adult learners.

References

- Arch, J. J., & Landy, L. N. (2015). Emotional benefits of mindfulness. In K. W. Brown, J. D. Creswell, & R. M. Ryan (Eds.), *Handbook of mindfulness: Theory, research and practice* (pp. 151–170). Guilford Press.
- Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology*, 8(1), 19–32. <https://doi.org/10.1080/1364557032000119616>
- Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). *Using self-report assessment methods to explore facets of mindfulness*. *Assessment*, 13(1), 27–45.
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., ... & Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire–II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy*, 42(4), 676–688.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84(4), 822–848. <https://doi.org/10.1037/0022-3514.84.4.822>
- Brown, K. W., & Ryan, R. M. (2004). Perils and promise in defining and measuring mindfulness: Observations from experience. *Clinical Psychology: Science and Practice*, 11(3), 242–248. <https://doi.org/10.1093/clipsy.bph078>
- Brown, K. W., West, A. M., Loverich, T. M., & Biegel, G. M. (2011). Assessing adolescent mindfulness: Validation of an adapted mindful attention awareness scale in adolescent normative and psychiatric populations. *Psychological Assessment*, 23(4), 1023–1033. <https://doi.org/10.1037/a0021338>
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267–283.
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the brief cope. *International Journal of Behavioral Medicine*, 4(1), 92–100.
- Chen, B., Vansteenkiste, M., Beyers, W., Boone, L., Deci, E. L., Van der Kaap-Deeder, J., Duriez, B., Lens, W., Matos, L., Mouratidis, A., Ryan, R. M., Sheldon, K. M., Soenens, B., Petegem, S. V., & Verstuyf, J. (2015). Basic psychological need satisfaction, need frustration, and need strength across four cultures. *Motivation and Emotion*, 39, 216–236.
- Cohen, J. S., & Miller, L. J. (2009). Interpersonal mindfulness training for well-being: A pilot study with psychology graduate students. *Teachers College Record*, 111(12), 2760–2774.
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 385–396.
- Collaborative for Academic, Social and Emotional Learning (CASEL). (2022). Social and emotional learning (SEL). Retrieved from <https://casel.org/>
- Cummins, J. G., Hassett, K. A., Hubbard, R. G., Hall, R. E., & Caballero, R. J. (1994). A reconsideration of investment behavior using tax reforms as natural experiments. *Brookings papers on economic activity*, 2, 1–74.
- de Carvalho, J. S., Pinto, A. M., & Marôco, J. (2017). Results of a mindfulness-based social-emotional learning program on Portuguese elementary students and teachers: A quasi-experimental study. *Mindfulness*, 8, 337–350.
- Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality*, 19(2), 109–134.

- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268.
- Dixon, H. C., & Overall, N. C. (2018). Regulating fears of rejection: Dispositional mindfulness attenuates the links between daily conflict, rejection fears, and destructive relationship behaviors. *Journal of Social and Personal Relationships*, 35(2), 159–179.
- Finkelstein-Fox, L., Park, C. L., & Riley, K. E. (2018). Mindfulness and emotion regulation: Promoting well-being during the transition to college. *Anxiety, Stress, & Coping*, 31(6), 639–653. <https://doi.org/10.1080/10615806.2018.1518635>
- Gendron, B. (2004). Why emotional capital matters in education and in labour? Toward an optimal exploitation of human capital and knowledge management. *Les Cahiers de la Maison des Sciences Economiques*, 113, 37. <https://EconPapers.repec.org/RePEc:mse:wpsorb:r04113>
- Gendron, B., Kouremenou, E. S., & Rusu, C. (2016). Emotional capital development, positive psychology and mindful teaching: Which links? *International Journal of Emotional Education*, 8(1), 63–74.
- Gregório, S., & Gouveia, J. P. (2011). Facetas de mindfulness: Características psicométricas de um instrumento de avaliação. *Psychologica*, (54), 259–279.
- Gosling, S. D., Rentfrow, P. J., & Swann Jr, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, 37(6), 504–528.
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85(2), 348–362.
- Hagenauer, G., Gläser-Zikuda, M., & Moschner, B. (2018). University students’ emotions, life-satisfaction and study commitment: A self-determination theoretical perspective. *Journal of Further and Higher Education*, 42(6), 808–826. <https://doi.org/10.1080/0309877X.2017.1323189>
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy* (p. 6). Guilford press.
- Hepburn, S. J., Carroll, A., & McCuaig, L. (2021). The relationship between mindful attention awareness, perceived stress and subjective wellbeing. *International Journal of Environmental Research and Public Health*, 18(23), 12290.
- Jones, S. M., Bodie, G. D., & Hughes, S. D. (2019). The impact of mindfulness on empathy, active listening, and perceived provisions of emotional support. *Communication Research*, 46(6), 838–865. <https://doi.org/10.1177/00936502156269>
- Kabat-Zinn, J., Massion, A. O., Kristeller, J., Peterson, L. G., Fletcher, K. E., & Pbert, L. (1992). Effectiveness of a Meditation-Based Stress Reduction Program. *American Journal of Psychiatry*, 149(9), 943.
- Kecojevic, A., Basch, C. H., Sullivan, M., & Davi, N. K. (2020). The impact of the COVID-19 epidemic on mental health of undergraduate students in New Jersey, cross-sectional study. *PLoS ONE*, 15(9), 1–16. <https://doi.org/10.1371/journal.pone.0239696>
- Lawlor, M. S. (2016). Mindfulness and social emotional learning (SEL): A conceptual framework. In *Handbook of mindfulness in education: Integrating theory and research into practice*, pp. 65–80.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.
- Lee, R. M., Draper, M., & Lee, S. (2001). Social connectedness, dysfunctional interpersonal behaviors, and psychological distress: Testing a mediator model. *Journal of Counseling Psychology*, 48(3), 310–318.
- Levesque-Bristol, C. (2023). Perspective chapter: Fostering students’ learning experiences in higher education-reflections from student-centered pedagogy and course transformation. In L. Waller & S. Waller (Eds.), *Higher education- Reflections from the field*. IntechOpen. <https://doi.org/10.5772/intechopen.110327>
- Lomas, T., Medina, J. C., Ivtzan, I., Rupprecht, S., & Eiroa-Orosa, F. J. (2016). The impact of mindfulness on the wellbeing and performance of educators: A systematic review of the empirical literature. *Teaching and Teacher Education*, 61, 132–141. <https://doi.org/10.1016/j.tate.2016.10.008>

- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour research and therapy*, 33(3), 335–343.
- Marshall, S. L., Parker, P. D., Ciarrochi, J., Sahdra, B., Jackson, C. J., & Heaven, P. C. (2015). Reprint of “Self-compassion protects against the negative effects of low self-esteem: A longitudinal study in a large adolescent sample.” *Personality and Individual Differences*, 81, 201–206. <https://doi.org/10.1016/j.paid.2014.09.049>
- Marques Pinto, A., Lima, M. L., & Lopes da Silva, A. (2005). Fuentes de estrés, burnout y estrategias de coping en profesores portugueses. *Revista de Psicología del Trabajo y las Organizaciones*, 21, 125–143.
- Maslach, C., Jackson, S.E., & Leiter, M.P. (1996). *Maslach Burnout Inventory Manual* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.
- McCullough, M. E., Emmons, R. A., & Tsang, J.-A. (2002). The grateful disposition: A conceptual and empirical topography. *Journal of Personality and Social Psychology*, 82(1), 112–127. <https://doi.org/10.1037/0022-3514.82.1.112>
- Moè, A. (2022). Does the Weekly Practice of Recalling and Elaborating Episodes Raise Well-Being in University Students?. *Journal of Happiness Studies*, 23(7), 3389–3406.
- Morbée, S., Haerens, L., Waterschoot, J., & Vansteenkiste, M. (2022). Which cyclists manage to cope with the corona crisis in a resilient way? The role of motivational profiles. *International Journal of Sport and Exercise Psychology*, 20(4), 1049–1067.
- Neufeld, A., & Malin, G. (2022). Need fulfillment and resilience mediate the relationship between mindfulness and coping in medical students. *Teaching and Learning in Medicine*, 34(1), 78–88. <https://doi.org/10.1080/10401334.2021.1960533>
- Neff, K. D. (2003). The development and validation of a scale to measure self-compassion. *Self and Identity*, 2(3), 223–250.
- Nelis, D., Kotsou, I., Quoidbach, J., Hansenne, M., Weytens, F., Dupuis, P., & Mikolajczak, M. (2011). *Increasing emotional competence improves psychological and physical well-being, social relationships, and employability*. *Emotion*, 11(2), 354.
- Ng, B., & Abbas, D. (2020). Self-determination theory: Attributes of healthy aging. In B. Ng & G. Ho (Eds.), *Self-determination theory and healthy aging: Comparative contexts on physical and mental well-being* (pp. 19–30). Springer. https://doi.org/10.1007/978-981-15-6968-5_2
- Organization for Economic Co-Operation and Development (OECD). (2018). Trends shaping education spotlight 14 – Good vibrations: Students’ well-being. Paris, France: Author.
- Palladino, C. L., Ange, B., Richardson, D. S., Casillas, R., Decker, M., Gillies, R. A., House, A., Rollock, M., Salazar, W. H., Waller, J. L., Zeidan R., & Stepleman, L. (2013). Measuring psychological flexibility in medical students and residents: A psychometric analysis. *Medical Education Online*, 18(1), 20932
- Palmer, A., & Rodger, S. (2009). Mindfulness, stress, and coping among university students. *Canadian Journal of Counselling and Psychotherapy*, 43(3), 198–212.
- Petrides, K. V. (2009). Psychometric properties of the trait emotional intelligence questionnaire (TEIQue). In: *Assessing emotional intelligence: Theory, research, and applications* (pp. 85–101). Boston, MA: Springer US.
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1(3), 385–401.
- Ragozzino, K., Resnik, H., Utne-O’Brien, M., & Weissberg, R. P. (2003). Promoting academic achievement through social and emotional learning. *Educational Horizons*, 81(4), 169–171. <https://www.jstor.org/stable/42925455>
- Rindermann, H. (2009). Emotionale-Kompetenz-Fragebogen (EKF) Emotional Competence Questionnaire. Ein Verfahren zur Einschätzung emotionaler Kompetenzen und emotionaler Intelligenz aus Selbst- und Fremdsicht. Göttingen, Germany: Hogrefe.
- Rodríguez, F. M. M., & Morales-Rodríguez, A. M. (2023). Socio-emotional competences in university students. In F. M. M. Rodríguez (Ed.), *New insights into emotional intelligence*. IntechOpen. <https://doi.org/10.5772/intechopen.1000221>

- Roger, D., Jarvis, G., & Najarian, B. (1993). Detachment and coping: The construction and validation of a new scale for measuring coping strategies. *Personality and Individual Differences*, 15(6), 619–626.
- Roulston, A., Montgomery, L., Campbell, A., & Davidson, G. (2018). Exploring the impact of mindfulness on mental wellbeing, stress and resilience of undergraduate social work students. *Social Work Education*, 37(2), 157–172. <https://doi.org/10.1080/02615479.2017.1388776>
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford.
- Ryan, R. M., & Deci, E. L. (2008). A self-determination theory approach to psychotherapy: The motivational basis for effective change. *Canadian Psychology/psychologie Canadienne*, 49(3), 186–193.
- Schonert-Reichl, K. A. (2017). Social and emotional learning and teachers. *The Future of Children*, 137–155.
- Schelhorn, I., Lindl, A., & Kuhbandner, C. (2023). Evaluating a training of emotional competence for pre-service teachers. *Teaching and Teacher Education*, 123, 103947.
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, 4(3), 219–247.
- Schutte, N. S., Malouff, J. M., Hall, L. E., Haggerty, D. J., Cooper, J. T., Golden, C. J., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences*, 25(2), 167–177.
- Schwarzer, R., & Jerusalem, M. (1995). Optimistic self-beliefs as a resource factor in coping with stress. In: *Extreme stress and communities: Impact and intervention* (pp. 159–177). Dordrecht: Springer Netherlands.
- Shankland, R., Tessier, D., Strub, L., Gauchet, A., & Baeyens, C. (2021). Improving mental health and well-being through informal mindfulness practices: An intervention study. *Applied Psychology: Health and Well-Being*, 13(1), 63–83. <https://doi.org/10.1111/aphw.12216>
- Shannon, S., Hanna, D., Haughey, T., Leavey, G., McGeown, C., & Breslin, G. (2019). Effects of a mental health intervention in athletes: Applying self-determination theory. *Frontiers in Psychology*, 10, 1875. <https://doi.org/10.3389/fpsyg.2019.01875>
- Skinner, E., & Beers, J. (2016). Mindfulness and teachers' coping in the classroom: A developmental model of teacher stress, coping, and everyday resilience. In K. A. Schonert-Reichl & R. W. Roeser (Eds.), *Handbook of mindfulness in education: Integrating theory and research into practice* (pp. 99–118). Springer. https://doi.org/10.1007/978-1-4939-3506-2_7
- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53(1), 80–93. <https://doi.org/10.1037/0022-0167.53.1.80>
- Steinmayr, R., Bipp, T., & Spinath, B. (2011). Goal orientations predict academic performance beyond intelligence and personality. *Learning and Individual Differences*, 21(2), 196–200.
- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., ... & Stewart-Brown, S. (2007). The Warwick-Edinburgh mental well-being scale (WEMWBS): Development and UK validation. *Health and Quality of Life Outcomes*, 5(1), 1–13.
- Vallerand, R. J., Blais, M. R., Briere, N. M., & Pelletier, L. G. (1989). Construction et validation de l'Échelle de motivation en éducation (EME). *Canadian Journal of Behavioural Science*, 21, 323–349.
- Vaz, F. M., Martins, C., & Martins, E. C. (2008). Diferenciação emocional e regulação emocional em adultos portugueses.
- Waterschoot, J., Van der Kaap-Deeder, J., Morbée, S., Soenens, B., & Vansteenkiste, M. (2021). “How to unlock myself from boredom?” The role of mindfulness and a dual awareness- and action-oriented pathway during the COVID-19 lockdown. *Personality and Individual Differences*, 175, 110729.
- Wegner, D. M., Broome, A., & Blumberg, S. J. (1997). Ironic effects of trying to relax under stress. *Behaviour Research and Therapy*, 35(1), 11–21.

- Weinstein, N., Brown, K. W., & Ryan, R. M. (2009). A multi-method examination of the effects of mindfulness on stress attribution, coping, and emotional well-being. *Journal of Research in Personality, 43*(3), 374–385.
- Williams, G. C., & Deci, E. L. (1996). Internalization of biopsychosocial values by medical students: A test of self-determination theory. *Journal of Personality and Social Psychology, 70*(4), 767–779. <https://doi.org/10.1037//0022-3514.70.4.767>
- Williams, A. L., Dixon, J., McCorkle, R., & Van Ness, P. H. (2011). Determinants of meditation practice inventory: Development, content validation, and initial psychometric testing. *Alternative Therapies in Health and Medicine, 17*(5), 16–23.
- Wolfe, U., & Batoyun, T. (2022). An online course in contemplative neuroscience increases dispositional mindfulness and reduces meditation barriers. *The Journal of Undergraduate Neuroscience Education, 20*(3), A351–A358.
- Xu, J., Jo, H., Noorbhai, L., Patel, A., & Li, A. (2022). Virtual mindfulness interventions to promote well-being in adults: A mixed-method systematic review. *Journal of Affective Disorders, 300*, 571–585.

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Correction to: Self-Determination Theory and Socioemotional Learning



Betsy Ng 

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