Chapter 4
Understanding and Supporting Student Motivation for Learning

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Abstract This chapter highlights the importance of motivation for children's learning, and describes the ways in which motivation may be strengthened. We begin by discussing the construct of motivation and the various theories that have attempted to explain why some students are more highly motivated than others. Drawing on the framework of mastery motivation, we describe developmental aspects of the drive for mastery, highlighting the ways in which this drive increasingly becomes differentiated and affected by the interplay of individual child characteristics, such as self-efficacy and self-regulation, and contextual factors, such as cognitively stimulating environments, optimal challenge, and support for autonomy. The contexts in which children live and learn have important implications for motivation. We discuss motivation in children with learning and developmental disabilities, considering the experiences that potentially undermine their engagement with learning. The final part of the chapter focuses on strategies for promoting and sustaining motivation. In particular, we emphasize the importance of providing optimal challenge, experiences of success, and support for autonomy, as well as the benefits of positive strategies for developing self-regulatory skills.

Keywords Student · Motivation · Learning · Developmental disabilities
Self-efficacy · Self-regulation

Introduction

Motivation is critical for effective learning. Highly motivated students are enthusiastic about learning, and committed to working towards goals. They make use of effective strategies to achieve their goals, hold positive beliefs about the value of learning, and display confidence in their own ability. Poorly motivated students, on the other hand, tend to be disengaged, displaying a reluctance to attempt or persist

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with tasks, and appearing uninterested in learning. Not surprisingly, reduced levels of motivation are associated with lower academic achievement.

Teachers naturally want children to be keen to learn. Ideally, they want them to be *intrinsically* motivated; that is, they want them to be motivated to learn because they perceive the material to be inherently interesting and they recognize its value. Students who are intrinsically motivated are keen to acquire knowledge and skills; their goal is to achieve mastery of, or competence in, a particular area. By contrast, children who are extrinsically motivated are driven by external factors, such as the desire to achieve passing grades or to impress others. Realistically, although individuals may be intrinsically motivated by some topics or areas, much learning is not inherently interesting. Students may struggle to see the relevance of required learning for later goals, leading them to be more extrinsically motivated.

This chapter focuses on evidence from research studies that have attempted to answer some of the key questions teachers have about student motivation: What motivates children to learn and achieve? Why are some children more motivated than others? How can teachers encourage children to be more engaged with learning?

Drawing on a considerable body of research from the area of educational psychology, the chapter begins with an overview of various theoretical perspectives on motivation, before considering the child and contextual factors that are associated with higher motivation for learning. The final section of the chapter describes positive strategies for promoting and sustaining children's engagement with learning.

Definitions and Theoretical Perspectives on Motivation

Motivation has been defined as the force that energizes, directs, and sustains goal-directed behaviour (Morgan et al. 1990; Schunk et al. 2014). White (1959) argued that all individuals are born with an inherent drive to master their environments. This drive provides the energy for individuals to work towards goals; it directs their behaviour towards those goals, and sustains the necessary effort for achieving them. Stipek (1997) described motivated students as "willingly engaged in the learning process, self-confident in their ability to learn and to complete school tasks, persistent in the face of difficulty, oriented towards developing, understanding and mastering skills, enthusiastic and optimistic about learning, and proud of their accomplishments" (1997, 77). This definition illustrates the behaviours, emotions, and cognitions that are associated with the concept of motivation. We infer motivation from behaviours such as the willingness to engage and persist with challenging tasks, and from emotional responses, such as enthusiasm for tasks, and pride following achievement. Cognitive influences on motivation include beliefs about one's own competence and the attributions one makes for successes and failures. Such cognitions affect the ways in which students approach learning, including their levels of persistence and their responses to failure. Cognitive aspects

of motivation also include self-regulation skills such as goal-setting, planning, monitoring progress, and resisting distractions.

Various theoretical perspectives emphasize specific cognitive, emotional, and behavioural components of motivation. For example, social cognitive theory (Bandura 1986) stresses the importance of self-efficacy - that is, cognitive beliefs about one's own competence. Self-worth theory (Covington 1992) focuses on emotional self-evaluations and self-acceptance. Expectancy-value theory (Wigfield and Eccles 2000) proposes that students' motivation for achievement depends on their expectations about future success with a particular task, as well as their perceptions of the task's intrinsic value. Goal theory (Maehr and Zusho 2009) has contributed to our understanding of motivation by distinguishing mastery, with its focus on *developing* competence, from performance recognition, which is the *demonstration* of competence. Mastery goals are associated with more positive academic outcomes than performance goals. The impact on motivation of the ways in which we reason about the causes of our successes and failures is the focus of attribution theory (Weiner 1985), while operant theory (Skinner 1953) emphasizes the motivational effects of reinforcement or punishment.

According to self-determination theory (Ryan and Deci 2000), motivated behaviour is driven by the basic human needs for autonomy, competence, and social relatedness. People need to feel a sense of volition and control over their own actions, they need to feel effective in their interactions with the environment, and they need to feel connected to others. Self-determination theory proposes a motivation continuum of autonomy versus control. Between the opposite end points of intrinsic motivation (high autonomy) and amotivation (unmotivated, uninterested) there exist four different subtypes of extrinsic motivation that differ according to the degree of autonomy or self-determination that is involved (Ryan and Deci 2000). In the two higher levels, individuals are motivated for activities they value (identified motivation) or by ones that are consistent with their personal values (integrated motivation). By contrast, lower levels of self-determination characterize introjected motivation in which individuals seek to feel satisfaction or pride, and to avoid feelings of shame and guilt. The least self-determined level of motivation is external motivation where actions are driven purely by the need to obtain rewards and avoid punishment. There is evidence that these subtypes of extrinsic motivation also apply to individuals who are developing atypically (Frielink et al. 2017).

Better outcomes are associated with autonomous than controlled motivation (Deci and Ryan 2002). Intrinsic motivation is related to higher academic achievement and self-efficacy (Froiland and Oros 2014; Gottfried 1990; Lepper et al. 2005). In this most autonomous and self-determined level of motivation, individuals engage in an activity of their choosing for its own sake, displaying high levels of enthusiasm, absorption, concentration, and enjoyment of the activity. Those who are deeply immersed in an intrinsically rewarding activity may experience a state of flow in which there is no longer any awareness of time, place, and even self (Csikszentmihalyi 1990). An important characteristic of flow is the notion of optimal challenge that represents a perfect balance between the inherent challenge of a task and the individual's ability. Csikszentmihalyi (1975) argued that

when task difficulty exceeds an individual's capabilities, anxiety results. But when a task is perceived as not sufficiently challenging, boredom is likely to follow. Although flow may not be experienced commonly in school settings (Shernoff and Csikszentmihalyi 2009), the concept provides a worthy goal for teachers. Ideal engagement in learning can be viewed as deep engrossment in tasks that are inherently interesting, optimally challenging, and personally satisfying. Of particular note is that either anxiety or boredom may result if learning tasks are not appropriate for individual ability.

The construct of mastery motivation offers a framework for considering the developmental nature of motivation. It is presumed that all infants have an instinctive and undifferentiated drive to explore and master their environments (White 1959). Over time, experiences of success and failure influence motivation, and children become more motivated to engage in activities they enjoy and feel competent with (Guay et al. 2010; Harter 1978). Thus, mastery motivation becomes increasingly differentiated and focused with age. Older children and adults naturally display greater motivation to master activities that are within their realm of interest and aptitude, whereas they are less likely to be motivated in areas that they perceive to be difficult or uninteresting, or in which they have experienced constant failure.

Numerous studies have found that early motivation predicts later competence and academic success (Gilmore et al. 2003a, b; Hustinx et al. 2009; Turner and Johnson 2003). The importance of mastery motivation has been demonstrated also in atypical populations. In a sample with Down syndrome, motivation in early childhood predicted academic success in adolescence (Gilmore and Cuskelly 2009) and adaptive functioning in young adulthood (Gilmore and Cuskelly 2017). Hauser-Cram et al. (2014) also reported associations of early childhood motivation with executive functioning 20 years later, in a group of individuals with developmental disabilities. The importance of mastery motivation has also been demonstrated for individuals with neurodevelopmental disorders such as cerebral palsy (Warschausky et al. 2017).

Over time, children become more susceptible to the reactions of others, such as parents, teachers, and peers, and these reactions influence their continuing motivation. Social acknowledgement of mastery attempts and achievements may become more important than intrinsic feelings of satisfaction associated with success. According to the construct of achievement motivation, children with a performance orientation focus on demonstrating their competence to others, while those with a mastery orientation are more focused on the development of competence (Senko et al. 2008).

For older children and adults, preference for challenge or novelty is often viewed as an indicator of motivation, along with persistence, curiosity, and inherent pleasure in learning. Although the construct of mastery motivation has sometimes been used in motivation studies with older children and adults (Gilmore et al. 2017), it is more common for research with older samples to draw on the broader construct of achievement motivation that includes beliefs and expectations about performance, as well as self-perceptions of competence and the value placed on learning.

Developmentally, declines in intrinsic motivation with age are frequently documented, especially at the time of school entry and in the transition from elementary to high school (Gottfried et al. 2009; Lepper et al. 1997; Otis et al. 2005). There are numerous possible explanations for such declines, including an increasing focus on performance instead of mastery outcomes, greater social comparisons against the achievement of peers, boredom associated with lack of meaning or relevance of learning tasks, and less perceived control over learning in adolescence, a developmental phase in which autonomy becomes increasingly important.

Each of the theoretical perspectives and motivational constructs discussed above offers potentially useful insights that help us to make sense of individual differences in motivation. Children vary hugely with respect to their self-concepts, attributions, expectancies of success, persistence, and interest in different areas of learning. In addition, individuals rarely display similar levels of motivation across all learning domains, and they are likely to display different motivational profiles or patterns in different contexts (for example, home, school, sporting arena) and at different times. Thus, we need a range of theoretical perspectives to draw upon when attempting to understand and respond to motivational issues.

Research with Typically Developing Children

Research with typically developing children has focused on two main aspects of motivation: Why are some children more motivated than others? And, how can motivation be improved? We first need to understand individual differences in motivation in order to recommend particular teaching practices or interventions that will improve children's motivation for learning. We focus first here on individual child characteristics that affect motivation, then on environmental factors, although child and environmental factors are inevitably interconnected and reciprocally influencing.

Individual Child Characteristics

Many child characteristics are associated with motivation for learning. The most basic, yet often overlooked, reasons for low motivation are those associated with physical health, sensory difficulties, and motor skills. Children who have difficulties in these areas are likely to have reduced interest in learning because of problems such as inadequate hearing, pain, lack of sleep, or low energy levels. For example, the child who does not have a good night's sleep because of pain from an ear infection, or breathing difficulties due to asthma, or disturbances by parents arguing, is unlikely to display highly motivated behaviour at school the following day. Numerous other factors, such as medication side-effects, substance misuse, anxiety, and depression, may influence student engagement in the classroom.

Some of the theories of motivation discussed earlier help us to understand how children's cognitions can undermine their motivation for learning. The ways they think about their ability are particularly relevant. Students who have low levels of belief in their own competence and a low expectancy of success will tend to avoid challenge and not persist after failure. The attributions they make for successes and failures can have critical impacts on motivation. Children who view their failures as due to low ability, or simply luck, will see learning as uncontrollable and believe persistence is pointless. On the other hand, those who explain failure as the result of insufficient effort may be more motivated to try harder in order to avoid repeated failure. As discussed later in this chapter, students' attributions are likely to be influenced by the direct and indirect messages they receive from teachers and other significant people.

Children whose individual learning goals are directed towards mastery tend to display greater persistence and higher self-efficacy than those whose learning is overshadowed by the need to demonstrate their achievements to others or to compete with peers. The latter group is more likely to avoid challenge and to demonstrate a learned helpless pattern of motivation. Another individual characteristic that influences motivation is the capacity for self-regulation. Motivated behaviour requires the ability to resist distractions, monitor and evaluate progress with a task, change approaches if necessary, cope adaptively with frustration and other emotional responses, and ask for help when necessary. Children vary in their ability to use these self-regulation skills, with some groups such as those with attention-hyperactivity disorders (Barkley 2011) or intellectual impairment (Cuskelly et al. 2013) having more difficulty than others.

Although some of these individual characteristics are intrinsic to the child, most are influenced by environmental factors, or can be modified by appropriate interventions. The environments within which children live and learn have important implications for their motivation.

Children's Environments

Motivation is likely to be impacted by a range of factors within children's family, school, community, and cultural contexts. Research evidence shows that environments which provide cognitive stimulation and challenge, opportunities for success, support for autonomy, and positive reinforcement, are optimal for promoting and sustaining children's motivation for learning.

Numerous studies have demonstrated associations between cognitively stimulating environments and children's motivation and achievement (see Gottfried et al. 1998; Wang et al. 2011). Gottfried et al. (2016) found that 8-year-old children, whose parents provided cognitively stimulating activities, went on to display higher academic intrinsic motivation and achievement in science at high school. Students who are intrinsically motivated prefer challenging activities (Deci and Ryan 1985). Optimally challenging tasks are neither too easy nor too difficult, but rather are

within a child's zone of proximal development (Vygotsky 1986). Not only are such activities more cognitively stimulating, but they are also more likely to produce feelings of satisfaction following success and to reinforce a child's feelings of self-efficacy.

The ways in which teachers respond to students' efforts in the classroom are likely to influence their motivation for further attempts. Clear, informative feedback, that focuses on effort rather than ability, is most useful for promoting mastery goals (Mueller and Dweck 1998). There is extensive evidence for the effectiveness of positive reinforcement for shaping children's behaviour, provided it is used judiciously. Commonly used reinforcers include praise, rewards, and treats or privileges of different kinds. Some studies have demonstrated the potentially adverse effects of reinforcers for children's motivation. Referred to as the "over-justification effect", it seems that offering external incentives for activities that are intrinsically interesting may reduce motivation, although this effect may not be observed when rewards are unexpected (Lepper et al. 1973). Reinforcement in the form of praise can positively impact intrinsic motivation when the focus is on mastery rather than social comparisons (Henderlong Corpus et al. 2006). Later in this chapter, we will consider the ways in which praise can most effectively be used for promoting children's motivation.

Various teacher characteristics potentially influence children's motivation for learning. Students tend to be more highly motivated when teachers display their own high levels of motivation and enthusiasm for learning (Patrick et al. 2000). Teacher passion tends to be contagious and to increase student engagement (Keller et al. 2013). Not surprisingly, teachers themselves report more enjoyment and greater confidence in the classroom when their students are highly motivated to learn and oriented towards mastery (Martin 2006).

High levels of teacher stress can have adverse consequences, not only for teachers' well-being, but also for children's motivation for learning (Pakarinen et al. 2010). Stressed teachers are likely to be less engaged with their students and to provide less effective instruction. In a large sample of high school students, Shen and colleagues (2015) found negative relationships of teacher burnout with students' motivation and their perceptions of the extent to which teachers supported their autonomy.

Many studies have demonstrated links of student motivation with supportive teacher behaviours such as respect and empathy (Patrick et al. 2007; Skinner et al. 2008). One of the most important ways in which teachers can support their students is by encouraging their autonomy. A considerable body of research has demonstrated the associations of autonomy support with children's social, emotional, cognitive, and motivational outcomes (Jang et al. 2010; Reeve 2009; Ruzek et al. 2016; Taylor and Ntoumanis 2007; van der Kaap-Deeder et al. 2017; Vasquez et al. 2016). Similar relationships have been documented for children with learning disabilities (Deci et al. 1992), intellectual disability (Emond Pelletier and Joussemet 2016; Gilmore et al. 2009) and behavioural disorders (Savard et al. 2013). Autonomy supportive behaviours include involving children in decision-making, acknowledging their feelings and respecting their views, minimizing directives and

demands, encouraging children to take the initiative, and offering choices. By contrast, directive adults tend to be controlling and intrusive, ignoring children's perspectives, and giving them few if any opportunities for autonomous behaviour.

Collaborative environments in which groups of students work towards common goals can contribute to motivation. Self-determination theory stresses the importance of human connectedness. Even young children appear to have an innate drive to cooperate with others (Warneken and Tomasello 2007) and opportunities for collaboration enhance persistence and task enjoyment (Butler and Walton 2013). Turner (1995) found that Grade One students who had opportunities to work on interesting and challenging tasks, in collaborative settings in which they perceived some control, displayed the highest levels of motivation for literacy. However, students may benefit most when they feel that they are part of the group and also that they stand out as individuals. In a recent study of high school students, Gray (2017) found that academic motivation was strongest for those who felt not only that they belonged within their peer group but also that their unique contributions were valued by the group. Developmentally, adolescence is a time when, somewhat paradoxically, young people strive both for conformity to peer norms and for the establishment of a unique individual identity. Thus, they are seeking simultaneously to 'fit in' and to 'stand out'. Satisfying both of these needs is associated with achievement motivation and well-being.

Cultural Contexts

The overwhelming majority of research studies published in international journals report data collected in western countries, predominantly the United States. Cultural influences have generally been overlooked in motivation research (King and McInerney 2014) and, when culture is considered, comparisons often tend to be made between children in western countries and immigrants from non-western countries who are now living in western countries. There is a scarcity of research conducted in less-developed countries and published in journals that are accessible for international audiences. Yet, we cannot presume that the findings of motivation research in western countries always apply in non-western contexts, especially collectivist cultures.

Cross-culturally, there appear to be both similarities and differences in motivational processes. A generally universal finding is the decline in motivation at school entry and the further decline around the transition from primary to secondary school; in addition, girls are commonly found to be more highly motivated than boys (Lam et al. 2016). Many studies have described common motivation profiles across different cultural groups. De Castella et al. (2013) reported similar patterns of motivation for high school students in Australia and Japan and, in a study of mastery motivation of university students in four different cultural contexts—Australia, Hungary, Bangladesh, and Iran—there were no significant differences in self-reported motivation (Gilmore et al. 2017). However, some motivation theories

may not be supported in non-western cultures, and motivation concepts may have different meaning or salience in different cultural contexts (King and McInerney 2014; Täht et al. 2014). In particular, the fact that western countries tend to emphasize individual goals and autonomy, whereas collectivist cultures generally focus more on group goals and relatedness, suggests that academic achievement in individualistic cultures is more likely to be driven by mastery, while in collectivist societies performance or social goals may be more important (Dekker and Fischer 2008; King et al. 2014). Self-determination theory proposes, however, that the needs for autonomy, competence, and relatedness are universal, even though collectivist cultures may not necessarily value autonomy to the same extent as western countries. Indeed, there is evidence that autonomy-supportive teaching has similarly positive benefits for motivation of children in China (Zhou et al. 2009).

Children with Learning or Developmental Difficulties

Children with learning or developmental difficulties may have physical health and sensory impairments, cognitive impairments, difficulties with motor skills, problems with social interaction, and limitations with language and communication. At school, these children are likely to experience not only difficulties with learning, but also experiences of failure, discouraging feedback from others, negative self-evaluations, and social exclusion. All of these experiences potentially undermine their motivation for learning.

Students with learning disabilities may display problems with motivation, such as poor task persistence, avoidance of challenge, low academic self-efficacy, and negative affect (Ayers et al. 1990; Baird et al. 2009; Meltzer et al. 2004; Poskiparta et al. 2003; Sideridis 2006). This is not surprising, given their difficulties with learning and the greater number of failures they are likely to experience. But learning disabilities are not always easily recognized. Children may be presumed to be poorly motivated - in other words, simply lazy. Gilmore and Boulton-Lewis (2009) demonstrated this presumption powerfully in a study of 20 children who, according to their teachers, could be successful at school if only they made greater effort and applied themselves more. The researchers hypothesized that specific difficulties might underlie the presumed laziness of these children, and indeed the results of comprehensive psycho-educational assessments supported this hypothesis. Of the 20 children in the sample, 17 had diagnosable, but previously unrecognized, learning disabilities or attention disorders. These findings highlight the importance of considering individual child characteristics if we are trying to understand motivation for learning.

Several studies have demonstrated the ways in which the environments of students with learning disabilities may impact their motivation. Teachers may inadvertently convey the message that children with learning disabilities have low levels of ability and thus should expect failure (Georgiou et al. 2002; Woodcock and Vialle 2016). Woodcock and Vialle (2011) reported that pre-service teachers had

lower expectations of students with learning disabilities, and conveyed negative attributions that had the potential to undermine students' beliefs about the level of achievement they might expect to attain. Children with learning disabilities are more likely to attribute their successes to external factors such as luck, and their failures to low ability (Waheeda and Grainger 2002).

Students who experience constant failure and negative feedback may come to believe that they do not have the necessary ability or that they have little control over learning outcomes (Kunnen and Steenbeek 1999). In the former case (low perceptions of competence), students may seek to avoid failure, whereas in the latter case (low perceptions of control) they may feel helpless (Craske 1988). Children with learning disabilities are more vulnerable to developing learned helplessness than others (Sideridis 2003). Learned helplessness is associated with low self-esteem, low self-perceptions of ability, and low expectations about future success. Dweck and Sorich (1999) reported that some children as young as, or even younger than, 8 years of age displayed signs of helplessness such as poor task persistence, ineffective learning strategies, self-blame for failure, and the belief that increased effort would not make a difference.

There is a relative scarcity of research about motivation in children with developmental disabilities. Most of the available research is quite dated (Jacobs 1972; Switzky 1997; Wong 1980) and overwhelmingly comes from western countries, mainly the United States. One of the earliest studies concluded that children and adolescents with intellectual disability had lower levels of motivation than those who were developing typically (Harter and Zigler 1974). At this time, however, individuals with developmental disabilities experienced exclusion and discrimination that limited their opportunities for engagement and success with learning (Gilmore and Cuskelly 2014). Nevertheless, the view that individuals with intellectual disability have deficits in motivation has tended to persist (Deci 2003; Emond Pelletier and Joussemet 2016; Greenspan 2006). This is despite evidence from more recent studies that have found no differences in task persistence when children with intellectual disability are compared to others of the same mental age (Gilmore and Cuskelly 2011; Gilmore et al. 2003a, b; Glenn et al. 2001; Nader-Grosbois and Lefévre 2011; Nader-Grosbois and Vieillevoye 2012). At times, however, subtle differences have been identified, such as with respect to sustained task engagement (Ruskin et al. 1994), and parents or teachers generally rate children with intellectual disability as less persistent (Gilmore and Cuskelly 2011; Zigler et al. 2002), possibly because they make comparisons to peers of the same chronological, rather than mental, age. Some researchers have argued that motivational deficits are part of the learning and behavioural profile of specific disabilities, such as Down syndrome (Fidler 2006), although others have challenged this view (Gilmore et al. 2015).

Positive Strategies for Promoting Motivation

The evidence from research studies reviewed above provides a strong foundation for the development of a range of positive strategies that teachers can use to promote and sustain children's motivation for learning.

Consider Possible Underlying Issues

As mentioned earlier, there may be specific reasons for a child's lack of engagement with learning. Teachers need to be aware of the range of difficulties that undermine motivation, and watch for possible indicators of problems. For example, the child who appears inattentive to instructions may have undiagnosed difficulties with hearing or auditory processing or speech and language. The student who seems to be daydreaming and staring into space as if uninterested in learning, could potentially be experiencing absence seizures, sleep deprivation, anxiety, or attention deficit disorder. Children who have unrecognized learning disabilities may present as 'lazy' and unmotivated, because their learning needs have not been recognized. At times, teachers may misinterpret certain child behaviours, such as slowness and passivity, as being reflective of low levels of motivation. But some children, especially those with intellectual disability, require more time for processing and formulating responses. These children may also need time-out breaks from concentration if learning is particularly effortful; during such breaks, they may appear passive and uninterested in their surroundings, but it is not appropriate to conclude automatically that these behaviours imply low levels of motivation. Research about flow experiences suggests that individuals with low levels of ability who are given tasks that are low in challenge may become passive or apathetic about learning. Even children with intellectual disability need to be offered tasks that are challenging for them. Yet this does not necessarily happen in classrooms, as illustrated in the following example. An 11-year-old boy with a mild intellectual disability was asked: "What do you do if the teacher gives you some work and it's too hard for you?"; he replied: "I tell her it's too hard and then she just gives me colouring in to do."

It is clearly important to consider possible issues that underlie what, on the surface, appear to be problems with motivation. When teachers believe a student is poorly motivated, they tend to respond with less involvement, less structure, and less autonomy support than they provide to students who they perceive to be highly motivated. Such responses will undermine the children's inherent interest and engagement in learning activities, and consequently limit their achievement. If they are aware of the range of difficulties that can potentially underlie apparent motivational problems, teachers can respond more sensitively, referring students to school psychologists or counsellors for proper evaluation if necessary.

Identify and Modify Children's Self-efficacy Beliefs and Attributions

Earlier, we discussed the critical influences of self-efficacy, expectations, and attributions on children's motivation. Teachers can identify, challenge, and modify the beliefs students have about their own competence, the expectations they have about future achievement, and the attributions they make for their successes and failures. Of course, teachers also need to be aware of their own expectations about the level of achievement a child may attain, as well as the attributions they make for a student's successful and unsuccessful attempts. It is important to have realistic, but optimistic, expectations of children, neither unnecessarily low nor unrealistically high. When teachers have low expectations, they are more likely to attribute a child's failures to low ability, and their successes to luck. These teacher expectations and attributions, if conveyed directly or indirectly to students, can undermine their motivation.

In order to strengthen self-efficacy, self-competence beliefs, and expectations, children need opportunities to experience success. Learning activities can be structured so that some degree of success is achievable and a child's particular strengths, interests, curiosities, and talents may be identified, incorporated, and nurtured (Cuskelly and Gilmore 2014). Self-efficacy contributes not only to motivation and academic achievement, but also to psychosocial well-being (Erikson 1963) and a host of other positive developmental outcomes, such as self-regulation and resilience (Benight and Bandura 2004).

Identifying and modifying the attributions students make about their own performance can be a powerful strategy for enhancing motivation. Children who make comments such as "I'm just a dumb kid" are likely to be attributing their failures to low ability and, if failure is common, they may develop a pattern of learned helplessness in which effort is seen as useless, because failure is believed to be inevitable. For these children, there is a sense of hopelessness as well as helplessness. They are pessimistic about the possibility of succeeding, and tend to either give up quickly or not try at all. It is important to identify maladaptive attributions early before they become deeply entrenched. In order to modify those attributions, teachers can provide opportunities for success, modifying tasks if necessary, and giving students strategies such as mnemonics, to increase their sense of control and likelihood of success. Offer feedback which emphasizes that successes are due to effort, and failures are due to lack of effort, but beware of attributing failure to lack of effort if a child does not have the necessary ability or strategies for success. Some children may try very hard, but their efforts still do not result in success. This may be because of a learning disability or speech and language disorder or some other problem that has not been recognized, so considering the possibility of such underlying issues is critical when a child's progress is slow or inconsistent.

Attribution-retraining programmes commonly use cognitive-behavioural techniques to challenge existing attributions. Many studies have reported on positive improvements in student motivation (Dresel and Haugwitz 2008; Sinnott and

Biddle 1998) including for children with learning disabilities (Okolo 1992; Toland and Boyle 2008). Toland and Boyle (2008) showed that it was possible to modify children's attributions, with subsequent benefits for their motivation, self-esteem, and academic performance. Using strategies based on cognitive behaviour therapy and a range of activities that included role plays, modelling, verbal rehearsal, peer support, the intervention encouraged children to think more positively about learning, to see success as a result of their own efforts, and to use positive self-talk to dispute negative thoughts.

Use Positive Teaching Strategies

Positive teaching strategies that promote students' motivation include the provision of well-structured and well-scaffolded lessons. Breaking down complex tasks into smaller integrated steps with short-term goals not only makes learning more manageable, but also gives children opportunities to experience success at each step, as well as opportunities to practice dealing appropriately with failure if it occurs. Success contributes to feelings of self-efficacy and well-being. Although constant failure is likely to undermine motivation, this does not mean that learning should be organized so that failure is avoided. Children need to understand that failure is an inevitable part of life and view failure experiences as opportunities for learning. They can be helped to recognize, understand, and manage responses such as frustration and disappointment.

In addition to the regulation of emotions, other self-regulatory strategies can be incorporated in positive teaching practices. Direct teaching of skills such as goal-setting, self-management of attention, and inhibition of impulsive responding can be useful for many students. Self-talk is a valuable strategy for regulating thinking and behaviour. Encourage positive self-talk such as "I can do it, yes I can" or "Try, try again" to replace pessimistic thoughts such as "This is too hard for me, I can't do it". Help-seeking is another adaptive self-regulatory strategy. Children need to feel that it is OK to request help but some may be reluctant for fear of being ridiculed by their peers. Help them to know when it is appropriate to seek help and how to ask for it, perhaps by practicing ways of asking for help using role-plays or self-talk.

As an example of a self-regulation intervention, the Self-Regulated Strategy Development programme (SRSD; Harris and Graham 1996; Harris et al. 2008) was developed specifically to address children's writing skills. Writing demands multiple self-regulatory strategies such as planning, monitoring, evaluation, and self-reinforcement. The SRSD programme includes both scaffolded instruction about writing processes and the development of appropriate self-regulatory strategies. Through its focus on enhancing feelings of writing self-efficacy, and encouraging attributions to effort and strategy use, the intervention has been shown to be effective for improving motivation and achievement in writing, including for students with learning disabilities (for a meta-analysis of the evidence, see Graham et al. 2013).

Students will more likely be engaged with learning when they find the material interesting, when they see it as relevant, and when their teacher is enthusiastic about the subject matter. Highlighting the value and relevance of new learning can potentially promote students' motivation. Hulleman and Harackiewicz (2009) developed and evaluated an intervention that encouraged students to see the relevance of science learning to their own lives. High school pupils were randomly allocated to either an experimental group, in which they were asked to write essays about the perceived usefulness of science in their own lives, or a control group that simply wrote summaries of science classes. At the end of the semester, students in the experimental group who reported low expectancies of success in science at the beginning of the study displayed more interest in science and higher achievement than those in the control group. There were no differences for pupils whose expectancies of success had initially been high. These results show that encouraging students' awareness of the relevance of new learning can improve their motivation and achievement.

Another key teaching strategy for promoting intrinsic motivation is the provision of optimal challenge matched to an individual child's skills. Optimally challenging and intrinsically interesting activities with clear goals are more likely to produce intense absorption and a state of flow. Students who experience flow feel in control of their own learning and derive great satisfaction, even exhilaration, from the experience. Encouraging children's curiosity and autonomy can also foster their intrinsic motivation for learning.

One of the most important influences teachers have on children's motivation and learning is through the feedback they provide. Most valuable is clear and informative feedback that highlights improvement and mastery. Specific feedback with a focus on effort and the processes involved in learning, not merely on successful completion, is more effective (Cimpian 2010; Zentall and Morris 2010). But praise should be used judiciously - not too often and not too lavishly. Social comparisons can be motivating for high-achieving students, especially boys, but may be harmful for other children, especially those with learning or developmental disabilities. For promoting intrinsic motivation, feedback that is focused on individual progress, skill development, personal strengths, and mastery is likely to be more effective than social comparisons (Henderlong Corpus et al. 2006).

Praise is a form of positive reinforcement that provides more than informational feedback because it contains teacher approval and sometimes an emotional quality. Effective praise is sincere, specific, and contingent, rather than excessively effusive, haphazard, or ambiguous. But, at times, praise may inadvertently convey the wrong messages to students. Especially in early childhood classrooms, it seems to be relatively common to praise children with comments such as "good boy" or "good girl" and "You're so clever", which convey messages about goodness and ability, rather than effort (for example, "You tried so hard") or achievement ("You did it!"). Some forms of praise are likely to be more effective than others for enhancing intrinsic motivation. For instance, the feedback "I'm so proud of you for doing well on this test" conveys the teacher's pleasure; by contrast, "You must feel so proud of yourself for doing well on this test" implies that the child has achieved, not for the

teacher's praise, but for his or her own satisfaction. Subtle messages may also sometimes be conveyed through nonverbal feedback. For instance, when a teacher gives a small sigh following a child's efforts with a task, this could be taken to suggest that her expectations of the child's low ability have just been confirmed.

It is not necessary to praise every single success and it is not appropriate to praise successful completion of very easy tasks. Children usually know when their efforts have been praiseworthy, and praise for success with tasks that were not particularly difficult or challenging suggests that teachers have low expectations of the child. Constant praise may lead to children becoming dependent on adult reinforcement and unwilling to persist without it. As an example, a young child was completing a series of moderately challenging puzzle tasks in a research study, with his mother present but not assisting. When her son completed the first puzzle, she applauded enthusiastically. Because the researcher did not join in, she said, "You have to clap, otherwise he won't do any more"; indeed, she was right, for the child refused to continue when the researcher did not applaud.

In some situations, rewards such as treats or free time can be motivating provided they are valued by students. However, as discussed earlier, rewards may potentially undermine intrinsic motivation when interest and enjoyment of an activity are high. For children who need encouragement to persist, rewards linked to progress can be useful, whereas rewarding task completion or time spent on a task, irrespective of the quality of work, are not helpful. Rewards may also have some value when the tasks that students are required to undertake are not inherently interesting, but nevertheless are important building blocks for later learning (for example, memorizing multiplication tables). For such tasks that students consider boring or irrelevant, rewards may be useful for encouraging effort.

Create a Supportive Classroom Environment

Motivation for learning is nurtured within warm classroom environments where children are accepted and respected, where they are encouraged to express their opinions, and where their views are accepted and valued. Bempechat and Shernoff (2012) said that "expressions of warmth and care are critical to well-being and essential in students' motivation to learn" (2012, 334). Supportive environments promote a sense of belonging and relatedness, and minimize social comparisons, encouraging cooperation rather than competition.

Collaboration has a range of positive outcomes for motivation and achievement. Opportunities to work with others may make learning tasks more enjoyable, and increase the likelihood of sustained effort with a task and shared pleasure upon success. At the same time, identifying and valuing individual strengths and talents is important, especially for adolescents (Gray 2017). Students need to feel that they are part of the group, and also that their unique contributions are valued by their peers. Ideally, teachers need skills in facilitating groups, especially when the class

includes students with a range of individual differences in abilities/disabilities and cultural identities.

Supporting children's autonomy is one of the most important ways for promoting and sustaining motivation. External control reduces autonomy, so students need opportunities for self-initiation, involvement in decision-making, choice, and control. Autonomy-supportive teachers explain reasons for requests and rules instead of just giving directions, avoid using controlling language of techniques, and genuinely value students' perspectives and input.

Choice is an important element of autonomy support. Children are more likely to persist with a task if they have chosen it themselves from a range of appealing alternatives. Choice enhances effort, performance, and feelings of competence (Patall et al. 2008) although this is not always the case (Flowerday and Schraw 2003). Merely offering choice is not necessarily motivating, and indeed may even reduce motivation (Katz and Assor 2007). Ideally, choices on offer need to be relevant and meaningful in order to satisfy children's needs for autonomy, competence, and relatedness. Offering high school students choices about the type and amount of homework they do has been shown to have positive influences on motivation (Akioka and Gilmore 2013; Patall et al. 2010). But there is a cognitive load involved in making choices: if there are too many options, students may feel stressed and overwhelmed. Children with intellectual disability need a limited number of choices (ideally only 2 or 3) and help to consider each option. Of course, the choices on offer should be appropriate for the children's ages and ability levels, as well as being alternatives that they are likely to value, and that the teacher finds acceptable. Choices of topics, methods of learning, and styles of presentation can be offered. Supporting the autonomy of students with intellectual disability can be more demanding because of the need to wait for a child's independent attempts without intervening, and to be sensitive to child cues that indicate the need for teacher prompts or assistance, in order to avoid frustration or task refusal.

One final way in which teachers can encourage children's persistence is through case examples of both real and fictional characters. Arguably, one of the very best models of persistence that children will easily relate to is J. K. Rowling, whose first Harry Potter book was rejected by 12 major publishers before it was finally accepted. Discussions with students could focus on the discouraging effects of rejection, and the need to believe in oneself and persist nevertheless. What would have happened if J. K. Rowling had given up after the third, eighth or twelfth rejection? Many millions of children and adults would never have had the opportunity to enjoy these wonderful books! There are numerous other examples of persistent individuals, such as Michael Jordon, who was told at high school that he would never be a good basketball player, and Thomas Edison, who reportedly had to make around 1,000 attempts before eventually creating a light bulb that worked.

Fictional characters can also be introduced to illustrate the importance of persistence. For young children, the classic "The Little Engine That Could" (Piper 2011) provides the catchy line "I think I can, I think I can" that children could incorporate as self-talk, to remind themselves of the importance of not giving

up. The picture book "Stickley Sticks to It" (Miles and Mack 2015) tells of a frog named Stickley with a special gift called "stick-to-it-ness", which refers not only to his sticky suction toes, but also to his highly persistent attitude towards getting things done. In Stickley's own words, this means "taking chances and believing in yourself–even when you're not sure what will happen". The book ends with notes for parents and teachers, including suggestions for promoting persistence, such as taking breaks for recharging, thinking about the problem in a different way, and asking for help when necessary.

Another motivational picture book suitable for young readers is "The Most Magnificent Thing" by Spires (2017). This engaging story is about a young girl who tries and tries to create the "most magnificent thing" in the world with the help of her canine assistant. But it turns out to be more difficult than she expected. There are many important messages in this book about planning, overcoming failure and frustration, and never giving up; all of these messages are conveyed with the use of interesting vocabulary and delightful illustrations. And for older students, "Alexander Conquers the World" by Lehn (2014) tells about a teenage boy who is very poorly motivated at school, until he meets a mysterious stranger who stimulates his interest in learning using a range of assignments and special missions.

It seems that even robots can make good models of persistence for children. Research being conducted at the Massachusetts Institute of Technology is demonstrating that children's approaches to learning can be improved with assistance from robots (New Scientist 25 February 2017). Children who completed a puzzle in collaboration with a robot that displayed persistent and positive approaches to learning, learnt to be more persistent and dealt better with failure, compared with children whose robot companion behaved in ways that were more neutral.

Conclusions

In this chapter, we have considered the various theoretical perspectives on motivation, reviewed research evidence about individual differences in motivation, and described the ways in which children's environments can potentially impact their motivation for learning. Drawing on theory and empirical evidence, we identified a range of positive strategies teachers can use to promote and sustain children's motivation. These strategies include considering issues that may underlie low motivation, identifying and modifying children's self-efficacy beliefs and attributions, using positive teaching strategies, and creating supportive classroom environments. Fostering children's motivation for learning is likely to promote higher levels of academic achievement, as well as positive psychological well-being and future successes throughout the lifespan.

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