



A Strengths-Based Longitudinal Career Intervention for Junior Secondary School Students with Special Educational Needs: a Mixed-method Evaluation

Mantak Yuen¹ · Jiahong Zhang² · Patrick K. W. Man³ · Joyce Mak³ · Y. B. Chung⁴ · Queenie A. Y. Lee¹ · Annie K. C. Chan¹ · Ada So¹ · Ryder T. H. Chan¹

Received: 27 July 2021 / Accepted: 14 December 2021 / Published online: 7 January 2022
© The International Society for Quality-of-Life Studies (ISQOLS) and Springer Nature B.V. 2022

Abstract

The mixed-method study reported here was designed to evaluate a strengths-based career intervention program for secondary school students with mild special educational needs (SEN). A sample of 32 SEN students (19 boys: 13 girls) from 5 inclusive schools in Hong Kong were recruited to a treatment group. An additional 32 SEN students (19 boys: 13 girls) were selected to form the control group matched for age, gender and parents' education level. The special needs exhibited by both groups were in areas of literacy and numeracy, attention deficits, and social-emotional problems, but did not include severe or complex disabilities. Participants in both groups responded to pre- and post-intervention questionnaires covering career development self-efficacy, personal and social development self-efficacy, and meaning in life. As a follow-up, two teachers and three social workers providing support to SEN students, and the 32 participants were interviewed several months after the intervention. Interviews also took place with teachers, social workers and students to evaluate the perceived effects of the intervention. Findings indicated significant interactions between Time 1 and Time 2, and between groups (control vs. treatment) in personal goal-setting, career goal-setting, and the presence of meaning in life. Additionally, several themes were identified from the interviews suggesting that the intervention did have positive effects on SEN students' career, personal and social development self-efficacy, and acquisition of meaning in life.

Keywords Adolescence · Career development · Chinese · Meaning in life · Personal-social development · Self-efficacy · Special educational needs

✉ Mantak Yuen
mtuyen@hku.hk

Extended author information available on the last page of the article

Background

The capabilities required for social development, career planning and personal growth are often termed ‘life skills’, and these skills need to be addressed in comprehensive guidance and counseling programs for adolescents (Gysbers & Henderson, 2014; Hong Kong Education Commission, 2002; Yuen et al., 2010). Development of these capacities is of particular importance for students with special educational needs (SEN) because life skills are closely related to independent functioning and to academic and career outcomes (Yuen et al., 2010). It is for this reason that special schools for senior students with intellectual disability, for example, have always placed life skills development as a very high priority in the curriculum. It is important that this focus should not be missing when students with special needs are placed in inclusive mainstream schools. One way of addressing this issue is to provide a strengths-based program in mainstream schools that addresses life skills development and builds students’ self-confidence and self-efficacy to pursue a career path.

SEN students in secondary schools need particular support if their later transition to employment is to be successful. Studies over many years have found that the dropout rate and unemployment statistics are often high in this population (Johnson & Rusch, 1993; Martin et al., 2003). Students with disabilities who drop out (early leaving) often experience negative post-school outcomes such as lack of employment and poverty (Blackorby & Wagner, 1996; Xu et al., 2014). Secondary school staff clearly need to decrease the dropout rate of SEN students and enhance their post-school preparation. In particular, any interventions that are offered should focus on strengthening students’ competencies in social development, career planning and personal growth.

Schools that are providing effective support for SEN students usually include counseling and guidance service, regular assessment, mentoring, and portfolio development. Support personnel involved in these services provide targeted activities for students’ life skill development — such as sessions to enhance students’ self-understanding, self-determination, and employability. The latter domain may involve providing the students with current labor market information, workplace experience, and preparation for successful transitions to employment — or for a few students, preparation for further education (Brown & Trusty, 2005; Cobia & Henderson, 2003; Drier, 2000). A recent meta-analytic study found that counselor support in these areas appears to be a critical ingredient in career-choice intervention (Whiston et al., 2017).

An important factor that may impact students’ life skills development and mental wellbeing is whether or not they have found purpose and ‘meaning in life’. For example, Lin and Shek (2019) reported that meaning in life in Grade 7 predicted heightened well-being and decreased risk behavior at Grade 12. In the same domain, To (2016) found that students’ meaning in life may be developed alongside enhancing their life skills, possibly through constructing a sense of self and identifying purpose in life. As a means of achieving this goal, studies have suggested that meaning in life and career life skills may be enhanced by targeted

school guidance activities (To, 2016; Yuen et al., 2020). Research on meaning in life in students with SEN in general is limited. One qualitative study that is relevant here is that of Sedgwick et al. (2019) conducted with students with ADHD. They found that these students display innate curiosity that encourages them to explore possibilities and seek meaning in their life. To date, there has been no evaluation of the effectiveness of intervention programs that aim to enhance meaning in life for students with other types of special need in a Chinese setting.

Hong Kong Schools

Hong Kong has been implementing an inclusive education policy under a ‘Whole School Participation Model’ (Hong Kong Education Bureau, 2018, 2019). This policy has resulted in more students with special needs and disabilities being placed in mainstream secondary schools. Their special needs may be associated with visual impairment, hearing impairment, physical disability, intellectual disability, general learning difficulties, specific learning disability in reading and writing (dyslexia), and autistic spectrum disorder. According to the Disability Discrimination Ordinance (Hong Kong Education Bureau, 1996) and the Code of Practice on Education (Hong Kong Education Bureau, 2001), students with disabilities have the right to be educated in mainstream schools unless their degree of disability makes this impossible. For those students with complex needs, Hong Kong still maintains special schools, catering for some 4,202 secondary school students with severe disabilities in 2018 (Hong Kong Education Bureau, 2018).

While inclusion has brought many advantages to SEN students in mainstream schools, teachers have not found it easy to address the difficulties these students often face. In particular, there is a danger that the extra attention SEN students always require to develop their personal goals and plan a career path is overlooked (Cheung, 2017). Moreover, Hong Kong mainstream schools with their highly academic focus, tend to give insufficient attention to developing life skills in their students (Shek et al., 2020). An additional problem is that the potentially stigmatising label of ‘SEN’ often makes teachers, parents, peers—and even students themselves—focus on probable deficits rather than on the student’s strengths and potential (Lerner & Steinberg, 2009).

One approach to these problems is to adopt the principles of an intervention titled Positive Youth Development (PYD). PYD emphasizes the strengths of adolescents, their developmental plasticity, their internal assets such as psychosocial competence, and their external assets such as relationship with parents (Shek et al., 2019). Previous research in Hong Kong suggests that when students set themselves career goals, this also contributes significantly to developing a meaningful life (Man, 2018; Yuen et al., 2020). As an important step towards this goal setting, students with SEN need to gain a better understanding of their own strengths and take these into account when planning their possible career path (Yuen, 2017).

Drawing on the principles of PYD, the current study developed and implemented a strengths-based career intervention model that targeted life skills and meaning in life for secondary SEN students in mainstream schools. All strengths-based

interventions emphasize empowering students to locate, develop and mobilize their internal strengths in pursuing their goals, and are particularly recommended for working with vulnerable populations (Damon & Gregory, 2003).

The Study

Previous research has found that group counseling to enhance career, personal and social development of secondary students can be effective (Falco & Summers, 2019; Maree & Symington, 2015; Santilli et al., 2019), but few if any of these career interventions have been conducted with SEN students in secondary school. For this reason, the purpose of the study reported here was to develop and implement a long-term strengths-based career intervention for junior secondary students with special educational needs that targeted their planning of a career path.

The “SUN Life” Navigation Project

The intervention model was given the title “*SUN Life*” *Navigation Project*, and is designed for junior secondary school students who have been formally assessed as having special educational needs and also have a history of absenteeism and low motivation. The key principles are represented by the letters SUN in the title: S – strength-based orientation; U – uniqueness; N – new perspective (Man, 2018). The underpinning belief is that every student with special educational needs is unique and has potential that can be explored and developed.

According to the learning characteristics of SEN students, the project was designed as a long-term (one-and-a-half-year) school-based and strengths-based project to be conducted by social workers. The project included a wide array of activities that covered individual guidance interviews, group activities, career visits, and work experience. By providing junior secondary school SEN students with these school-based activities, tailored to their interests and abilities, it is possible to enhance their self-efficacy in setting personal learning goals for future studies or employment, and thus broadening their potential paths after graduation (Man, 2018).

Theoretical Foundation of the Intervention

The principles underpinning this intervention were derived from the self-efficacy theories of Bandura (1977) and Lent et al. (1994), as well as PYD (Shek et al., 2019). Self-efficacy theories promote the principle that self-efficacy (people’s judgment of their capabilities to execute courses of action) is among the most essential determinants of thoughts and action. Unlike self-esteem (which refers to general feelings of self-worth), self-efficacy is viewed as a set of self-beliefs that are related to specific performance domains and activities (Brown & Lent, 2017; Lent & Fouad, 2011). According to Social Cognitive Career Theory (SCCT: Lent et al., 1994), self-efficacy can affect outcome expectations; and self-efficacy and outcome

expectations together influence a person's career interests and the effort they expend in pursuing personal goals for career and academic activities. Brown and Lent (2017) have pointed out that personal factors (such as disability or health status) and contextual factors (such as support from teachers and social workers) may influence self-efficacy development and career-related choice behavior. It is surprising to find that to date no intervention programs based on SCCT have been implemented and evaluated for junior secondary school students in Chinese communities.

Early support for developing career-related self-efficacy is especially important for students with SEN, as often they have a weak understanding of their own capacities and limited exposure to the world of work (Lent & Fouad, 2011). Their personal career goals are likely to be undeveloped (or unrealistic) and their career-related aspirations may be 'somewhat stereotypical, narrow, and fluid' (Lent & Fouad, 2011, p.134).

In applying the principles of SCCT, the team involved in this project worked with students to help them set up personally meaningful career-related goals. This support was provided through group classes, workshops, and individual tutoring. Goal-related training including visits to various workplaces, short-term placements in work settings, supplemented by workshops and day camps that helped them gain new perspectives on themselves (abilities and interests) and consider possible career paths. The training provided opportunities to increase students' self-efficacy through performance accomplishments, vicarious learning, modelling and feedback, and verbal persuasion (Man, 2018; Yuen et al., 2020). Lastly, training was provided for parents, to enable them to better verbally support and encourage their children in their career planning and development. Underpinning all these activities and experiences was the belief that goal-setting and an increase in self-efficacy would also give the students a purpose and meaning in life.

The students were motivated to engage in active exploration of their own strengths under the support and feedback of the team, and from parents.. Students were also encouraged to select and participate in a learning program related to their future career interest and personal goals.

This study contributes to the field of career guidance by implementing and evaluating the applicability and effectiveness of an intervention specifically designed for secondary school students with special educational needs (and their parents). The effects of the program on the parents were reported in Chung and Yuen (2020). The study applied principles of SCCT and PYD, and used a case-controlled pre-post intervention assessment design. The approach has a focus on enhancement of the students' life skills self-efficacy and meaning in life. Unlike previous short-term interventions, this was a long-term program.

Method

Structure of the Intervention Model

The model was developed and refined through ongoing dialogue among members of the implementation team in school and the research team. The design also drew

upon relevant international and local literature. Table 1 provides detailed information on the content of the intervention. Project features included: (a) a social worker in-charge, who organizes, implements and follows up students and provides individual case counseling services; (b) setting up the strength-based activities focused on students' life skill self-efficacy, career and personal goal setting, interests and talents; and (c) mapping student support and growth.

The 32 SEN students in the Treatment Group were interviewed at intervals to help staff improve the program content where necessary in Phase 3. The following themes emerged from the interviews: (a) students' expectations matched with the project's objectives, leading to a positive impression; (b) students particularly appreciated the interest classes and outdoor activities provided in the project; (c) students connected more with their friends after they joined the project; (d) the project social worker was seen to be an agent for positive change. These findings helped the team refine the intervention model and the design of activities for meeting the educational, career and talent development needs of the SEN students.

After the intervention model was developed, a social worker conducted the sessions in school by regularly organizing counseling, evaluation and guidance in the form of group activities and individualized support. At an individual level, work experience and social development activities were arranged to improve students' self-efficacy in applying life skills. After completing the experiential activities, students had an opportunity to talk with the social worker and then record their reflections and self-examination from their experiences. These recordings were entered in a 'career life profile.' In addition, the social worker organized opportunities for students to experience different workplaces and further cultivate their interests and skills.

The project social worker maintained close communication with other social workers and SEN teachers who worked with the SEN students in the participating schools. The school social worker and SEN teachers were invited to join student group activities as observers, and in some cases to support the SEN students. These personnel also participated in a professional development forum for teachers and guidance professionals.

Students participating in the project were expected to make progress in career planning through regular individual interviews and a variety of activities. Through these activities they could explore and better understand their personality traits, interests, career aspirations and abilities, and set career goals. Students were expected to know more about the world of work, explore career-related issues, and find real meaning in their life (Brown & Trusty, 2005; Cobia & Henderson, 2003; Yuen et al., 2005).

Participants

Initially 32 SEN students from Grade 7 to 9 from five secondary schools in Hong Kong were recruited into the "SUN Life" Navigation Project (19 boys: 13 girls), forming the treatment group. An additional 32 students (19 boys: 13 girls) were selected as the control group by matching personal particulars (age, gender and

Table 1 Content of the intervention model of the “SUN Life” navigation project

Type of Activity	Delivery Mode	Content
1. Individual Interview	Individual Guidance (12 sessions)	Setup Individual Life Plan Record the growth of student and support given; set goal, execution and review Conduct home visits to support students and their families when necessary
2. Life Planning Day Camp	Day Camp (2 sessions)	Run group activities to help student understanding themselves, their growth and enhance their self-efficacy
3. Understanding Self and Career Goal-setting	Group Activity (12 sessions)	Get to know one's personality, strength and weakness, interest, competence, values, roles, time and financial management Direction on study plan or career planning
4. Talent Development and Goal-setting	Group class, workshop & individual tutoring (16 sessions)	Focus on the students' interest and talent to acquire interest or career related skills e.g. Latte Art, dessert, photography, magic, floral design, dancing, music and sports Set goal and enhance talent development
5. Career Exploration	Firm visit, placement and workshop (8 sessions)	Get to know different industries and the corresponding competence required Learn about the type and characteristic of different careers Learn about working environment and the skills required
6. Parenting Support	Seminar and workshop (3 sessions)	Learn about further study and career path of their children Learn how to communicate with their children and career guidance skills
7. Graduation	Sharing Session (1 session)	Share with schools the outcome and good practices of the participants Enhance the connectedness between teachers and students

parents' education level). The treatment group students had been previously identified by educational psychologists as having special needs in areas of dyslexia, attention deficit hyperactivity disorder, hearing impairment, difficulty in communication, and emotional or behavioral maladjustment. The group did not include any student with severe or complex disabilities. Only 29 students from the treatment group and 28 students from control group finished both pre- and post-surveys. Figure 1 illustrates the process of allocating the participants to groups and the assessment and follow-up procedures. The mean age of participants was 14.48 ($SD=1.35$) at Time 1. Chi square test and t -test showed that there were no significant differences between the two groups in any of the relevant characteristics ($p > 0.05$) (Table 2).

Measures

The three instruments used in this study were presented to respondents in Chinese language. Previous research had confirmed the validity and reliability of these translations (Yuen et al., 2005, 2006). Support was available for students with dyslexia and/or language problems in terms of reading the words in the questionnaires and understanding each item.

The *Career Development Self-Efficacy Scale* (CD-SES; Yuen et al., 2005) consists of 18 items measuring students' self-evaluation of their own competencies related to career goal-setting (CGS), career planning (CP), and training selection (TS), with 6 items in each category. Respondents were asked to rate their confidence in completing the tasks using a 6-point Likert-type scale with 1 representing 'extremely lacking in confidence' to 6 representing 'extremely confident'. Higher

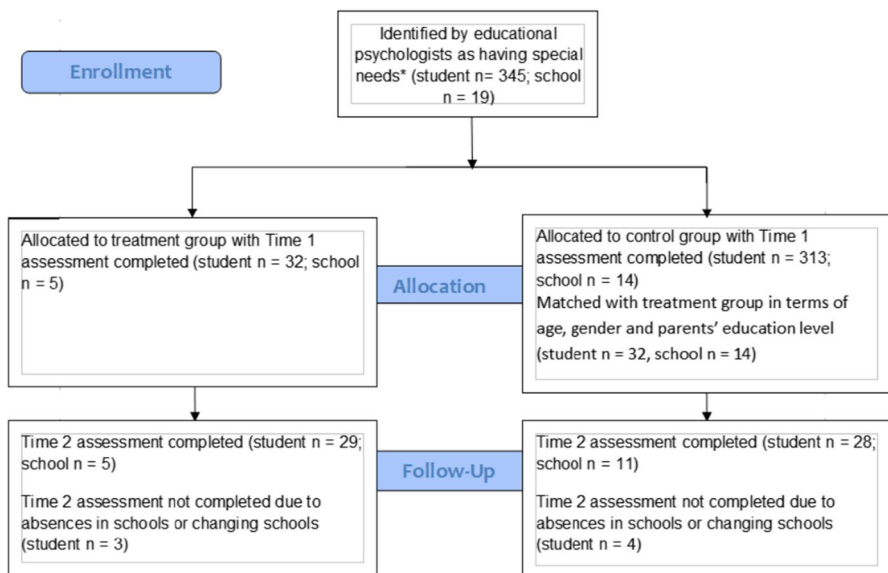


Fig. 1 Flow diagram of participants through the study

Table 2 Descriptive statistics and group differences at time 1

	Control Group	Treatment Group	
Gender	<i>N</i> (%)	<i>N</i> (%)	χ^2
Female	19 (33%)	16 (28%)	1.44
Male	9 (16%)	13 (23%)	
Key variables	<i>M</i>	<i>M</i>	<i>t</i>
Career development SE	12.59	12.26	0.39
Career Goal Setting SE	4.24	3.97	0.93
Career Planning SE	4.27	4.27	0.00
Training Selection SE	4.08	4.02	0.22
Personal and social development SE	8.61	8.10	0.86
Personal goals setting SE	4.34	4.01	1.10
Understanding self SE	4.27	4.09	0.58
Meaning in life	10.40	9.86	1.12
Presence of meaning	5.06	4.70	1.22
Search for meaning	5.34	5.16	0.61

SE = self-efficacy

scores indicate greater career development self-efficacy. The instrument had proved to have sound reliability and validity in several previous studies (Yuen et al., 2005).. The Cronbach's α of this scale was excellent at 0.95.

Personal and Social Development Self-Efficacy Inventories (Yuen et al., 2006) is an instrument to evaluate secondary students' self-efficacy (PSD-SE) in two sub-scales: self-efficacy of understanding self (US), and self-efficacy of personal goal setting (PGS). Each sub-scale contains 4 items together with a 6-point Likert-type rating scale. The instruments had been used in a number of other studies with samples of secondary students from which adequate evidence for validity and internal consistency was obtained (Yuen et al., 2006). The Cronbach's α of this scale was excellent at 0.93 in [the study](#).

The *Meaning in Life Questionnaire* (MLQ; Steger et al., 2006) consists of two 5-item subscales. The *Presence of meaning* subscale assesses the meaning in life that the individual already has (e.g., "I have a good sense of what makes my life meaningful") and the *Search for meaning* subscale assesses individuals who have yet to acquire their personal meaning in life (e.g., "I am searching for meaning in my life") on a 7-point scale ranging from 1 'absolutely untrue' to 7 'absolutely true'. The higher scores indicate greater perceived meaning in life. The Cronbach's α of the Presence and Search subscales were acceptable at 0.78 and 0.87 respectively in [the study](#).

Personal Data Form

Demographic information was collected (gender, grade, and parents' education level reported separately for mothers and for fathers). Students were also required here to

self-assess their profile of strengths and weaknesses, and to record against a list of possible difficulties any difficulties they experience in learning and adjustment.

Evaluation of the Intervention Project

The project was assessed with a 19-item end-of-project feedback questionnaire for students who had been involved in the “*SUN Life*” *Navigation Project* (see sample items in Table 5). This satisfaction survey used a 6-point Likert-type scale ranging from 1 “very much disagree” to 6 “very much agree”.

Design and Procedure

A four-phase longitudinal mixed-method quasi experiment was designed to evaluate the training effect of the ‘*SUN Life*’ *Navigation Project* through comparing the accomplishments of students who received the training to those who did not.

In the first phase, before implementing the intervention, a survey was conducted with a group of Grade 7 to 9 students with special educational needs from 19 participating secondary schools in Hong Kong. In total, 345 students completed the questionnaire (242 boys; 95 girls; gender data missing on 8 students). Data indicated that the sample included 43.5% students from Grade 7, 29.3% from Grade 8 and 26.1% from Grade 9.

Approval to conduct data gathering had been obtained from the university’s Human Research Ethics Committee, and consent letters were obtained from students and their parents. The special education support teacher or the school social worker administered the survey, which was completed in about 20 min in the classroom. The results from the survey will be reported in a later paper, and can be considered when further developing the intervention model. In the second phase, from this large pool of potential participants, 32 students from five secondary schools were recruited as the treatment group in the “*SUN Life*” *Navigation Project*.

An additional 32 students were selected by matching their personal particulars (age, gender and parents’ education level) to form the control group. Absences or other factors resulted in only 29 students from the treatment group and 28 students from the control group finally providing both pre- and post-survey data.

Intervention activities were developed based on the research proposal. One social worker was specifically employed for the program to coordinate and implement the intervention. Ongoing monitoring of students’ progress and regular checks on treatment fidelity were discussed in bimonthly meetings of the implementation team, the supervisor of the team, and the university research team.

After a few months into the program, interviews were conducted with all 32 students who had taken part in the intervention to provide information that might help staff strengthen the program content where necessary.

In the fourth phase, evaluation of the effectiveness of the project involved a follow-up survey, end-of-project feedback questionnaire, and interviews with key personnel. The intention was to gain more evidence of the effect of “*SUN Life*” *Navigation Project* from stakeholders’ perspectives. At the end of Phase 4, interviews were

conducted with 2 teachers and 3 social workers who had provided support to these students in the participating schools, as well as interviews with the students who had participated.

Data Analysis

A mixed-method approach was used for data analyses. For the quantitative data, chi-square test and independent samples *t*-test were conducted to assess whether there were group differences (treatment vs. control) at Time 1 in demographic information and psychological variables (PSD-SE, CD-SE, MIL).

A two-way repeated measures ANOVA was used to evaluate the effects of the program on dependent variables (PSD-SE, CD-SE, and MIL). This form of ANOVA is an appropriate method to examine whether there are (a) within-subject differences across times, (b) between-subject differences across groups, and (c) the interaction between time and group on the dependent variables.

For the qualitative interview data, thematic analysis was used. All interview data were transcribed verbatim in Chinese. In order to understand the students' perspectives, the Generic Qualitative Study Method was applied (Merriam, 1998). Before reading the transcripts, tentative coding labels were developed to cover issues that the students might raise, linked to the original categories in the interview protocol. During analysis, recurring patterns were identified and categories were newly formed and adjusted. The transcripts were then read several times and the original codes modified or added to as new categories emerged from the scripts. In the analysis, three stages of coding were taken to reach the final version. Themes were identified by referring to their frequency in the conversations and the significance that students attached to that theme during the interviews (Maxwell, 2010).

Results

Quantitative Analysis

No significant differences were found between the treatment and control groups in terms of gender ($\chi^2(1) = 1.44, p > 0.05$), or for Time 1 subscales and total scales for PSD-SE, CD-SE, and MIL ($p > 0.05$, see Table 2).

In general, significant correlations among the scores of the subscales and the total scales of PSD-SE, CD-SE and MIL were found at Time 1 and Time 2 (Table 3).

There were significant increases from Time 1 to Time 2 in personal goal-setting self-efficacy (PGS-SE), career goal-setting self-efficacy (CGS-SE), and presence of meaning in life in treatment group as compared to control group (Table 4).

Satisfaction Survey

Table 5 reflects participants' views of and reactions to the project collected in Phase 4. This process discovered that about 86% of participants agreed that "The social

Table 3 Correlation coefficients of the dependent variables at Time 1 and Time 2

Variables	1	2	3	3a	3b	4	4a	4b	4c	5	5a	5b
1. Gender ^a	-	0.23	-0.09	-0.12	-0.06	0.02	-0.02	0.01	0.06	0.06	0.02	0.07
2. Age	0.21	-	-0.12	-0.14	-0.09	-0.22	-0.25	-0.23	-0.18	-0.18	-0.03	-0.25
3. PSD-SE	-0.30*	-0.20	-	0.97***	0.98***	0.88***	0.89***	0.84***	0.86***	0.68***	0.70***	0.35**
3a. PGS-SE	-0.31*	-0.19	0.98***	-	0.90***	0.89***	0.90***	0.86***	0.86***	0.65***	0.68***	0.32*
3b. US-SE	-0.27*	-0.20	0.98***	0.92***	-	0.83***	0.84***	0.78***	0.82***	0.68***	0.68***	0.36**
4. CD-SE	-0.25	-0.17	0.90***	0.88***	0.88***	-	0.98***	0.98***	0.98***	0.76***	0.74***	0.44***
4a. CGS-SE	-0.25	-0.20	0.88***	86***	0.86***	0.98***	-	0.93***	0.93***	0.78***	0.72***	0.48***
4b. CP-SE	-0.27*	-0.14	0.87***	0.86***	0.85***	0.98***	0.94***	-	0.93***	0.66***	0.63***	0.38**
4c. TS-SE	-0.21	-0.15	0.88***	0.85***	0.87***	0.97***	0.93***	0.92***	-	0.73***	0.74***	0.38**
5. MIL	-0.30*	-0.18	0.51***	0.51***	0.49***	0.50***	0.51***	0.45***	0.47***	-	0.78***	0.76***
5a. Presence	-0.29*	-0.22	0.54***	0.47***	0.58***	0.47***	0.50***	0.39**	0.46***	0.83***	-	0.19
5b. Search	-0.20	-0.07	0.30*	0.36**	0.23	0.36**	0.35**	0.35**	0.32*	0.82***	0.37**	-

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; $p < 0.1$. The upper triangular matrices are correlation coefficients of variables at Time 1, while the lower triangular matrices are those at Time 2. ^a Female = 1, Male = 2. CD-SE = Career development self-efficacy; CGS-SE = Self-efficacy of career goal setting; CP-SE = self-efficacy of career planning; MIL = meaning in life; PGS-SE = self-efficacy of personal goals setting; Presence = presence of meaning; PSD-SE = personal and social development self-efficacy; Search = search for meaning; TS-SE = self-efficacy of training selection; US-SE = self-efficacy of understanding self.

Table 4 Results of two-way repeated measures analyses of covariance in dependent variables ($N_{\text{control group}} = 28$, $N_{\text{treatment group}} = 29$)

	Groups	Time 1	Time 2	Between-subject	Within-subject	Interaction between
				Effects (across groups)	Effects (across times)	Times and Groups
				<i>F</i>	<i>F</i>	<i>F</i>
CD-SE	Control	12.59	11.50	0.43	0.44	3.51
	Treatment	12.26	12.76			
CGS-SE	Control	4.24	3.82	0.09	0.30	6.14*
	Treatment	3.97	4.23			
CP-SE	Control	4.27	3.93	0.55	1.10	1.41
	Treatment	4.27	4.28			
TS-SE	Control	4.08	3.75	0.81	0.10	3.35
	Treatment	4.02	4.24			
PSD-SE	Control	8.61	7.92	0.01	0.25	4.36*
	Treatment	8.10	8.51			
PGS-SE	Control	4.34	3.99	0.03	0.17	4.27*
	Treatment	4.01	4.23			
US-SE	Control	4.27	3.92	0.12	0.35	3.90
	Treatment	4.10	4.28			
MIL	Control	10.40	9.63	0.01	0.48	5.28*
	Treatment	9.86	10.26			
Presence	Control	5.06	4.60	0.00	0.32	4.35*
	Treatment	4.70	4.96			
Search	Control	5.34	5.04	0.23	0.25	2.00
	Treatment	5.16	5.30			

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; $p < 0.1$. CD-SE = Career development self-efficacy; CGS-SE = Self-efficacy of career goal setting; C-PSE = self-efficacy of career planning; PGS-SE = self-efficacy of personal goals setting; Presence = presence of meaning; PSD-SE = personal and social development self-efficacy; Search = search for meaning; TS-SE = self-efficacy of training selection; US-SE = self-efficacy of understanding self

worker responsible for the plan is willing to help and is full of enthusiasm” (Item 10); and 82.8% agreed that: “Overall, I am satisfied with this project (Item 17), and “I am willing and interested in participating in the extended activities of this project” (Item 15).

Qualitative Analysis

Key themes and selected quotes from interviewing 2 teachers and 3 social workers are presented below.

- (i) The intervention developed students’ self-confidence, self-understanding, and self-determination

Table 5 Participants' perceptions of the project (n = 29)

Item	M* (SD)	Disagree	Some-what disagree	Some-what agree	Agree	Very much agree
1. The purpose of this project is very clear	4.86 (0.88)	0.0%	6.9%	24.1%	44.8%	24.1%
2. I can achieve the personal learning goals set in this project	4.69 (0.93)	3.4%	3.4%	31.0%	45%	17.2%
3. The organization of this project is systematic	4.76 (0.79)	0.0%	3.4%	34.5%	44.9%	17.2%
4. The content of this project has sufficient explanations	4.93 (0.68)	0.0%	0.0%	25.9%	55.6%	18.5%
5. The timing of this plan is well arranged	4.90 (0.72)	0.0%	0.0%	31.0%	48.3%	20.7%
6. I will use the ideas/knowledge I learned from this project in my life	4.93 (0.59)	0.0%	0.0%	20.7%	65.5%	13.8%
7. This project has enhanced my confidence in maintaining healthy relationships	4.93 (0.65)	0.0%	0.0%	24.1%	58.7%	17.2%
8. This project has improved my confidence in planning my life and career in the future	5.03 (0.78)	0.0%	3.4%	17.2%	51.8%	27.6%
9. This project has enhanced my knowledge of career planning	4.97 (0.73)	0.0%	0.0%	27.6%	48.3%	24.1%
10. The social worker responsible for the plan is willing to help and full of enthusiasm	5.24 (0.69)	0.0%	0.0%	13.8%	48.3%	37.9%
11. The social worker responsible for the project explains very clearly and can raise my interest in this topic	5.21 (0.77)	0.0%	0.0%	20.7%	37.9%	41.4%
12. The social worker in-charge is skillful in leading activities	5.14 (0.88)	0.0%	3.4%	20.7%	34.5%	41.4%
13. The social worker in-charge of the project cares about you	5.14 (0.74)	0.0%	0.0%	20.7%	44.8%	34.5%
14. Learning approach (such as group discussions, visits, workshops, interest groups, work experiences, and individual interest learning) can raise my interest to my life career planning	5.03 (0.82)	0.0%	3.4%	20.7%	44.9%	31.0%
15. I am willing and interested in participating in the extended activities of this project	5.14 (0.69)	0.0%	0.0%	17.2%	51.8%	31.0%
16. I will recommend this project to other students	5.10 (0.77)	0.0%	0.0%	24.1%	41.4%	34.5%
17. Overall, I am satisfied with this project	5.31 (0.76)	0.0%	0.0%	17.2%	34.5%	48.3%
18. Overall, I am satisfied with the quality of this project	5.03 (0.78)	0.0%	3.4%	17.2%	51.8%	27.6%
19. Overall, I am satisfied with the social worker in-charge of this project	5.31 (0.76)	0.0%	0.0%	17.2%	34.5%	48.3%

* 1 = Very much disagree; 2 = Disagree; 3 = Somewhat disagree; 4 = Agree; 5 = Somewhat agree; 6 = Very much agree

“They may have no confidence before, and they often hang their heads. But they can also share themselves in the end of project ceremony. I think they have changed a lot.”

An interviewee also pointed out:

“I know that the career program is mainly to help students with weak academic achievements in the school. They went to participate and explore different areas outside of academics, so they discover their interests, broaden their horizons and enhance their confidence. I feel that these aspects were achieved.”

- (ii) Intervention was effective because it was based on participants’ strengths

“I think this project starts from students, what they like, what they are capable of. If he is interested in this, you will find more information for him to explore. The key point is that they like it. Self-confidence will be built.”

One individual stated:

“The project is very positive. Students participate in different interest classes and they start with personal strengths and weaknesses. It is important for students to know themselves and to extend their interests.”

- (iii) A strong feature of the intervention is that it facilitates students in setting clear goals and then motivates them to pursue those goals

A teacher mentioned:

“Some students have found their talents and even more clearly their own direction; for me, this is important... I consider they become optimistic and positive...”

Another interviewee said:

“My students’ goals will become clear. I consider this is the benefit of this project, because Secondary 2 to Secondary 3 students need to make clear goals for themselves.”

At Phase 4, 29 SEN students were interviewed and key themes are summarized below.

- (i) The project helped students develop their academic, personal, social, and career aspects. Students have benefited from goal setting, career orientation, self-confidence, self-understanding, and self-determination.

A student highlighted the career information she gained from joining the project:

“Ms. M (social worker) gave me some information on the requirements of the department I am interested in (engineering). Ms. M said that she will give me information such as minimum entry requirements.”

A student commented on the guidance given for selecting a course after leaving school:

“This plan has strengthened my confidence in choosing subjects ... I have got to know myself better. I understand what I need, and the future, what can be done.”

(ii) Students were driven by clearer goals and experience important changes.

A student stated:

“In the beginning, without this activity, I might have doubts about work. Now I will focus on the work aspect. It is quite certain and very clear.”

Another student appreciated the project, saying:

“This project has brought to me changes. I have never gone out from home before [to places of work]. It let me go out.”

Additionally, a participant mentioned:

“I know myself better than before. At least I am more confident than before. I will take the initiative to chat with others, because sometimes you have to ask questions. Sometimes it is about teamwork. It is necessary to communicate with the partner how to do in this step.”

(iii) The social worker played an important role in the overall plan; and students agreed that her help had a great impact on them.

A student observed:

“She [social worker] gave me the freedom to choose whether to score a higher score or stay at my present standard. Then she asked me, ‘Do you want to improve?’ She helps and encourages. I set goals for myself. I try and add more motivation to study. Setting goals together with her, I will have a fighting heart.”

Another student mentioned:

“Because starting from the first few months, we are to meet Ms. M. alone. She asked me if I had any difficulties. I told her, like confiding. She will give me advice, similar to this. She may be the biggest help to me.”

The qualitative findings were consistent with the quantitative findings, namely that the SUN Life' Navigation Project was effective in enhancing psychosocial outcomes of the participants. In addition, the qualitative findings suggested that the effectiveness was due to: (a) facilitating participants to recognize and extend their interests and strengths, (b) facilitating participants to set clear individual goals and pursue them, and (c) social worker building a good support network with the participants.

Discussion

This mixed-method study enabled the providers to evaluate the effect of the strengths-based career development intervention on the social development, career planning and personal growth of secondary school students with special educational needs (SEN). Findings of both quantitative survey data from students and qualitative interview data from teacher, social workers and students indicated positive outcomes from the intervention.

Specifically, results of the pre- and post-measurements in current study suggested that there were significant interactions between time and group in variables of career goal-setting self-efficacy, personal goal-setting self-efficacy and presence of meaning. Specifically, scores of these variables increased from Time 1 to Time 2 in the treatment group but decreased in the control group. The interview data from supportive adults (teachers and social workers) and students further verified the quantitative findings, which showed that (a) the intervention helped students enhance self-understanding, build up their self-confidence, and exhibit stronger self-determination; (b) students had made clearer goals that motivated them to work towards achieving them; and (c) all students experience important changes.

It is common to find that students with learning disabilities have lower academic and social self-efficacy, lower levels of hope and less investment of effort in their academic work than students without a learning disability (Lackaye et al., 2006; Tabassam & Grainger, 2002)—so the reported changes here should make a real difference to SEN students. For example, an increase in self-efficacy for career and personal goal-setting may enable the students to motivate themselves in pursuing better academic performance and career outcomes (Lent, 2013). Moreover, an increase in students' sense of meaning in life represents better psychological and mental health outcomes. All these endeavors may enhance students' autonomy and self-determination, which may result in a lower dropout rate and more successful post-secondary development of SEN students (Field et al., 2003).

These findings are consistent with the intended purposes of the Positive Youth Development (PYD) and Social Cognitive Career Theory (SCCT). Under the strengths-based orientation and emphasis on fostering meaning in life of PYD, the current interventions facilitated students to recognize their strengths, set goals, pursue meaning in life, actualize their individual developmental plasticity, and develop their social connections (Shek et al., 2019).

The positive effects of the intervention also demonstrated the effectiveness of PYD in the Hong Kong Chinese context (Qi et al., 2020). Meanwhile, consistent with the predictions of SCCT, students gained new perspectives on their own abilities and interests, and these could then influence their purpose in life and possible career path choice. This outcome was achieved through various activities such as group work, and work placements, accompanied by performance accomplishments, vicarious learning, modelling, and verbal persuasion. Consequently, their self-efficacy in personal goal-setting and career goal-setting was enhanced.

This strength-based intervention continued for 1.5 years under the charge of a social worker, covering a series of activities such as individual guidance interviews,

group activities, career visits and work experiences. These activities have been proved effective for student career outcomes. For instance, previous studies reported that a well-designed group intervention could result in significant enhancement of students' career adaptability (Janeiro et al., 2014; Phillips et al., 2002; Santilli et al., 2019). Additionally, activities such as a single informative session, work-based learning, and extracurricular activities, also led to positive career outcomes (Denault et al., 2019; Janeiro et al., 2014). However, as previous studies mainly evaluated effects of these activities in mainstream school students (Denault et al., 2019; Janeiro et al., 2014; Phillips et al., 2002; Santilli et al., 2019), this study extended the existing data-base by providing empirical evidence of the useful activities that bring about positive outcomes for students with special educational needs. These activities proved to be effective approaches that can be used separately or together in future interventions.

Students mentioned that the social worker who organized and implemented the whole intervention had a great impact on them. These narratives confirmed previous research findings that counselors appear to be an essential ingredient in career-choice interventions (Whiston et al., 2017). Furthermore, research has also found that supportive adults such as teachers, friends and family members, play an important role in helping adolescents prepare for post-high school transition (Phillips et al., 2002). Students' feedback in this study suggests that long-term support from professional personnel would be helpful for SEN students' better career planning and personal development.

The study has had two impacts on Hong Kong government education policy.. First, the government increased the subsidy of secondary school social workers from one social worker per school to two social workers. Second, starting from 2021, the Hong Kong government extended career development activities from solely directed at senior secondary school students to also include junior secondary school students.

Limitations and Future Directions

There are several limitations in this study. First, the intervention was designed for secondary school students with several types of disabilities and special needs, not just a specific form of disability. As different types of special need differ greatly in the impact they have on learning and adjustment, as well as their influence on personal, social, career and psychological outcomes, a future study could tailor the 'SUN Life' Navigation Project for secondary students with specific special needs.

Second, due to the COVID-19 pandemic which had emerged in Hong Kong and elsewhere in January of 2020, it was impossible to conduct a follow-up survey to identify long-term effects of 'SUN Life' Navigation Project. Future research should seek to provide evidence of the long-term effects of the intervention program.

Third, the allocation of the participating schools into treatment group and control group was not randomized. While the students in the control group were matched with those in treatment group based on age, gender and parent's education level, it was possible that the significant results found in the current study were due to other

factors such as the characteristics of the participants, their support from home, or factors within the schools.

Lastly, as the current study was situated in Hong Kong Chinese students, and it must not be assumed that the findings can generalize to other populations. Future studies in other Asian communities are recommended to test the generalizability of the results of the current study.

Conclusion

Despite the limitations, this study yielded positive findings on the effects of ‘SUN Life’, indicating that it could be an effective and useful intervention in any secondary school for improving students’ personal, social, career and psychological development. Data from students’ questionnaires and from the qualitative interview with students, teachers and social workers, support a conclusion that the intervention has particular value for students with special educational needs, and gives social workers a well-defined role in supporting students’ whole-person development.

References

- Bandura, A. (1977). *Social learning theory*. Prentice Hall.
- Blackorby, J., & Wagner, M. (1996). Longitudinal postschool outcomes of youth with disabilities: Findings from the National Longitudinal Transition Study. *Exceptional Children*, 62(5), 399–413. <https://doi.org/10.1177/001440299606200502>
- Brown, D., & Trusty, J. (2005). School counselors, comprehensive school counseling programs, and academic achievement: Are school counselors promising more than they can deliver? *Professional School Counseling*, 9(1), 1–8. <https://doi.org/10.1177/2156759x0500900105>
- Brown, S. D., & Lent, R. W. (2017). Social Cognitive Career Theory in a diverse world: Closing thoughts. *Journal of Career Assessment*, 25(1), 173–180. <https://doi.org/10.1177/1069072716660061>
- Cheung, R. (2017, October 9). Hong Kong special needs children turn to NGOs for job training in face of scarce government provision. *South China Morning Post*. <https://www.scmp.com/lifestyle/families/article/2114262/hong-kong-special-needs-children-turn-ngos-job-training-face>. Accessed 9 Nov 2020
- Chung, Y. B., & Yuen, M. (2020). Views of parents on a career and life planning program for junior secondary students with special educational needs: A qualitative study in Hong Kong. In M. Yuen, W. Beamish, & V. S. Solberg (Eds.), *Careers for students with special educational needs: Perspectives on development and transitions from the Asia-Pacific region* (pp. 161–175). Springer Singapore. https://doi.org/10.1007/978-981-15-4443-9_11
- Cobia, D. C., & Henderson, D. A. (2003). *Handbook of school counseling* (1st ed.). Merrill/Prentice Hall.
- Damon, W., & Gregory, A. (2003). Bringing in a new era in the field of youth development. In R. M. Lerner & P. L. Benson (Eds.), *Developmental assets and asset-building communities: Implications for research, policy, and practice* (pp. 47–64). Springer US. https://doi.org/10.1007/978-1-4615-0091-9_3
- Denault, A.-S., Ratelle, C. F., Duchesne, S., & Guay, F. (2019). Extracurricular activities and career indecision: A look at the mediating role of vocational exploration. *Journal of Vocational Behavior*, 110, 43–53. <https://doi.org/10.1016/j.jvb.2018.11.006>
- Drier, H. N. (2000). Special issue introduction: Career and life planning key feature within comprehensive guidance programs. *Journal of Career Development*, 27(2), 73–80. <https://doi.org/10.1177/089484530002700201>

- Falco, L. D., & Summers, J. J. (2019). Improving career decision self-efficacy and STEM self-efficacy in high school girls: Evaluation of an intervention. *Journal of Career Development, 46*(1), 62–76. <https://doi.org/10.1177/0894845317721651>
- Field, S., Sarver, M. D., & Shaw, S. F. (2003). Self-determination: A key to success in postsecondary education for students with learning disabilities. *Remedial and Special Education, 24*(6), 339–349. <https://doi.org/10.1177/07419325030240060501>
- Gysbers, N. C., & Henderson, P. (2014). *Developing & managing your school guidance & counseling program* (5th ed.) American Counseling Association.
- Hong Kong Education Bureau. (1996). *Disability Discrimination Ordinance: Code of practice on education*. https://www.eoc.org.hk/eoc/otherproject/chi/color/youthcorner/education/cop_edu/cop_edu_b.htm. Accessed 9 Nov 2020
- Hong Kong Education Bureau. (2001). *Commencement of the Code of Practice on Education*. <https://applications.edb.gov.hk/circular/upload/ADMC/AD01014E.PDF>
- Hong Kong Education Bureau. (2018). *Student Enrolment Statistics, 2018/19 (Kindergarten, Primary and Secondary Levels)*. https://www.edb.gov.hk/attachment/en/about-edb/publications-stat/figures/Enrol_2018.pdf. Accessed 9 Nov 2020
- Hong Kong Education Bureau. (2019). *Operation Guide on the Whole School Approach to Integrated Education (in Chinese)*. https://www.edb.gov.hk/attachment/tc/edu-system/special/support/wsa/ie%20guide%20_ch.pdf. Accessed 9 Nov 2020
- Hong Kong Education Commission. (2002). *Learning for life, learning through life: Reform proposals for the education system in Hong Kong*. Education Commission.
- Janeiro, I. N., Mota, L. P., & Ribas, A. M. (2014). Effects of two types of career interventions on students with different career coping styles. *Journal of Vocational Behavior, 85*(1), 115–124. <https://doi.org/10.1016/j.jvb.2014.05.006>
- Johnson, J. R., & Rusch, F. R. (1993). Secondary special education and transition services: Identification and recommendations for future research and demonstration. *Career Development for Exceptional Individuals, 16*(1), 1–18. <https://doi.org/10.1177/088572889301600101>
- Lackaye, T., Margalit, M., Ziv, O., & Ziman, T. (2006). Comparisons of self-efficacy, mood, effort, and hope between students with learning disabilities and their non-LD-matched peers. *Learning Disabilities Research & Practice, 21*(2), 111–121. <https://doi.org/10.1111/j.1540-5826.2006.00211.x>
- Lent, R. W. (2013). Career-life preparedness: Revisiting career planning and adjustment in the new workplace. *Career Development Quarterly, 61*(1), 2–14.
- Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying Social Cognitive Theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior, 45*(1), 79–122. <https://doi.org/10.1006/jvbe.1994.1027>
- Lent, R. W., & Fouad, N. A. (2011). The self as agent in social cognitive career theory. In *Developing self in work and career: Concepts, cases, and contexts*. (pp. 71–87). American Psychological Association. <https://doi.org/10.1037/12348-005>
- Lerner, R. M., & Steinberg, L. (2009). *Handbook of Adolescent Psychology, Volume 2: Contextual Influences on Adolescent Development*. Wiley. <https://books.google.com.hk/books?id=modqtujZm30C>. Accessed 9 Nov 2020
- Lin, L., & Shek, D. T. L. (2019). The influence of meaning in life on adolescents' hedonic well-being and risk behaviour: Implications for social work. *British Journal of Social Work, 49*(1), 5–24. <https://doi.org/10.1093/bjsw/bcy029>
- Man, K. W. (2018). “SUN Life” Navigation Project: Life planning service for junior secondary students with SEN. Symposium on Individual Life Planning: Teachers' roles in career-related support for junior secondary students with special educational needs, Hong Kong, China.
- Maree, J. G., & Symington, C. (2015). Life design counselling effects on the career adaptability of learners in a selective independent school setting. *Journal of Psychology in Africa, 25*(3), 262–269. <https://doi.org/10.1080/14330237.2015.1021531>
- Martin, E. J., Tobin, T. J., & Sugai, G. M. (2003). Current information on dropout prevention: Ideas from practitioners and the literature. *Preventing School Failure: Alternative Education for Children and Youth, 47*(1), 10–17. <https://doi.org/10.1080/10459880309604423>
- Maxwell, J. A. (2010). Using numbers in qualitative research. *Qualitative Inquiry, 16*(6), 475–482. <https://doi.org/10.1177/1077800410364740>
- Merriam, S. B. (1998). *Qualitative research and case study applications in education* (2nd ed.). Jossey-Bass. <https://books.google.com.hk/books?id=kYMtQgAACAAJ>

- Phillips, S. D., Blustein, D. L., Jobin-Davis, K., & White, S. F. (2002). Preparation for the school-to-work transition: The views of high school students. *Journal of Vocational Behavior*, *61*(2), 202–216. <https://doi.org/10.1006/jvbc.2001.1853>
- Qi, S., Hua, F., Zhou, Z., & Shek, D. T. L. (2020). Trends of positive youth development publications (1995–2020): A scientometric review. *Applied Research in Quality of Life*. <https://doi.org/10.1007/s11482-020-09878-3>
- Santilli, S., Nota, L., & Hartung, P. J. (2019). Efficacy of a group career construction intervention with early adolescent youth. *Journal of Vocational Behavior*, *111*, 49–58. <https://doi.org/10.1016/j.jvb.2018.06.007>
- Sedgwick, J. A., Merwood, A., & Asherson, P. (2019). The positive aspects of attention deficit hyperactivity disorder: A qualitative investigation of successful adults with ADHD. *ADHD Attention Deficit and Hyperactivity Disorders*, *11*(3), 241–253. <https://doi.org/10.1007/s12402-018-0277-6>
- Shek, D. T., Dou, D., Zhu, X., & Chai, W. (2019). Positive youth development: Current perspectives. *Adolescent Health, Medicine and Therapeutics*, *10*, 131–141. <https://doi.org/10.2147/AHMT.S179946>
- Shek, D. T. L., Lin, L., Ma, C. M. S., Yu, L., Leung, J. T. Y., Wu, F. K. Y., Leung, H., & Dou, D. (2020). Perceptions of adolescents, teachers and parents of life skills education and life skills in high school students in Hong Kong. *Applied Research in Quality of Life*. <https://doi.org/10.1007/s11482-020-09848-9>
- 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>
- Tabassam, W., & Grainger, J. (2002). Self-concept, attributional style and self-efficacy beliefs of students with learning disabilities with and without Attention Deficit Hyperactivity Disorder. *Learning Disability Quarterly*, *25*(2), 141–151. <https://doi.org/10.2307/1511280>
- To, S.-M. (2016). Loneliness, the search for meaning, and the psychological well-being of economically disadvantaged Chinese adolescents living in Hong Kong: Implications for life skills development programs. *Children and Youth Services Review*, *71*, 52–60. <https://doi.org/10.1016/j.chilyouth.2016.10.037>
- Whiston, S. C., Li, Y., Goodrich Mitts, N., & Wright, L. (2017). Effectiveness of career choice interventions: A meta-analytic replication and extension. *Journal of Vocational Behavior*, *100*, 175–184. <https://doi.org/10.1016/j.jvb.2017.03.010>
- Xu, T., Dempsey, I., & Foreman, P. (2014). Views of Chinese parents and transition teachers on school-to-work transition services for adolescents with intellectual disability: A qualitative study. *Journal of Intellectual & Developmental Disability*, *39*(4), 342–352. <https://doi.org/10.3109/13668250.2014.947920>
- Yuen, M. (2017, June 8–10 2017). *Enhancing students' connectedness, meaning in life, life skills self-efficacy, career adaptability: Life skills development model*. 5th National Humanistic Psychological Counseling and Therapy Conference, Zhuhai, China: Beijing Normal University Zhuhai Campus.
- Yuen, M., Chung, Y. B., Lee, Q. A. Y., Lau, P. S. Y., Chan, R. M. C., Gysbers, N. C., & Shea, P. M. K. (2020). Meaning in life and school guidance programs: Adolescents' voices from Hong Kong. *International Journal for Educational and Vocational Guidance*, *20*(3), 653–676. <https://doi.org/10.1007/s10775-020-09423-6>
- Yuen, M., Gysbers, N. C., Chan, R. M. C., Lau, P. S. Y., Leung, T. K. M., Hui, E. K. P., & Shea, P. M. K. (2005). Developing a career development self-efficacy instrument for Chinese adolescents in Hong Kong. *International Journal for Educational and Vocational Guidance*, *5*(1), 57–73. <https://doi.org/10.1007/s10775-005-2126-3>
- Yuen, M., Gysbers, N. C., Chan, R. M. C., Lau, P. S. Y., & Shea, P. M. K. (2010). Talent development, work habits, and career exploration of Chinese middle-school adolescents: Development of the Career and Talent Development Self-Efficacy Scale. *High Ability Studies*, *21*(1), 47–62. <https://doi.org/10.1080/13598139.2010.488089>
- Yuen, M., Hui, E. K. P., Lau, P. S. Y., Chan, R. M. C., Gysbers, N. C., Shea, P. M. K., & Leung, K. M. (2006). *Life skills development among junior secondary school students: A brief report*. University of Hong Kong Life Skills Development Project.

Authors and Affiliations

Mantak Yuen¹  · Jiahong Zhang² · Patrick K. W. Man³ · Joyce Mak³ · Y. B. Chung⁴ · Queenie A. Y. Lee¹ · Annie K. C. Chan¹ · Ada So¹ · Ryder T. H. Chan¹

¹ Centre for Advancement in Inclusive and Special Education, Faculty of Education, The University of Hong Kong, Hong Kong SAR, China

² Mental Health Education and Counseling Center, Sun Yat Sen University, Guangzhou, Guangdong Province, China

³ Community Services Division Tung Wah Group of Hospitals, Sheung Wan, Hong Kong SAR, China

⁴ Department of Psychology, The Education University of Hong Kong, Tai Po, Hong Kong SAR