Life Skills Development Among Junior Secondary Students in Hong Kong:

Brief Report on Follow-Up Survey

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ABSTRACT

In May 2005, the Life Skills Development Project Team in Hong Kong conducted a questionnaire survey of 15,113 junior secondary students to determine their level of self-efficacy in applying life skills for academic, social, personal, and career and talent development. In May 2006 a follow-up study was conducted involving 2861 S.2 students in 52 secondary schools in Hong Kong. This report summarizes the results of the follow-up survey. This survey had two purposes: firstly to determine any association between students' self-efficacy scores obtained in May 2006 (Time 2) and a range of student characteristics collected in May 2005 (Time 1); and secondly to assess any changes in students' level of self-efficacy after a period of 12 months. The findings indicated that interpersonal relationships within school and at home are associated significantly with students' level of self-confidence in applying life skills in all areas in Time 2. Comparing the scores of S.2 students in Time 2 with their scores in Time 1, the evidence showed that the students had declined slightly in their confidence and self-efficacy in applying life skills. Possible reasons for the decline are discussed from the perspective of psychological development during adolescence, and other factors. Brief suggestions for school intervention and support are provided.

Key Words: self-efficacy; life skills; guidance and counseling; Chinese; talent development; problem solving; communication

INTRODUCTION

Life skills are the everyday competencies that facilitate an individual's academic progress, personal and social development, and positive career planning. Examples include study skills, work habits, interpersonal relationship skills, knowledge of self and others, self-management and leadership skills, financial management, decision-making, and problem solving (Gysbers & Henderson, 2000; Yuen, Lau, Leung, Shea, Chan, Hui, & Gysbers, 2003). Gazda, Childers, and Brooks (1987) suggest that such life skills are essential in four key domains, namely: family, school, community, and work.

Locally and internationally there is a growing concern that students often seem to lack adequate life skills (e.g. College Entrance Examination Board, 1986; Education Commission, 2000a; Watts, 2001), yet in an ever-changing society it is essential that all students become confident and competent in applying these skills. It is recognised now that schools (and guidance programs within schools) play an essential role in supporting students' life skills development.

Researchers have only recently begun to examine life skills development of students in schools and to determine the environmental and contextual factors that influence acquisition and enhancement of these skills. The evidence to date seems to support a view that there is a positive relationship between an individual's competence in life skills and his or her emotional adjustment (Darden, Ginter, & Gazda, 1996; Darden, Gazda, & Ginter, 1996); and it is believed that deficits in life skills may contribute to delinquent behavior (Farrell & White, 1998; Orpinas & Horne, 2006).

Most of the research studies to date have involved adolescents, and it is evident that for optimum personal development and autonomy as learners, students of this age must monitor

their own level of competence in acquiring and applying such life skills and must work toward improving these skills and understandings where this is necessary. That is to say, all junior secondary students need to develop positive beliefs about their own *self-efficacy* in applying life skills. 'Self-efficacy' is the term used by psychologists to describe an individual's perception of his or her own competence and confidence in particular activities or endeavours (Bandura, 1997; McInerney & McInerney, 2006; Tsang & Hui, 2006).

Supporting Life Skills Development

There is evidence to suggest that life skills acquisition can be facilitated through appropriate education and training (Gazda et al., 1987; Gazda, Ginter, & Horner, 2001; Gottfredson, Jones, & Gore, 2002). For example, from the mental health counseling perspective, Gazda et al. (1987) developed a 'life skills training' (LST) model for use in comprehensive mental health promotion within the general population; and in the context of schools in the US, school guidance services responded to a need for proactive intervention by developing comprehensive programs. In 1970's, Gysbers led a project to assist every American state in developing guides to implement counseling, career guidance, and placement programs in schools. The project set the course for the development and implementation of a K-12 comprehensive guidance program in the 1980's and early 1990's (e.g. Gysbers & Henderson, 2000; Lapan, Gysbers, & Sun, 1997; MacDonald & Sink, 1999).

Although the practicalities of teaching or training life skills are not the central focus of this particular study and report, it is still worth mentioning that the comprehensive guidance program referred to above consists of three key elements: content, organizational framework, and resources. Content consists of student life skill competencies grouped under the career, educational and personal-social domains. The organizational framework consists of structural components and program components. The program components include guidance (life skills)

curriculum, responsive services, individual planning, and system support. The resources include personnel, financial and political resources. There are two goals in the comprehensive school guidance program, firstly to "assist students to acquire competencies to handle current issues that affect their growth and development" (Gysbers, 1998, p.46) and secondly, develop career consciousness in students to help them visualize and plan their future life roles, settings and events in order to make informed personal and career choices, and relate these to the present life events (Gysbers & Hendersen, 2006).

Using Bandura's self-efficacy theory (Bandura, 1997) researchers in the US have also attempted to develop measures to assess student performance within this framework (Lapan, Gysbers, Multon, & Pike, 1997). The findings suggested that life skills self-efficacy scales such as these could be used for evaluation of the effectiveness of guidance and support programs in schools.

The Hong Kong Context

In Hong Kong, the government policy documents on comprehensive guidance programs have emphasized a need for systematic planning of developmental, preventive and remedial guidance activities along the lines of "whole person development and learning for life" (Education Commission, 2000b; Education Department, 2001; Education and Manpower Bureau, 2003). The comprehensive student guidance program includes four components: policy and organization for creating a caring culture; support service for teachers and parents; personal growth education for developing the life skills competencies of all students; and responsive services such as early identification of students at risk, and individual and group counseling (Lee, 2003).

In primary schools, each student guidance professional in Hong Kong is responsible for about 950 students (i.e. 24 classes in one school), recently improved to the ratio of 1 to 18 classes or more (about 630 students) starting 2006/07, and acts as program manager, life skills education curriculum designer, educator in the classroom, consultant to teachers and parents, and student counselor. In 2003-2004, there were about 600 student guidance professionals serving schools. Guidance teams had been established in 96% of schools, and 12 % of the guidance teams were headed by the school principal or the vice-principal. Personal growth education (i.e. guidance curriculum) was implemented in 99% of the schools, with 71% of the sessions related to 'Personal & Social Development', 18% related to Academic Development, and 15% to Career Development (Lee, 2005).

In secondary schools, school guidance has also evolved from a remedial approach to a comprehensive developmental guidance and counseling program approach (Yuen, 2001). In a recent survey with secondary teachers, the findings suggest that some guidance activities, including guidance curriculum, individual planning, responsive services and system support, have been implemented. Class-teachers, guidance teachers, career teachers, life education co-ordinators and school social workers are performing multiple roles and are actively involved in various domains of guidance activities (Yuen, 2006). In an on-going research project supported by the Quality Education Fund and the Hong Kong Research Grants Council, the present research team has already conducted focus group discussions with upper primary and junior secondary students to explore students' perceptions of their own life skills development, and of the value of specific guidance activities in schools. The findings suggest that students' working relationships with teachers and with peers in school have positive impacts on their life skills development (Yuen, Hui, Gysbers, Chan, Lau, Shea, & Leung, 2006). In addition, the present research team developed guidance curriculum materials and a set of inventories measuring Chinese adolescents' perceptions of self-efficacy in academic, personal-social, and career and

talent development. Initial validation studies have shown the construct validities and internal consistencies of these measures to be satisfactory among Chinese adolescents (Yuen et al., 2004a; Yuen et al., 2004b; Yuen et al., 2004c; Yuen et al., 2005). Measures have also been designed to assess teachers' perceptions of the level of implementation of guidance programs in their schools (Yuen, 2006).

In a main survey using these scales to investigate students' self-efficacy beliefs related to their own life skills (conducted in May 2005), a total of about 13,600 upper primary and 15,100 lower secondary students from 88 primary schools and 87 secondary schools took part. This report provides information from a follow-up survey of 2861 S.1 junior secondary students (now in S.2) 12 months after the initial survey. In the following report the first survey is referred to as 'Time 1' and the follow-up survey as 'Time 2'.

Research Questions

1. To what extent are S.2 students' self-efficacy scores in Time 2 related to student characteristics collected in Time 1 (i.e. parent education, family relationships, school relationships, community involvement, time spent on extra-curricular activities, and time spent on homework)?

2. To what extent have S.2 students' changed after a period of 12 months in their self-efficacy beliefs concerning their own ability to apply life skills in various domains of academic, personal, social, and career and talent development?

METHOD

Main Survey (Time 1)

Participants and Procedures

In May 2005, the Life Skills Development Project Team from University of Hong Kong conducted a questionnaire survey of junior secondary students. Ninety-six schools had been randomly selected from the Education and Manpower Bureau's list of secondary schools in various regions of Hong Kong. Eighty-seven schools returned completed questionnaires (response rate of 90.63%).

In each school, classes of students were selected randomly to participate in the survey. In total 15,113 students completed the questionnaire (boys = 7,507; girls = 7,392; gender data missing on 214 students). Data indicated that the sample included students from the school years S.1 (42.1%), S.2 (30.0%) and S.3 (27.0%).

The participating students were asked to complete the *Life Skills Development Self-Efficacy Inventory* during time set aside for this purpose in school. This instrument is described fully below and can be referred to in Appendix II.

Student characteristics were solicited by means of a *personal data form* included with the survey questionnaire. Students were also asked to indicate their date and month of birth, and their class number. Gender was coded as male = 0, female = 1. Students were also asked to indicate the levels of their parents' education (reported separately for mothers and for fathers) selecting a description from 7 categories ranging from 'no formal education' through to 'university post-graduate education'. Data collected on the educational level of parents

revealed that 23.4% and 25.2% respectively had only primary or no education, 29.8% and 28.7% respectively had middle school education, 28.4% and 30.8% had high school education; and finally 12.2% and 9.8% respectively had some college education.

Details of the students and their characteristics are presented in Appendix I & Appendix III.

Instrument

The *Life Skills Development Self-Efficacy Inventory* was designed specifically for this study. It comprises four main scales covering Academic Self-efficacy (A-SES), Personal Self-efficacy (P-SES), Social Self-efficacy (S-SES), and Career and Talent Development Self-efficacy (CTD-SES). (See Appendix II). Each of the four main scales contains a number of smaller sub-scales representing different clusters of skills or behaviors. Each sub-scale contains 6 items together with a Likert-type rating scale. The instrument was piloted with a sample of junior secondary students to check clarity and readability. With the exception of the 'Avoiding Drugs, Drinking and Smoking' subscale, adequate evidence for validity and internal consistency of the instruments were obtained from the present samples (see Appendix IV for the psychometric characteristics of the *Life Skills Development Self-Efficacy Inventory*).

Follow-Up Survey (Time 2)

In May 2006, the Project Team conducted the follow-up questionnaire survey of a sample of S.2 students who participated in the survey in May 2005. Questionnaires were sent to 55 secondary schools that had agreed to participate in the follow-up.

The *Life Skills Development Self-Efficacy Inventory (Junior Secondary Form)* was used again for the follow-up. In the main survey in May 2005 (Time 1), it was found that a total of 6356 students in S.1 in 87 secondary schools had completed the questionnaire. In the follow-up

survey in May 2006 (Time 2), 4932 students now in S.2 in 55 secondary schools returned completed questionnaires

Analysis of Data

The researchers were able to match Time 1 with Time 2 questionnaires for 2861 students' (1254 boys and 1581 girls; gender data missing on 26 students) by their date and month of birth and their class number, as indicated in the personal data form. Data collected on the educational level of participants' mothers and fathers revealed that 22.2% and 21.4% respectively had only primary or no education, 27.5% and 28.0% respectively had middle school education, 32.3% and 30.2% had high school education; and finally 12.0% and 14.1% respectively had some college education. Thus, the characteristics of the matched sample on such parameters as gender and parents' education closely approximated those of the cross-sectional sample. The personal particulars of the samples are shown in Appendix I.

To answer research question 1, the students' scores for life-skills self-efficacy in Time 2 were correlated with the quantitative measures representing student characteristics at Time 1. Owing to missing data from some students on the specified student variables it was not possible to process data for all 2861 students. Correlation was conducted therefore for approximately 2200 cases for which complete data sets were available. (See Table 1)

To answer the research question 2, the means and standard deviations for the total scores and for subscale scores were calculated, covering self-efficacy in the domains of academic development, personal development, social development, and career and talent development in Time 1 and Time 2. Paired sample t-tests were conducted to test whether the changes in self-efficacy scores in Time 1 and Time 2 were significant. Approximately 2700 paired-comparisons were available for processing. (See Table 2)

RESULTS

Research question 1: — *To what extent are S.2 students' self-efficacy scores in Time 2 related to the student characteristics collected in Time 1?*

Pearson Product-Moment correlation yielded information summarized in Table 1. It can be noted at once that the majority of correlation coefficients are small, although in most cases statistically significant. It must be remembered that conducting correlation calculations with a large sample size quite often produces such a result, with very small coefficients being deemed significant. It is necessary therefore to apply common sense when determining which correlation coefficients are large enough to be of genuine interest. With this in mind, Table 1 reveals that across all four domains of life skills there is a positive correlation of approximately .30 between S.2 students' self-efficacy scores and their measures of family relationships and school relationships. It would appear that students' positive relationships within the family and within the school situation are moderately associated with higher life skills self-efficacy. A smaller but interesting positive correlation can be noted between amount of time spent in revision of schoolwork and the scores for self-efficacy in life skills, particularly in the academic and career domains. This suggests perhaps that some students with well-developed life skills realize the value of giving time to such revision. A small but significant *negative* correlation can be observed between time spent in playing computer games and life skills self-efficacy scores. The association, although weak, is evident in the academic, social and career or talent domains. All other student variables depicted in Table 1 are only weakly or negligibly associated with self-efficacy.

Table 1. Correlations Between Life Skills Self-Efficacy Scores in Time 2, and S.2 Student Variables from Time 1

Variables	Academic Self-efficacy in Time 2 (n=2275)	Personal Self-efficacy in Time 2 (n=2258)	Social Self-efficacy in Time 2 (n=2121)	Career and Talent Development Self-Efficacy in Time 2 (n=2297)
Gender	-.011	-.121**	.044*	-.013
Age	-.044*	-.014	-.002	-.029
Father's education	.072**	.061**	.113**	.086**
Mother's education	.094**	.080**	.113**	.084**
Family relationships	.267**	.277**	.278**	.235**
School relationships	.348**	.317**	.341**	.329**
Physical exercise	.048*	.095**	.041*	.055**
Homework	.022	.023	.038*	.012
Revision	.134**	.098**	.131**	.137**
Leisure reading	.088**	.061**	.074**	.051**
Computer games	-.154**	-.085**	-.171**	-.136**
School extra-curricular activities	.089**	.074**	.092**	.076**
Community extra-curricular activities	.065**	.056**	.075**	.061**
Volunteer services	.048*	.034	.032	.050**

Note. $* p<.05$, $**p<.01$, one-tailed; gender coded Male=0 Female 1

Research question 2: — To what extent have S.2 students' changed after a period of 12 months in their self-efficacy beliefs?

Means, standard deviations and difference scores for the self-efficacy main scales and subscales at Time 1 and Time 2 are presented in Table 2. In both Time 1 and Time 2 the mean scores for the subscales are all above 24 (out of a possible 36) indicating that in general the students had, and continued to have, a reasonable (although *not great*) confidence in their own ability to apply life skills. A score above 30 would suggest a high degree of confidence in

applying life skills. Based on a standard deviation of approximately 5.0 in the subscale scores (see Table 2) it can be estimated that only about 15 % of the students here scored above 30.0 out of 36.

There have clearly been changes over the 12-month period, because in every one of the 23 main scale and subscale means reported in Table 2 the Time 2 scores are lower than the Time 1 scores, indicating a slight decline in students' confidence in self-efficacy. Of the 23 paired differences, 14 were significant at the $p < .01$ level and 1 at the $p < .05$ level. The only subscales in which the decline was not significant were: 'creative and critical thinking', 'problem solving', 'self-reflection', 'communication skills', 'family responsibilities', 'boy-girl relationships', and 'leadership'. The specific life skills contained covered by these subscales can be seen in Appendix II. The implications of maintaining reasonable self-efficacy in these areas will be discussed later.

The more significant declines were noted in the main-scale total scores for 'academic development', 'social development', and 'career and talent development' domains. These declines in confidence in self-efficacy, although not large, seem to reflect a genuine and important change that occurs in a significant number of students as they progress from S.1 through S.2 school grades. Possible explanations for this change are presented later.

Table 2. Changes in Self-Efficacy Scores of S.1/S.2 Students from Time 1 to Time 2

Scales (Italic) and Subscales	Time 1 Score		Time 2 Score		Paired Difference				
	M	*SD*	*M*	*SD*	*M*	*SD*	*t*	*p*	*CI*
Academic Development Scale (n=2547)	104.25	17.65	102.63	17.14	-1.61	16.18	5.03**	.0000	.98-2.24
Applying study skills (n=2726)	25.27	4.92	24.98	4.63	-.29	4.74	3.24**	.0012	.12-.47
Time management (n=2735)	24.90	5.42	24.63	5.12	-.28	5.15	2.80**	.0052	.082-.47
Creative and critical thinking (n=2723)	26.02	4.80	25.87	4.57	-.15	4.65	1.70	.0895	-.02-.33
Involvement in learning (n=2728)	28.01	4.62	27.09	4.71	-.92	4.43	10.89**	.0000	.76-1.09
Personal Development Scale (n=2470)	101.94	16.49	101.35	15.82	-.58	15.12	1.92	.0551	-.01-1.18
Positive self-concept (n=2709)	25.67	5.00	25.35	4.76	-.32	4.66	3.57**	.0004	.14-.49
Problem solving (n=2747)	25.11	4.51	25.09	4.34	-.03	4.50	.29	.7699	-.14-.19
Self-management (n=2702)	25.52	4.68	25.15	4.59	-.37	4.52	4.30**	.0000	.20-.54
Self reflection (n=2704)	25.54	4.59	25.52	4.35	-.02	4.50	.24	.8077	-.15-.19
Social Development Scale (n=2169)	213.38	32.29	211.25	30.90	-2.13	28.79	3.45**	.0006	.92-3.34
Communication skills (n=2685)	25.16	4.98	25.09	4.71	-0.07	4.52	.79	.4321	-1.02-.24
Respect and accepting others (n=2725)	27.25	4.50	27.08	4.22	-0.17	4.37	1.98*	.0481	.00-.33
Family responsibility (n=2690)	25.91	5.43	25.72	5.10	-0.18	5.22	1.81	.0698	-.01-.38
Boy-girl relationship (n=2720)	27.20	5.18	27.04	4.71	-0.16	5.06	1.65	.1002	-.03-.35
Conflict management (n=2704)	26.08	4.73	25.82	4.46	-0.26	4.65	2.94**	.0033	.09-.44
Coping with bullying (n=2717)	25.26	5.21	24.59	4.92	-0.67	5.19	6.69**	.0000	.47-.86
Leadership (n=2734)	24.72	5.54	24.65	5.13	-0.07	5.16	.68	.4972	-1.26-.26
Avoiding drugs, drinking and smoking (n=2722)	30.51	4.48	29.67	4.71	-0.84	4.56	9.66**	.0000	.67-1.01
Career and Talent Development Scale (n=2604)	78.85	14.40	77.55	13.88	-1.30	13.12	5.05**	.0000	.79-1.80
Talent development (n=2739)	26.73	5.23	26.05	4.99	-0.68	4.86	7.28**	.0000	.49-.86
Positive work habits (n=2733)	25.99	5.08	25.66	4.87	-0.33	4.80	3.61**	.0003	.15-.51
Career exploration (n=2731)	26.06	5.22	25.70	5.02	-0.36	5.00	3.73**	.0002	.17-.54

Notes: 1 = extremely lacking in confidence, 2 = not confident, 3 = a little lacking in confidence, 4 = confident, 5 = quite confident, 6 = extremely confident. As there are six items in each subscale, a subscale minimum score could be 6, and maximum score could be 36. CI = 95% Confidence Interval of the Difference.

*p < .05, **p < .01

DISCUSSION

There is little doubt that the observed slight decline in S.2 students' confidence in their own ability to apply life skills can be attributed mainly to normal psychological development during adolescence. Eggen and Kauchak (1997) have referred to adolescence as a 'period of uncertainty', in which individuals are struggling to establish their own identity and to recognise their own roles, strengths and weaknesses. It is understandable that adolescents may begin to feel a little less sure of their own abilities as they gain greater experience in life and become more emotionally and cognitively capable of reflecting upon their own skills, attributes, successes and failures. Corrie (1995, p.130) describes the period of change during adolescence in these terms:

> The central problem of this period is establishing a sense of identity. For adolescents this means a series of questions to clarify who they are and what their role in society should be: Am I a child or an adult? Do I have what it takes to be a partner and parent someday? What work will I do? How am I going to earn a living? Do I matter? Will I be a success or a failure?

Eggen and Kauchak (1997, p.79) have remarked that youngsters who can 'function on their own' (meaning, perhaps, that they have developed adequate life skills) feel competent to overcome the uncertainty of adolescence and thus develop a firm notion of who they are and their role in society. But not all teenage students achieve this level of independent functioning quickly or easily. As Erikson (1968) indicates, adolescence can be a period of 'identity crisis' and a period of self-doubt for a significant number of teenagers.

There is some evidence in the literature to suggest that individuals coming from secure and supportive home backgrounds, and with a strong network of friends, tend to cope best with the

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challenges emerging during adolescence (Ormrod, 2000). This may in part account for the positive correlations between family relationships, school relationships, and life skills self-efficacy, identified in this study (Table 1). While schools can do little to improve relationships between members of dysfunctional families, they can do much to foster positive and supportive relationships among teachers and students, and among the students themselves in the school situation. Ormrod (2000) cites studies that indicate the great importance of close friendships within the peer group for healthy emotional and mental growth during the difficult period of adolescence.

The slight decline in confidence related to academic development may be due to the increasing cognitive demands that the curriculum makes of students as they progress from S.1 through S.2. According to Ormrod (2000, p.499), "[If students in secondary schools] experience frequent failure with their schoolwork, and especially if they attribute this failure to low ability rather than to lack of effort, they may develop low self-efficacy concerning their competence in academic subjects". As the demands of schoolwork increase steadily some students may become frustrated and begin to opt out of putting in as much effort as previously, believing that they lack ability. This may account for the significant decline in scores for 'involvement in learning', 'applying study skills' and 'time management' in the Academic Development Scale. The message for schools would seem to be that some students might require greater support and encouragement than they are currently receiving if they begin to experience difficulties in learning within any part of the curriculum. They may also need help in attributing their successes to the effort they put into a task, rather than to innate ability. Too much exposure to failure, poor results, and criticism can erode students' confidence in their own abilities.

After one year from the previous assessment, significant decreases in confidence were also evident in all sections of the Career and Talent Development Scale. The possible reasons for

this decline include the likelihood that by the time a student reaches S.2 he or she has become much more aware of the need to start thinking about employment when they leave school, together with a growing realization that they must try to develop any strengths, abilities and interests they may have. Pressure from parents, and perhaps for school staff too, may have heightened this awareness to the point where some students may become anxious and a little less confident in their own abilities to meet these challenges. Many students enter junior secondary schools without any clear idea of their future goals for employment. According to Marcia (1980), adolescents need a period of time to explore various options for themselves in terms of possible careers and employment before they can achieve a true sense of direction. Teachers and guidance staff should be sensitive to this uncertainty about career planning and talent development in some students. Such students will benefit from practical advice at this time, and may need to be channeled into guidance activities specifically designed to help students focus on preparation for work and life beyond school. They may also need to be encouraged to participate in extra-curricular activities that help to develop special interests and talents.

On the more positive side, some of the smallest decreases in confidence over the period of one year were within the Personal Development Scale, in which the total 'difference score' did not reach statistical significance. Although it is often reported that adolescents lose some of their self-esteem, and worry about their personal appearance and their worth, there was no real evidence of this in this study. Several of the sub-scales within the Social Development Scale also showed negligible change since Time 1. This is reassuring, because, as indicated above, adolescence can be a time of uncertainty about one's personal identity and one's inter-personal relationships. In this study, the students have maintained a reasonable level of confidence in their ability to communicate effectively with others, to respect and accept others, and to establish friendships with the opposite sex.

It is also reassuring to find that the students have not significantly declined in their self-efficacy related to 'creative and critical thinking', 'problem solving' and 'self-reflection'—because as Pressley and McCormick (1995) remind us, adolescence is the time for these essential metacognitive skills to develop rapidly. The majority of students will have progressed to the stage of 'formal operational thinking' (Piaget, 1952), and the school curriculum and teaching methods should seek to challenge and develop these skills to the full.

CONCLUSION

The results of this follow-up survey indicate a slight but consistent decline in students' life skills self-efficacy over a period of one year, as students progressed from S.1 to S.2 grade. The areas in which decreases in confidence were most evident were related to students' academic development, and to career and talent development. The decline was least evident in personal development and in certain aspects of social development. The changes between Time 1 and Time 2 have been explained here mainly in terms of normal development during adolescence. Brief suggestions for action in schools have been provided.

It was mentioned above — and is repeated with emphasis here — that the mean subscale scores for this sample of S.2 students tended to be approximately 25 or 26 out of a possible 36 in the *Life Skills Development Self-Efficacy Inventory*, and only about 15% of students would be scoring above 30 or 31. This suggests that S.2 students' level of self-efficacy is 'reasonable', but certainly cannot be regarded as high. There is no room for complacency regarding students' automatic development of life skills. It is clear that schools need often to provide additional activities and support to ensure that all students develop and maintain effective life skills through adolescence, particularly in the domains of academic development and career and

talent development. Fostering positive social relationships in school would appear to be one important priority within such activities.

This study has focused on the association between *student characteristics* and the development of life skills self-efficacy. Future studies should examine more closely the association between life skills development and *school characteristics*. In particular, we need to consider the possible beneficial effects of school programs such as the comprehensive guidance and counseling programs referred to in the introduction (Gysbers, Hughey, Starr, & Lapan, 1992). To what extent are these programs effective in supporting and advancing students' life skills development over time?

Additional research is needed to clarify the complex relationships between changes in life skills self-efficacy, student characteristics and *school characteristics* (Lapan, Gysbers, & Petroski, 2003). There is a need therefore to conduct longitudinal research of sufficient duration to study the long-term effects of guidance and counseling programs in Hong Kong. It is hoped that the opportunity will arise to collect such data at regular intervals over a longer period of time.

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Appendix I

Personal Particulars of the Students in the Time 1 and Time 2 Samples

	Time 1 Sample		Time 2 Sample		Matched follow-up Sample	
	Frequency	%	Frequency	%	Frequency	%
Grade						
S.1	6356	100	-	-		
S.2	-	-	4932	100	2861	100.0
Gender						
Boys	3158	49.7	2107	42.7	1254	43.8
Girls	3143	49.4	2758	55.9	1581	55.3
Missing data	55	.9	67	1.4	26	.9
Immigrant status						
Born in HK	4886	76.9	2235	45.3	2235	78.1
Not born in HK	1422	22.4	595	12.1	595	20.8
Missing data	48	.7	2102	42.6	31	1.1
Social security						
Family receiving	733	11.7	311	6.3	311	10.9
Family not receiving	5540	87.2	2505	50.8	2505	87.6
Missing data	83	1.3	2116	42.9	45	1.5
Textbook allowance						
Receiving	1532	24.1	703	14.3	703	24.6
Not receiving	4715	74.2	2104	42.7	2104	73.5
Missing	109	1.7	2125	43.1	54	1.9
Mother's educational Level						
No formal education	280	4.4	122	2.5	122	4.3
Primary	1165	18.3	512	10.4	512	17.9
Junior secondary	1756	27.6	787	16.0	787	27.5
Senior secondary	2099	33.0	925	18.8	925	32.3
Postsecondary	320	5.0	146	3.0	146	5.1
University	338	5.3	171	3.5	171	6.0
Postgraduate	47	.7	26	.5	26	.9
Missing data	351	5.5	2243	45.5	172	6.0
Father's educational Level						
No formal education	251	3.9	111	2.3	111	3.9
Primary	1128	17.7	501	10.2	501	17.5
Junior secondary	1776	27.9	802	16.3	802	28.0
Senior secondary	1938	30.5	865	17.5	865	30.2
Postsecondary	275	4.3	119	2.4	119	4.2
University	507	8.0	236	4.8	236	8.2
Postgraduate	85	1.3	49	1.0	49	1.7
Missing data	396	6.2	2249	45.6	178	6.2

Appendix II

The Life Skills Development Inventories (Junior Secondary Form)
(Yuen et al., 2005)

Academic Self-Efficacy Scale

Please read the following statements carefully and indicate how much confidence you have in performing these skills or behaviours. Please circle the appropriate number for each statement to describe your degree of confidence.

1 = extremely lacking in confidence, 2 = not confident, 3 = a little lacking in confidence, 4 = confident, 5 = quite confident, 6 = extremely confident

I am confident that I can......

1.SS	Apply important study skills such as note-taking, summarizing, memorizing, using reference materials.	1	2	3	4	5	6
2.TM	Design my own study timetable, and act accordingly.	1	2	3	4	5	6
3.CC	Reflect upon the possible ways of tackling school tasks, and the consequence.	1	2	3	4	5	6
4.IL	Establish harmonious working relationship with classmates.	1	2	3	4	5	6
5.SS	Ask questions actively in class.	1	2	3	4	5	6
6.TM	Know how to value, and make use of, time.	1	2	3	4	5	6
7.CC	View new information and ideas from a new angle.	1	2	3	4	5	6
8.IL	Establish good working relationship with teachers.	1	2	3	4	5	6
9.SS	Master skills for collecting information on Internet.	1	2	3	4	5	6
10.TM	Manage my study time appropriately.	1	2	3	4	5	6
11.CC	Express myself very clearly in class.	1	2	3	4	5	6
12.IL	Value the resources and facilities in the school.	1	2	3	4	5	6
13.SS	Apply effective answering techniques in exams and tests.	1	2	3	4	5	6

14.TM	Finish allocated work within the specified time.	1	2	3	4	5	6
15.CC	Differentiate subjective opinion from objective facts.	1	2	3	4	5	6
16.IL	Participate in extra-curricular activities.	1	2	3	4	5	6
17.SS	Use reading comprehension skills effectively	1	2	3	4	5	6
18.TM	Plan my approach before I start schoolwork.	1	2	3	4	5	6
19.CC	Generate a number of ways to solve problems.	1	2	3	4	5	6
20.IL	Support and obey the regulations of school and classroom.	1	2	3	4	5	6
21.SS	Write clearly and effectively to convey my meaning.	1	2	3	4	5	6
22.TM	Arrange my leisure time properly.	1	2	3	4	5	6
23.CC	Be curious about the things around me.	1	2	3	4	5	6
24.IL	Help teachers, school and classmates actively.	1	2	3	4	5	6

Subscales:

Study skills = SS (items 1, 5, 9, 13, 17, 21); Time management = TM, (items, 2, 6, 10, 14, 18, 22); Critical and creative thinking = CC (items 3, 7, 11, 15, 19, 23); Involvement in Learning = IL (items, 4, 8, 12, 16, 20, 24).

Personal Self-Efficacy Scale

Please read the following statements carefully and indicate <u>how much confidence you have</u> in performing these skills or behaviours. Please circle the appropriate number for each statement to describe <u>your degree of confidence.</u>

1 = extremely lacking in confidence, 2 = not confident, 3 = a little lacking in confidence, 4 = confident, 5 = quite confident, 6 = extremely confident

I am confident that I can......

1.PS	Recognise my own ideals in life.	1	2	3	4	5	6
2.PB	Positively search for ways to solve problems.	1	2	3	4	5	6
3.SM	Follow sound eating habits and balanced diet.	1	2	3	4	5	6
4.SR	Be clear about what is in my mind.	1	2	3	4	5	6
5.PS	Recognise my strengths.	1	2	3	4	5	6
6.PB	Stay calm when facing problems.	1	2	3	4	5	6
7.SM	Keep myself happy.	1	2	3	4	5	6
8.SR	Set myself clear goals.	1	2	3	4	5	6
9.PS	Know my own capability.	1	2	3	4	5	6
10.PB	Generate lots of ways to solve one problem.	1	2	3	4	5	6
11.SM	Maintain my weight.	1	2	3	4	5	6
12.SR	Plan the ways to achieve my goals step by step.	1	2	3	4	5	6
13.PS	Make good use of my strengths.	1	2	3	4	5	6
14.PB	Recognise the main sources of stress.	1	2	3	4	5	6
15.SM	Spend pocket money responsibly.	1	2	3	4	5	6
16.SR	Evaluate the things that I do.	1	2	3	4	5	6
17.PS	Be satisfied with myself.	1	2	3	4	5	6
18.PB	Identify the influences of stress on myself.	1	2	3	4	5	6
19.SM	Plan when to take a rest.	1	2	3	4	5	6
20.SR	Listen to and refer to the opinion of others.	1	2	3	4	5	6
21.PS	Be assured of my abilities.	1	2	3	4	5	6
22.PB	Stay optimistic when facing problems.	1	2	3	4	5	6
23.SM	Maintain exercise habit.	1	2	3	4	5	6
24.SR	Have the courage to keep evaluating myself.	1	2	3	4	5	6

Subscales:

Positive self-concept = PS (items 1, 5, 9, 13, 17, 21); Problem solving = PB (items, 2, 6,10, 14, 18, 22); Self-management = SM (items 3, 7, 11, 15, 19, 23); Self-reflection = SR (items, 4, 8, 12, 16, 20, 24).

Social Self-Efficacy Scale

Please read the following statements carefully and indicate how much confidence you have in performing these skills or behaviours. Please circle the appropriate number for each statement to describe your degree of confidence.

1 = extremely lacking in confidence, 2 = not confident, 3 = a little lacking in confidence, 4 = confident, 5 = quite confident, 6 = extremely confident

I am confident that I can......

1.CS	Express myself clearly in English.	1	2	3	4	5	6
2.RA	Respect what my classmates think.	1	2	3	4	5	6
3.FR	Be concerned about my family, and help them actively.	1	2	3	4	5	6
4.BG	Establish a friendship with the opposite sex.	1	2	3	4	5	6
5.CM	Anticipate possible conflicts among the classmates before it is too late.	1	2	3	4	5	6
6.CB	Tell the teachers if I know a classmate is being bullied.	1	2	3	4	5	6
7.LS	Lead my classmates to discuss together.	1	2	3	4	5	6
8.AD	Resist taking drugs.	1	2	3	4	5	6
9.CS	Express my feelings.	1	2	3	4	5	6
10.RA	Stand in others' shoes, and consider the feelings of my classmates.	1	2	3	4	5	6
11.FR	Communicate with my family by effective means.	1	2	3	4	5	6
12.BG	Recognize the difference between friendship and romance.	1	2	3	4	5	6
13.CM	Solve any misunderstanding among my classmates so as to avoid conflict.	1	2	3	4	5	6
14.CB	Express my feelings with courage when my classmates are being bullied.	1	2	3	4	5	6
15.LS	Be capable of organizing and planning activities.	1	2	3	4	5	6
16.AD	Resist smoking.	1	2	3	4	5	6
17.CS	Express myself in Putonghua.	1	2	3	4	5	6
18.RA	Cooperate and accomplish games with classmates.	1	2	3	4	5	6
19.FR	Manage any problem in family relationships calmly.	1	2	3	4	5	6
20.BG	Understand how to get along with the opposite sex.	1	2	3	4	5	6
21.CM	React appropriately to the circumstances when facing conflict.	1	2	3	4	5	6
22.CB	Keep calm to solve the problem if you know your classmates are being bullied.	1	2	3	4	5	6
23.LS	Call on and encourage other classmates to join activities.	1	2	3	4	5	6

24.AD Resist overindulging in playing computer games.	1	2	3	4	5	6
25.CS Express myself with confidence.	1	2	3	4	5	6
26.RA Listen to classmates' opinions patiently.	1	2	3	4	5	6
27.FR Talk freely with my family members.	1	2	3	4	5	6
28.BG Stand in others' shoes and consider the feelings of the opposite sex.	1	2	3	4	5	6
29.CM Maintain positive social relationship even in a conflict.	1	2	3	4	5	6
30.CB Face a problem optimistically if I know my classmates are being bullied.	1	2	3	4	5	6
31.LS Manage any conflicts generated when leading an activity.	1	2	3	4	5	6
32.AD Be considerate about the influence of smoking on myself, my friends and my family.	1	2	3	4	5	6
33.CS Express my opinions appropriately.						
34.RA Get along genuinely with my classmates.						
35.FR Use appropriate ways to express my feelings to my family.	1	2	3	4	5	6
36.BG Express my feelings and opinions to the opposite sex.	1	2	3	4	5	6
37.CM Keep a positive attitude when facing a conflict.	1	2	3	4	5	6
38.CB Step in to help classmates if they are bullied.	1	2	3	4	5	6
39.LS Allocate the work appropriately to group members when leading an activity.	1	2	3	4	5	6
40.AD Be aware of the harmful influence of drug abuse on myself, my friends and my family.	1	2	3	4	5	6
41.CS Express myself by body language such as eye and gesture.	1	2	3	4	5	6
42.RA Listen to classmates' feelings with patience.	1	2	3	4	5	6
43.FR Stand in others' shoes and consider the feelings of my family.	1	2	3	4	5	6
44.BG Listen to the feelings of the opposite sex.	1	2	3	4	5	6
45.CM Positively search for reconciliation when in conflict with classmates.	1	2	3	4	5	6
46.CB Have the courage to express my feelings and opinions if I am bullied by classmates.	1	2	3	4	5	6
47.LS Help to accomplish the group goal in cooperative activities.	1	2	3	4	5	6
48.AD Be considerate about the harmful influence on myself, my friends and my family of spending too long playing computer games.	1	2	3	4	5	6

Subscales:

Communication skills = CS (items 1, 9, 17, 25, 33, 41); Respect and accept others = RA (items, 2, 10, 18, 26, 34, 42); Family responsibility = FR (items 3, 11, 19, 27, 35, 43); Boy-girl relationship = BG (items, 4, 12, 20, 28, 36, 44); Conflict management = CM (items 5,13, 21, 29, 37, 45); Coping with bullying = CB (items, 6, 14, 22, 30, 38, 46); Leadership skills = LS (items 7, 15, 23, 31, 39, 47); Avoiding drugs, drinking, smoking, and computer-game excesses = AD (items 8, 16, 24, 32, 40, 48),

Career and Talent Development Self-Efficacy Scale

Please read the following statements carefully and indicate how much confidence you have in performing these skills or behaviours. Please circle the appropriate number for each statement to describe your degree of confidence.

1 = extremely lacking in confidence, 2 = not confident, 3 = a little lacking in confidence, 4 = confident, 5 = quite confident, 6 = extremely confident

I am confident that I can......

1.TD	Explore my capabilities in academic subjects.	1	2	3	4	5	6
2.WA	Work autonomously.	1	2	3	4	5	6
3.CE	Explore my career path and goal.	1	2	3	4	5	6
4.TD	Recognise my potential strengths in extra-curricular activities.	1	2	3	4	5	6
5.WA	Have the courage to take up responsible tasks.	1	2	3	4	5	6
6.CE	Cultivate my interests according to the career I choose.	1	2	3	4	5	6
7.TD	Achieve the academic goal I set myself.	1	2	3	4	5	6
8.WA	Work systematically on allocated tasks.	1	2	3	4	5	6
9.CE	Understand the pre-requisites of different jobs.	1	2	3	4	5	6
10.TD	Choose recreational activities in which I am interested.	1	2	3	4	5	6
11.WA	Finish allocated work on time.	1	2	3	4	5	6
12.CE	Understand the relationship between subjects that I am studying and my career path.	1	2	3	4	5	6
13.TD	Actively participate in different kinds of activities and contests to enhance my experience.	1	2	3	4	5	6
14.WA	Take the initiative to help others.	1	2	3	4	5	6
15.CE	Understand the relationship between the present campus life, further study and future career.	1	2	3	4	5	6
16.TD	Achieve the goals set in extra-curricular activities.	1	2	3	4	5	6
17.WA	Allocate time appropriately for studying, playing and taking rest.	1	2	3	4	5	6
18.CE	Inform others of the job that I would like and have confidence in.	1	2	3	4	5	6

Subscales:
Talent development = TD (items 1, 4, 7, 10, 13, 16); Work habits and values = WA (items, 2, 5, 8, 11, 14, 17); Career exploration = CE (items 3, 6, 9, 12, 15, 18).

Appendix III

Means and Standard Deviations from Personal Data Forms

Type of Activity	S.1 Sample in Time 1 (n=5867 students)		S.2 Sample in Time 2 (n= 2650 students)	
	Mean	*SD*	*Mean*	*SD*
Daily activities (minutes)				
Physical exercises	37.77	45.78	37.01	45.73
Homework	62.16	51.09	60.85	52.59
Revising school subjects	39.01	42.11	39.02	41.37
Leisure reading	34.82	45.01	34.91	43.03
Electronic games	80.05	92.04	82.19	94.93
Weekly activities (hours)				
School extra-curricular activities	2.46	4.86	2.50	4.74
Community extra-curricular activities	1.98	4.44	2.00	4.38
Voluntary services	.67	2.48	.70	2.89

Appendix IV

Psychometric Properties of the *Life Skills Development Self-Efficacy Inventory*:

Time 1 and Time 2

Scale and Sub-scale	Time	Reliability	Fitness Index			
		Cronbach Alpha	CFI	SRMR	RMSEA	90% CI
Academic Development	1(n=6356)	.947	.907	.042	.067	.066-.068
	2(n=4932)	.948	.906	.042	.050	.048-.051
Applying study skills	1(n=6356)	.812	.986	.020	.051	.044-.058
	2(n=4932)	.814	.985	.022	.040	.032-.048
Time management	1(n=6356)	.876	.995	.012	.037	.030-.044
	2(n=4932)	.877	.996	.013	.026	.018-.035
Creative and critical thinking	1(n=6356)	.856	.996	.013	.033	.026-.040
	2(n=4932)	.853	.992	.017	.032	.024-.040
Involvement in learning	1(n=6356)	.808	.943	.041	.103	.096-.110
	2(n=4932)	.819	.937	.042	.079	.071-.087
Personal Development	1(n=6356)	.932	.881	.043	.068	.066-.069
	2(n=4932)	.936	.867	.047	.053	.052-.055
Positive self-concept	1(n=6356)	.850	.985	.020	.060	.053-.067
	2(n=4932)	.864	.986	.020	.044	.036-.052
Problem solving	1(n=6356)	.799	.951	.037	.090	.084-.097
	2(n=4932)	.810	.938	.042	.076	.068-.084
Self-management	1(n=6356)	.710	.958	.031	.064	.057-.071
	2(n=4932)	.714	.954	.032	.048	.041-.057
Self reflection	1(n=6356)	.800	.946	.041	.097	.090-.104
	2(n=4932)	.814	.935	.045	.079	.071-.087

| Scale and Sub-scale | Time | Reliability | Fitness Index | | | |
		Cronbach Alpha	CFI	SRMR	RMSEA	90% CI
Social Development	1(n=6356)	.966	.869	.062	.056	.056-.057
	2(n=4932)	.967	.860	.063	.044	.043-.045
Communication skills	1(n=6356)	.791	.988	.021	.047	.040-.054
	2(n=4932)	.789	.988	.023	.034	.026-.042
Respect and accepting others	1(n=6356)	.847	.987	.019	.056	.048-.063
	2(n=4932)	.847	.982	.024	.049	.043-.058
Family responsibility	1(n=6356)	.884	.988	.018	.060	.053-.067
	2(n=4932)	.894	.990	.018	.042	.036-.050
Boy-girl relationship	1(n=6356)	.855	.957	.041	.107	.100-.114
	2(n=4932)	.867	.964	.038	.075	.067-.083
Conflict management	1(n=6356)	.849	.988	.020	.054	.047-.061
	2(n=4932)	.854	.986	.022	.044	.036-.052
Coping with bullying	1(n=6356)	.850	.985	.022	.060	.053-.067
	2(n=4932)	.854	.984	.023	.047	.039-.055
Leadership	1(n=6356)	.889	.994	.012	.043	.036-.050
	2(n=4932)	.893	.992	.015	.038	.030-.046
Avoiding drugs, drinking and smoking	1(n=6356)	.761	.731	.124	.254	.247-.261
	2(n=4932)	.779	.699	.127	.198	.191-.206
Career and Talent Development	1(n=6356)	.944	.930	.037	.072	.070-.073
	2(n=4932)	.947	.925	.040	.056	.054-.058
Talent development	1(n=6356)	.868	.987	.019	.059	.052-.066
	2(n=4932)	.873	.984	.023	.051	.043-.059
Work habits and values	1(n=6356)	.849	.981	.027	.068	.061-.075
	2(n=4932)	.854	.984	.025	.047	.039-.055
Career exploration	1(n=6356)	.868	.974	.026	.085	.078-.092
	2(n=4932)	.875	.971	.028	.068	.060-.076

Note: CFI = Comparative fit index; SRMR Standardized root-mean-square residual; RMSEA Root mean square error of approximation; CI=Confidence interval