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# Evaluation of generic competencies among secondary school leavers from the new academic structure for senior secondary education in Hong Kong

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### Abstract

**Purpose** – A new academic structure for senior secondary and higher education was introduced to Hong Kong in 2009/2010. This paper aims to: (1) compare the cohort from the old academic structure (Cohort 2010) and the cohort from the new academic structure (Cohort 2015) on the 14 categories of generic competencies; and (2) compare these attributes among students from different divisions in a tertiary institution in Hong Kong.

**Design/methodology/approach** – Self-Assessment of All-Round Development (SAARD) questionnaires were distributed to students who took the two-year sub-degree programmes offered by the College of Professional and Continuing Education, The Hong Kong Polytechnic University in 2010 and 2015 on a self-administered basis. A total of 4,424 students have returned the questionnaires. Data were analyzed with t-test to compare between the two cohorts.

**Findings** – When comparing Cohort 2015 with Cohort 2010, significantly higher scores were observed on five areas such as global outlook and healthy lifestyle (p<0.05). Significantly lower scores were observed on the other five areas such as problem solving, critical thinking and leadership (p<0.05). Students from all divisions unanimously showed higher perceived rating on social and national responsibility but lower perceived rating on leadership (p<0.05).

Originality/Value – The elimination of one public examination, the newly included components such as Other Learning Experiences (OLE) and the compulsory Liberal Studies were believed to contribute partially to the diverse responses of the two cohorts. The dramatic change of the curriculum has not changed the examination culture in Hong Kong which may hinder the development of generic skills among students.

**Keywords** New academic structure, Generic competencies, Liberal Studies, Other Learning Experiences, Senior secondary education, Hong Kong

Paper type Research paper





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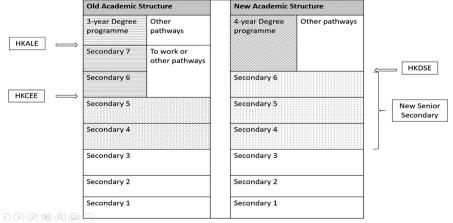
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### Introduction

Since the impacts of globalization on education and pedagogy have been discussed actively in the recent decades (Tikly, 2001, Selwyn and Brown, 2000), many countries have reformed their educational systems to cope with the swift changes of the world and to increase global competitiveness of their students (Mok and Chan, 2002). For example, in Japan, Korea, Malaysia and Singapore, their educational systems have been reviewed to better monitor the educational quality and effectiveness. Many of their examination policy put more emphasis on promoting whole-person development (Cheng, 2006). In Hong Kong, the Education Commission suggested implementing school-based management in all public sector schools (Education Commission, 1997). In 2000, Education Commission issued an educational reform document entitled "Learning for Life, Learning Through Life: Reform Proposals for the Education System in Hong Kong" (Education Commission, 2000). The reform document focuses on professional, school-based, autonomy, participation and self-evaluation (Chan, 2010). This education reform was implemented in Hong Kong leading to a new academic structure (3+3+4).

The old academic structure originated from the British system required students to have three years of junior secondary education (S1-S3) and two more years (S4-S5) to prepare for the Hong Kong Certificate of Education Examination (HKCEE). With satisfactory results in HKCEE, they could further to two more years of secondary education (S6-S7). When students passed a second public examination: Hong Kong Advanced Level Examination (HKALE), they could be admitted to a 3-year university program. The old structure focused more on academic proficiency and is the so-called 3+2+2+3 system. Students would choose between two streams, namely the Sciences or the Arts streams.

The new academic structure requires students to complete junior (S1-S3) and senior secondary (S4-S6) cycle with no examination in between in order to enable students to attain all-round development in the domains of moral, intellectual, physical, social and aesthetic (Figure 1). The only public examination is the Hong Kong Diploma of Secondary Education Examination (HKDSE) that determines students' chances for admission to university. The key components of the new academic structure include eight learning areas, which are English Language, Chinese Language, Mathematics, Arts, Technology, Science, Physical and Personal, Social and Humanities (Education Bureau, 2010). Senior secondary students are required to participate in a restructured curriculum including four core subjects (English Language, Chinese Language, Mathematics and Liberal Studies), two or three elective subjects, one component of school-based assessment and Other Learning Experience (OLE). The new



**Source:** Adopted from Education Commission (2003a).

Figure 1.
Comparison between the British system and the new academic structure of Hong Kong

structure emphasizes greater elective choice and flexibility. In the past, about one-third of students could proceed to Form 6 and 7 after the HKCEE. Assessment was based 100 percent on the public examination. On the contrary, all students can progress to Form 6 in the current structure. School Based Assessment has been introduced into all subjects for rating of up to 25 percent (Quong, 2011).

The major changes include that Liberal Studies becomes a compulsory instead of elective subject. Liberal Studies provides a framework to encourage self-directed learning, critical thinking, and an understanding of the role of individual in society (Curry, 2012). In addition, OLE and Applied Learning (ApL) are newly introduced in the current curriculum. OLE emphasizes the moral and civic education, community service, intellectual development, physical development and career-related experiences (Chan, 2010). Applied Learning (ApL) courses are elective subjects that emphasize on practice and theory linked to professional and vocational fields. The new structure sets the priority on "enabling students to enjoy learning, enhance their effectiveness in communication and develop their creativity and sense of commitment" (Education Commission, 2000). The atmosphere of educational reform is becoming positive and encouraging to these new developments (Cheng, 2009). With the revolutionary changes of the education system, it is expected that students graduated from the two structures may perform and perceive differently on various areas of their learning.

To evaluate the effectiveness of the new structure comprehensively, it is important and timely to review the two structures from the perspectives of different stakeholders, specifically the main users - the students. The author focuses on the student's perspective on their all-round development. Generic skills represent the qualities that all students should have and reflect the central achievements of education (Chapman and O'Neill, 2010). These are essential for the graduates' career advancement in order to promote economic and social development (Bunney et al., 2015). Educationalists have published similar discussions on the development of generic competencies (Ng and So, 2017, Benjamin et al., 2012, Leung et al., 2014, Kember et al., 2007, Rhee and Kim, 2012, Kember, 2009) but many educators found it challenging to define and assess generic competencies. One assessment tool named Self-Assessment of All-Round Development (SAARD) questionnaire was developed by The Hong Kong Polytechnic University (PolyU) in 2006 (Fung et al., 2007), which was showed to be a reliable and valid tool (Ho and So. 2016). The current study aims to evaluate the new academic structure by: (1) comparing the cohort from old British structure admitted to a tertiary institution in Hong Kong in 2010 with the cohort from the new academic structure admitted in 2015 on 14 categories of generic competencies; and (2) comparing these attributes among students from three divisions in the institution.

# Research methodology

Data were collected via SAARD questionnaire distributed to students who commenced their studies in Cohort 2010 (HKALE entrants) and Cohort 2015 (HKDSE entrants) on a self-administered basis. The SAARD questionnaire consisted of 28 items measuring 14 categories of generic competencies viz. creative thinking; problem solving; critical thinking; lifelong learning; leadership; teamwork; communication; psychological wellness; interpersonal effectiveness; cultural appreciation; global outlook; social and national responsibility; entrepreneurship; and healthy lifestyle. The study was approved by the Research Committee of the College of Professional and Continuing Education, The Hong Kong Polytechnic University. All participants gave their opinion of how well they thought that they were able to accomplish the different tasks indicated in the statements, according to a 7-point Likert scale (1 = not well at all; 7 = very well). Each statement assessed only one area of generic competency, and each domain of generic competency consisted of two statements. Questions were shown in random sequence to the respondents to ensure the reliability of the study.

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A total of 4,424 students in the two-year sub-degree programmes offered by a Community College in Hong Kong were surveyed immediately after admission, comprising 1,423 students from Cohort 2010 and 3,001 from Cohort 2015. Data were analyzed with t-test to compare all 14 generic competencies between two cohorts. Further analyses were done among 3 divisions' students: business (BUSS), communication and social science (CSS), and science and technology (S&T). IBM SPSS version 25.0 for Windows was used as the data analysis tool. A p-value (2-tailed) of less than 0.05 was interpreted as statistically significant.

### Results and discussion

Among the 14 generic competencies, there were significant differences in 10 generic competencies between the two cohorts. When comparing Cohort 2015 with Cohort 2010, significantly higher score was observed on five areas including teamwork, global outlook, social and national responsibility, entrepreneurship, and healthy lifestyle (p<0.05) (Table 1). Significantly lower score was observed on the other five areas including problem solving, critical thinking, leadership, communication, and interpersonal effectiveness (Table 2). Students from all divisions unanimously showed higher perceived rating on social and national responsibility but lower perceived rating on leadership (Figure 2).

The significantly different results among the 10 generic competencies out of 14 reflected the marked changes between the two cohorts. While knowing that learning generic skills has been infused in the school curriculum and it is not exclusive to a particular curriculum area in Hong Kong Schools (Lee *et al.*, 2017b), the intrinsic differences of the two academic structures may account for part of it. The old structure focused more on academic development to prepare students for the two public examinations. There was no formal curriculum on student development and the subject "Liberal Studies" was not compulsory for all students. On the other hand, the new structure puts more emphasis on all-round development and aims at "enabling students to enjoy learning, enhance their effectiveness in communication, and developing their creativity and sense of commitment" (Education Commission, 2000) (Table 3). The curriculum is believed to shift from a very examination-oriented school system to a system with more student focused, inquiry-based education and whole person development.

Generic competencies	Cohort 2015	Cohort 2010	P value
Teamwork Global outlook Social and national responsibility Entrepreneurship Healthy lifestyle	5.04±0.01 4.76±0.02 5.21±0.02 4.90±0.02 4.66±0.02	4.94±0.02 4.68±0.03 4.91±0.03 4.83±0.03 4.58±0.03	P<0.05 P<0.05 P<0.05 P<0.05 P<0.05
• •			

Table 1.
The generic competencies that received higher perceived rating in the Cohort 2015

Generic competencies	Cohort 2015	Cohort 2010	P value	
Problem solving Critical thinking Leadership Communication Interpersonal effectiveness	4.83±0.01 4.79±0.01 4.73±0.02 4.68±0.02 4.79+0.02	4.90±0.02 4.88±0.02 4.89±0.02 4.77±0.02 4.91+0.03	P<0.05 P<0.05 P<0.05 P<0.05 P<0.05	Table 2 The generic competencies that received lower perceived rating in the Cohort 2015

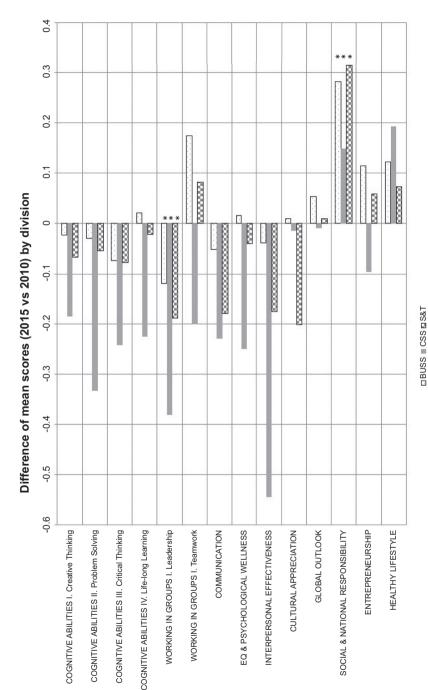


Figure 2.
Difference of mean scores of the 14 generic competencies among the two cohorts

\*p<0.05, compared between the two cohorts

The current academic structure aims to enable students to build a broader knowledge base and a more solid foundation for whole-person development and life-long learning. The concept of healthy lifestyle was embedded in the elective subject "Physical Education", area of physical development in OLE, area of Applied Science in ApL and Liberal Studies, which may account for 5-25 percent of their total learning time. Apart from that, the increased awareness of healthy lifestyle in the Hong Kong society particularly on the aspect of regular physical activities may also explain for the results. According to the statistics on behavioral risk factors from Centre for Health Protection et al. (2017) (Table 4), higher proportions of respondents did moderate and vigorous physical activities for 2 days or above per week and met the World Health Organization (WHO) recommendations for physical activity in 2016 when compared with 2010. It should be noted that the statement in our questionnaire, "I exercise for 20-30 minutes at least twice a week." was easier to achieve when compare with the recommendations from WHO i.e. at least 150 minutes of moderate-intensity physical activity throughout the week for adults aged 18-64 (Table 5). Based on PISA 2015 results (OECD, 2017), 64.7 percent of Hong Kong students reported that they exercised or practiced sports before or after school, which was lower than the OECD average (69.8 percent). The results of current study were promising but educators should continue to promote regular physical activity so as to catch up with other OECD countries.

In the new academic structure, the compulsory subject "Liberal Studies", "Other Learning Experiences" (OLE) and elective subject "Applied Learning" (ApL), which was equivalent to

Cohort 2010

Academic structure  Public examinations in secondary education	3+2+2+3 4-year higher form Two (HKCEE and HKALE)	One (HK	,		
Age to university Student development	One year older No formal curriculum		younger arning Experi	ences	<b>Table 3.</b> Differences between
Liberal Studies	Elective subject	Compuls	ory subject		the two cohorts
Year			2010	2016	Table 4.
% of respondents do vigorous physical activities for 2 days or above per week % of respondents do moderate physical activities for 2 days or above per week % of respondents walk for at least 10 minutes at a time everyday % of respondents meet the WHO recommendations for physical activity Source: Centre for Health Protection (2017).		oer week	24.9% 34.7% 67.4% 35.7%	30.9% 45.4% 71.9% 43.6%	Comparison of physical activity participation among Hong Kong people aged 18 to 64 years in 2010 and 2016

The two items under healthy lifestyle from the SAARD questionnaire:

WHO recommendation on physical activity for Adults (World Health Organization, 2019)

Cohort 2015

 I exercise for 20-30 minutes at least twice a week.
 I follow the advice about improving health mentioned on TV, the Internet, in newspapers, magazines, or other channels. Adults aged 18–64 should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or do at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate- and vigorous-intensity activity.

Table 5.
Comparison of the two
items under healthy
lifestyle and the WHO
recommendation on
physical activity for
adults

PAP 24,2	Subject/Learning Activity	Proportion
21,2	Chinese Language	12.5%
	English Language	12.5%
	Mathematics	10%
	Liberal Studies	15%
	Elective Subject 1	10%
188	Elective Subject 2	10%
	Enhancement and Remedial Measures (e.g. take up a third elective subject or	10%
	engage in enrichment courses)	
	Acquiring Other Learning Experiences (OLE), for example:	
	Physical Learning Experience	5%
	Aesthetic Learning Experience	5%
Table 6.	Moral and Civic Education	5%
The proposed time	Community Service / Job-Related Experiences	5%
allocation arrangement	Source: Adopted from Education Commission (2003b).	

around 55 percent of students' total learning time (Table 6), were promoted as broadening students' perspective and outlook, facilitating all-round development and nurturing positive values and attitudes. These subjects are claimed to help students to become more active, informed and responsible citizens, which might be the possible reasons for the higher scores of Global outlook, social and national responsibility and healthy lifestyle in the Cohort 2015.

Liberal Studies which include 6 modules and Independent Inquiry Studies aim to help students to "develop their critical thinking and independent learning and promote the broadening of their perspectives and knowledge" (Table 7). According to Lee *et al.* (2017b), among 192 local students interviewed, most students (21.4 percent) and teachers (21.2 percent) perceived Liberal Studies as the main channel among major curriculum areas to learn self-management skills which commonly include knowledge, intellect, willingness to learn, communication skills, teamwork and interpersonal skills. Students ranked Liberal Studies after Arts Education as the curriculum-based venues to promote student creativity based on another publication of Lee *et al.* (2017a). It showed that students also agreed that Liberal Studies helped them to develop generic skills. In general, the students were quite confident to their self-management skills. Thirty-two percent of the student's participants rated themselves a high achievement level and 56 percent rated themselves as moderate achievement level. According to the School Survey on Medium-term Review (2014/15) that

Areas of Study	Independent Enquiry Study (IES)	
Self and Personal Development Module 1: Personal Development and Interpersonal Relationships Society and Culture Module 2: Hong Kong Today Module 3: Modern China Module 4: Globalization Science, Technology and the Environment Module 5: Public Health Module 6: Energy Technology and the Environment	Students are required to conduct an IES making use of the knowledge and perspectives gained from the three Areas of Study and extending them to new issues or contexts.	
	oment Institute and Education Bureau (2011).	

**Table 7.** The Liberal Studies curriculum framework

cited by the Curriculum Development Council *et al.* (2015), over 90 percent of panel heads in schools agreed that students achieved the aims of Liberal Studies particularly "to enhance students' understanding of themselves, their society, their nation, the human world and the physical environment" upon completion of their secondary education. Nearly 90 percent of candidates got Level 2 or above in Liberal Studies every year. Despite the very satisfactory results from the above surveys, the perceived rating for critical thinking, communication, leadership and interpersonal effectiveness were lower in the Cohort 2015.

Liberal Studies should help students to develop these generic skills by flexible application of knowledge but not rote learning. Surprisingly, there were over 10 percent of senior secondary students taking private tutoring for Liberal Studies (Chan and Bray, 2014). The private tutoring focuses on formulaic approaches which include point-making systems and drilling on the articles digested and prepared by the tutor so that students do not need to research the topics themselves. In addition, some schools continue to adopt traditional modes of teaching method which asks students to learn through pen-and-paper note taking, one-way lecturing and memorizing the main points. The major drawback of it is that it promotes rote learning instead of analyzing, questioning and critiquing (Quong, 2011). Critical thinking is defined as "thinking about thinking" (Flavell, 1979). Teachers commonly focus on the content of the subject instead of the thinking process. Teachers in Hong Kong barely receive support from the Education Department about teaching thinking skills. It is hard to use standardizing curricula and test scores to address thinking skills in the classroom (Landsman and Gorski, 2007). The culture shift from examination focused to student centered learning are challenging to teachers and school leaders. The teachers have to adjust their teaching approach from the technical to the practical and critical. In the past, senior secondary teachers would have taught academically able students as only one-third of students would survive from the HKCEE. Currently, the teachers not only take care of the increasing proportion of weak students, but also the recruitment to reduce the pressure of closing school. Considering the dropping birth rate in Hong Kong, schools will continue to emphasize success in examinations to attract enrolments. Teachers have no choice but continue the directinstruction pedagogies to efficiently and objectively to help students to prepare for the examination. The private tutoring, the increasing workload of teachers together with the approach to deliver the Liberal Studies might undermine its effectiveness in achieving the learning goals (Chan and Bray, 2014).

The aims of OLE are to "cultivate students' positive values and attitudes for facilitating their whole-person development" (Curriculum Development Institute and Education Bureau, 2011). It accounts for 15 percent or above of the overall learning time. Based on the Curriculum Implementation Survey 2014/15 extracted by Curriculum Development Council et al. (2015), students agreed that OLE helped them get involved in the community, to adopt healthier lifestyles, encourage their creativity, and respect for plural values. Students believed that their understanding on local and national culture and their sense of citizenship had been enhanced. The subject also broadened their exposure on aesthetic and physical activities. It should be a crucial area to develop students' generic skills. On the other hand, there are concerns that the new curriculum is still examination-oriented which may sacrifice the time for whole-person development (Curriculum Development Council et al., 2015). Since DSE is a high-stakes examination and determining students' opportunities to college, schools and students might spend more time on core subjects at the expense of OLE as the OLE is not graded as the other core subjects. The importance of academic results is entrenched in our Asian culture and the parents commonly consider academic success as "successful life" (Tan, 2019). Students may just complete the assignment without actively engaging in the learning process. In what extent the students could achieve the aims of OLE is debatable.

Applied Learning courses are elective subjects in the new academic structure, which consisted of 5 areas of studies namely creative studies, media and communication, business,

management and law, services, applied science and engineering and production. The aims of ApL are to allow students to "learn the theories and concepts through application and practice, to develop generic skills and explore their orientation for continuing learning and career aspirations" (Curriculum Development Institute and Education Bureau, 2011). In 2014/ 15, over 70 percent schools offered Applied Learning and 90 percent students achieved "attained" or above between the year 2012-2015 (Curriculum Development Council et al., 2015). Based on the enrolment information and results, ApL was welcome by students and schools. However, it should be noted that only around 4,000 students i.e. 6-8 percent of day school candidates benefited each year and current study had not recorded the proportion of students that had taken ApL. Teachers' expertise, their track record in teaching senior classes, parents' comments and whether students need to travel to another school or centre influence students' choices of elective subjects. Among those factors, parents exert the most influence on their choice and parents rank academic success as more crucial factor. Students may need to forgo the subjects that they are interested in but take the subjects that they can achieve better results (Lee and Ho, 2018). The limited academic recognition and poor standing of ApL may hinder students' enrollment. Students can only get Level 3 as the maximum instead of 5 levels. There is considerable uncertainty whether universities would recognize ApL grades similarly as other academic subjects, Higher-achieving students would prefer studying other elective courses with higher grade to increase their chance to university (Bagnall and Lin, 2018). Therefore, the impact of ApL on this cohort of students would be insignificant.

Generic skills can be acquired inside and outside classroom learning. The associations between each generic skills and domain of knowledge is complex (Lee et al., 2017a). Students tend to link creativity and problem-solving skills to certain subjects and they found it difficult to transfer those acquired skills to other subjects and actual life problems. Participation of co-curricular activities and outside school activities help cultivate students' generic skills particularly creativity, problem solving and communication. Those experience unlike most subject-based activities seems transferable across life domains (Lee et al., 2017a). Siddiky (2020) suggested that students' participation in co-curricular activities significantly associated with their diverse personal skills and social skills. Taking leadership skills as an example, students perceived that leadership skills were associated with extracurricular activities more than subject learning in the formal curriculum (Lee et al., 2017b). However, the leadership training activities inside or outside school may not be sufficient and at large enough scale. Only minority of students could be trained, and most activities lacked sustainability. As the number of students studying Form 6 in the new structure is more than that in the old structure, the proportion of students received the related training opportunities should be reduced if the amount of such activities did not increase accordingly.

It seems that the believed dramatic change of the curriculum has not changed the examination culture in Hong Kong and cannot deal with the core issues to achieve the expected outcomes. According to the students interviewed by Chang (2018), they complained that DSE was highly emphasized in schools. The curriculum still focused on test-taking skills and teacher-centered. Students in Hong Kong are used to be spoon-fed by teachers in order to attain high marks in examination. Critical thinking, creativity, communication skills and practical judgments are not likely to be promoted in the current examination system (Wan and Cheng, 2019). The examination-oriented culture entrenched among parents and students which definitely put pressure on schools and teachers. Most parents in Hong Kong still believe that access to universities is equivalent to a well-paid career and a bright future. The local universities still heavily consider the examination scores as the main criteria for admission. Some institutions have played down other elements such as interview results, student learning portfolios and the weighting of Liberal Studies, Applied Learning, and Other

Learning Experiences (OLE) during admissions. The curriculum in Hong Kong is not engaging and lacking connection with students' everyday lives. Students found it hard to apply what they learnt in school to their daily life. The change of the curriculum seemed not to be directly addressing the needs of students and society instead just satisfying the demands of school administration or the Education Bureau (Chang, 2018). All these factors have discouraged secondary school students to explore and engage in non-academic learning experiences (Cheng et al., 2017).

## Conclusion

The differences of the generic competencies of the two cohorts may not purely attributable to the change of the academic structure. Students' experience on co-curricular activities and activities outside school do play important role of their generic skills. It is a good intention to have the education reform to cope with the rapid changes of the world, but Rome wasn't built in a day. The exam-oriented culture should be addressed in order to help schools, teachers and students to focus more on generic skills. A comprehensive assessment tool of generic skills should be developed to show the improvement of students. The universities should also consider criteria other than examination scores for admission. The study establishes a baseline for stage 1 students for continuous comparison and assessment of new students. The lower rating areas gave insights for the tertiary education sector to formulate policy on student development services to supplement the new academic structure as those qualities such as problem solving, critical thinking, leadership, communication and interpersonal effectiveness will also contribute to later readiness to work and job success. It emphasizes the roles of Student Affair Office and academic programmes in tertiary education.

Recently, the Education Bureau has announced measures to optimize the four senior secondary core subjects so as to release lesson time and enhance curriculum flexibility for creating space for students and cater for learner diversity (Education Bureau, 2021), Liberal Studies will be renamed Citizenship and Social Development. The curriculum content and lesson time will be reduced to about half of those of the original and the results reported will be either "attained" or "not attained" (Appendix). The Education Bureau underlining the importance of diversified learning experiences is good news for students so that students can free up some time on extra-curricular activities and OLE. The success of such intention depends on how the secondary schools, parents, students and the universities react to it. The Hong Kong Professional Teachers' Union concerned that students may need to take one more elective subject in order to fulfil the admission requirements of the three main universities in Hong Kong (Hong Kong Professional Teachers' Union, 2021). So far, only the Chinese University of Hong Kong has announced the minimum admission requirement for 2024 entry which is similar to the current requirement. As discussed, if the examination culture and the emphasis on examination scores have not changed, students may turn out allocate their time on subjects that help their entry to university instead of participating in activities to develop their generic skills.

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PAP 24.2 Appendix.

Comparison of current Liberal Studies and the newly renamed subject Citizenship and Social Development

	Liberal Studies	Cit	izenship and Social Development
Curriculum	Areas of Study Self and Personal Development Module 1: Personal Development and Interpersonal Relationships Society and Culture Module 2: Hong Kong Today Module 3: Modern China Module 4: Globalization Science, Technology and the Environment Module 5: Public Health Module 6: Energy Technology and the Environment Independent Enquiry Study (IES) Students are required to conduct an IES making use of the knowledge and perspectives gained from the three Areas of Study and extending them to new issues or contexts.	1. 2. 3. 4.	Opening-up Interconnectedness and Interdependence of the Contemporary World Chinese Culture and Modern Life
Time allocation	15%	·	7.5%
Exam Result	5 levels	At	tained or not

### About the authors

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