A MINDSET OF ENTREPRENEURSHIP FOR SUSTAINABILITY

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Abstract

This study focuses on exploring the elements needed for entrepreneurship education in the future for generating economic, social and environmental sustainability for the community and for developing future leaders through understanding the existing entrepreneurship related policies, programmes, modules and the perception of teenagers of entrepreneurship skills to realise the importance of a mindset of entrepreneurship and the ways of integrating multidisciplinary knowledge for developing entrepreneurship spirit to meet the challenges of the future. This topic has not been comprehensively explored in the past. After conducting quantitative analysis on 95 undergraduate students of a post-secondary institution in Hong Kong on entrepreneurship skills, the regression results presented in this paper found "entrepreneurship skills include implementation skill" can explain about 33percent of the change in the dependent variable of "sustainable skill sets include building a positive mindset". And, the mean scores of "entrepreneurship skills include creativity and risk-taking are the same as 4.02 out of a 5-point scale while "dislike handling paperwork with details", "dislike facing people I don't know" and "dislike being challenges" received the lowest scores of 2.6, 2.7 and 2.7 respectively. With regard to the qualitative analysis of existing entrepreneurship related programmes, it is found that business, management, finance and contemporary issues are the common elements in existing programmes of which the skills of creativity, risk-taking, socialization, handling details and challenges are lacking. When analysing the meeting notes of UNESCO, APEID in February, 2015 of nine countries (India, Pakistan, Sri Lanka, Indonesia, Malaysia, Philippines, China Hong Kong, Japan, and Republic of Korea), there is a trend on the importance of entrepreneurship and innovation mindset with three common concerns, that is, a lack of competent teachers teaching entrepreneurship programmes, a lack of industry exposure and a lack of government support. This paper highlights the key elements of future entrepreneurship related programmes for sustainability. Both educators and policy makers not only need to respond to the ecosystem of entrepreneurship education, but also need to co-produce relevant and meaningful entrepreneurship related modules and programmes which focus on soft skills development for building a positive mindset for handling challenges of the future.

Keywords: Entrepreneurship Education, Sustainability, Creativity, Risk-Taking, Co-Produce

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1. Introduction

Entrepreneurship education has been a hot issue in past few years in all parts of the world. United Nations Educational, Scientific, Cultural Organization (UNESCO), (Asia-Pacific Educational Innovations for Development (APEID) has been organizing a number of conferences and meetings to increase the awareness of re-visiting existing programmes and policies in relation to quality entrepreneurship education since 2011. Based on information released from UNESCO, APEID of an Economist Intelligence report (2014) that 81 percent of entrepreneurs interviewed mentioned that they had acquired more entrepreneurial skills through work experience rather than through education. The report also concluded that successful entrepreneurs could make use of education, but traditional teaching methods risk

undermining attitudes conducive to entrepreneurship. It is time to re-think and re-visit the elements to be put in place in entrepreneurship related programmes for helping teenagers who intend to start up their business or who believe entrepreneurship skills can be applied into the workplace to avoid the pitfalls.

Besides entrepreneurship education, academics and industry practitioners should understand the growing importance of sustainable development (SD) in higher education to generate economic, social and environmental impacts for community. Educators and industry practitioners who are involved in academic and adult training programme design need to demonstrate the rationale of programme design and make the it meaningful to the target learners and the community. Understanding the global and local environment and documents related to entrepreneurship education and sustainable

development are needed for programme design, implementation, monitoring and review process. Example documents are: 1) UNESCO documents on entrepreneurship education (EE) and sustainable development (SD) in higher education, 2) Government Policy Address of 2015, 3) manpower projection reports of Hong Kong government, and 4) Education Bureau (EDB) requirements on Qualification Framework (QF) levels about the programme learning outcomes, This is to correspond to the recommendations of Economist Intelligence Unit (2014) that policy choices and the cultural environment were needed to help aspiring entrepreneurs understand how they could avoid some of the many pitfalls of starting a business.

Moreover, on-going study on teenagers' knowledge, attitude, skills, value, their perception and their understanding of entrepreneurship and sustainable development are needed so as to increase the competency of learners who intend to run their businesses. In fact, entrepreneurship education not only prepares learners to run businesses, but also helps learners understand that there is a need to apply the spirit of entrepreneurship into the workplace for business success.

2. Objectives and Contributions

In recent years, entrepreneurship funding has been provided by the government. Many entrepreneurship and innovation related competitions have been held by different sectors, including the banking and finance industry; and a number of short term programmes with site visits have been organized by universities. There is a growing interest of teenagers and graduates from post-secondary institutions in becoming entrepreneurs; and the 70s / 80s have returned to the workforce as business or social entrepreneurs. However, entrepreneurship programmes in undergraduate level are lacking to help teenagers to develop a mindset of entrepreneurship for the workplace. This has created a dramatic need of educators who not only have industry but also possess solid entrepreneurship experience with a mindset of innovations and risk-taking to bring in positive economic returns, to help the community to expand socially via caring the needy and to implement environmental related measures into the business for sustainability. This triggers the author to re-visit the existing curriculum related to entrepreneurship education to develop the soft skills of entrepreneurship and investigate the true meaning of entrepreneurship education in relation to sustainability. In fact, the skills of 4Cs (critical thinking skill for solving problems, communication skill for understanding and communicating ideas, collaborating skill for working with others, and creating skill for producing high quality work) mentioned by Kivunja (2015) are needed for entrepreneurship education for sustainable

development in the future.

The purpose of this paper is to explore relevant government policy, including the policy address 2014, the manpower projection report 2018 of Hong Kong; and study the existing curriculum of three major entrepreneurship-related undergraduate programmes in Hong Kong to identify the major elements to fulfill the gaps between academics and industries in terms of developing talents in entrepreneurship education with relevant knowledge, skills, attitude and value for the future no matter they are future business / social entrepreneurs or they apply entrepreneurship spirit in the workplace for career success. It is expected that multi-disciplinary knowledge and skills through co-production are needed in entrepreneurship related programmes.

3. Contextualization of Entrepreneur Education in Hong Kong

In the Policy Address of the youth section, Chief Executive of the Hong Kong Special Administrative Region, on January 14, 2015 mentioned that partnership between business and schools needed to be strengthened to enhance students' understanding of different trades and preparation for their future employment through activities such as workplace orientation and visits, mentorship and career experience programmes. Moreover, a $300 million fund has been set up for Youth Development Fund to support innovative youth development activities which are not covered by existing schemes, including subsidy (in the form of matching fund) will be provided for NGOs to assist young people in starting their own business. Moreover, The Information Portal for Accredited Post-secondary Programmes (IPASS) and youth section under the Hong Kong government website provides information for young people about starting their own business, e.g. Youth Business Hong Kong provides financial access for business start-ups and business mentoring. Business executives and experts are invited to coach young business starters on the knowledge of business and right attitude to set up businesses.

When studying the Policy Address of Hong Kong, 2015, there are a few observations that are of importance when re-visiting the sustainable programme design, activities deployed and assessments used for the competency of learners in relation to the entrepreneurship education in the coming years. From a viewpoint of industry, it is found that the government is going to support creative and cultural industries for reaching a diversified workforce and helping teenagers to realize their talents. These industries include professional services, exhibition business, information technology, design and film production industries. Examples are:

"Sustained economic development will provide our young people with more and better employment opportunities and chances of upward mobility,

increase people's income, and enhance the Government's financial capacity in addressing problems relating to housing, poverty, ageing population and environmental protection. We must maintain Hong Kong's competitiveness in both the international and Mainland markets, and forestall any act that harms the investment and business environment. (para 6, 2015).

"Trading, financial services, shipping, tourism and professional services are Hong Kong's pillar industries. Apart from them, many emerging industries of a small scale but with great potential deserve the community's attention and government support. (para 17, 2015).

"In 2012, professional services contributed as much as 4.7% of our GDP, equivalent to the contribution of the whole tourism industry, and provided nearly 200 000 job opportunities. At present, through the Mainland and Hong Kong Closer Economic Partnership Arrangement, many professional services sectors can enjoy preferential access to the Mainland market. We will continue to foster the development of professional services.(para30, 2015).

"The Government has commissioned a consultancy study to assess the future demand for convention and exhibition facilities in Hong Kong, and will consider constructing a new convention centre above the Exhibition Station of the Sha Tin to Central Link around 2020"(para 38-40, 2015).

"On financial support, the Government's Innovation and Technology Fund (ITF) has provided about $8.9 billion for more than 4 200 projects. The funding scope of the ITF was expanded in mid-2014, providing stronger support for downstream R&D projects and our universities. Last September, we launched the Technology Start-up Support Scheme for Universities to encourage university students and teaching staff to start their own technology business and commercialise their R&D deliverables. I propose injecting $5 billion into the ITF and subsuming the Research and Development Cash Rebate Scheme under the Fund. The Government is also setting up an Enterprise Support Scheme to enhance our funding support for R&D projects of the private sector (para 45-46, 2015).

"Hong Kong's cultural and creative industries have grown at a rate faster than the overall economy in recent yreas. From 2005 to 2012, the value added of the cultural and creative industries increased rapidly ay an average annual rate of 9.4. We will continue to promote the development of Hong Kong's film industry through a four-pronged strategy. We will:

- Encourage more local film production;
- Nurture production talent;
- Promote film appreciation among students and young people to build up audiences; and
- Showcase and promote the brand of "Hong Kong Films" in the Mainland, Taiwan and

overseas markets, facilitate the participation of local films in international film festivals, and help drive Hong Kong's development as a film financing platform in Asia. (para. 53-56, 2015).

"Adequate and quality manpower resources are the key to our sustainable socio-economic development. Our labour force is expected to decline from around 2018. The Steering Committee on Population Policy (SCPP) put forward the policy objective of "developing and nurturing a population that will continuously support and drive Hong Kong's socio-economic development as Asia's world city, and engendering a socially inclusive and cohesive society that allows individuals to realise their potential, with a view to attaining quality life for all residents and families".(para. 135, 2015).

"We need to create diversified job opportunities with promising prospects for the younger generation on the one hand, and provide them with varied learning, training and development opportunities on the other hand." (para. 138,2015).

From a macro-level perspective, there are favorable policies supported from the Hong Kong government on nurturing young people to be entrepreneurs in the businesses sector and the creative industry sectors. Moreover, the Manpower Projection to 2018 of the Labor and Welfare Bureau, 2012 indicated that there would have an average annual change (2009-2015) in manpower requirements in education services (+4.4%), environmental industries (+4.3%), innovation and technology (+4.5%), and testing and certification services (+2.3%) among the six pillar industries in Hong Kong. In fact, there is a growing trend of young entrepreneurship in Hong Kong of which are related to these industries. According to information released by Hawksford Hong Kong on the latest research by the Hong Kong Trade Development Council (HKTDC) and Hong Kong Federation of Youth Groups that nearly 20% of Hong Kong's youth currently operated or planned to kick-start their own business venture in the near future. Furthermore, 6% of the 2,000 respondents (aged 18-35 years) who had been surveyed as part of the research study already owned and operated their own business while 11% of the respondents intended to start their own venture over the next three years. Hence, this paper is going to explore the perception of undergraduate students on skill development and the elements required for a sustainable curriculum for entrepreneurship related programmes in Hong Kong via comparing the curriculum of three major entrepreneurship-related undergraduate programmes in Kong Kong.

4. Knowledge-based Economy and Sustainable Development

According to the definition of Brundtland Commission (1992) of the United Nations,

"sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The basic element of sustainability is the economic aspect to support the business in short term, and support the new products, services, processes and people in the long term. In order to generate economic and social impacts via launching a meaningful and relevant programme to the community, the guiding six principles of UN Principles for Responsible Management (PRME) indicated below possibly shed some lights to educators in designing an entrepreneurship related programme with relevancy to learners. Principle 1, 2 and 5 are worth to be considered especially in the pedagogy used inside and beyond the classroom; and assessment methods to evaluate the competency of learners for taking up challenges in the future.

Principle 1. Purpose: We will develop the capabilities of students to be future generators of sustainable value for business and society at large and to work for an inclusive and sustainable global economy.

Principle 2. Values: We will incorporate into our academic activities and curricula the values of global social responsibility as portrayed in international initiatives such as the United Nations Global Compact

Principle 3. Method: We will create educational frameworks, materials, processes and environments that enable effective learning experiences for responsible leadership

Principle 4. Research: We will engage in conceptual and empirical research that advances our understanding about the role, dynamics, and impact of corporations in the creation of sustainable social, environmental and economic value.

Principle 5. Partnership: We will interact with managers of business corporations to extend our knowledge of their challenges in meeting social and environmental responsibilities and to explore jointly effective approaches to meeting these challenges

Principle 6. Dialogue: We will facilitate and support dialog and debate among educators, students, business, government, consumers, media, civil society organisations and other interested groups and stakeholders on critical issues related to global social responsibility and sustainability.

After considering the contexts of government policy on entrepreneurship education, a holistic way of understanding the trend of skill development is also a concern when closing the gap between what the learners can do and what the employers and the community expect them to do.

5. Trend of Curriculum Development and Skill Development

Education is to help learners to create their own knowledge. Gardner and Davis (2014) mentioned that the acquired knowledge and skills needed to be put into a broader context; related to other forms of knowledge and understanding; and serving as a product to further learning, with its initial romantic encounters." (p. 186) They also mentioned that new knowledge must be build on what had already been consolidated by earlier thoughtful individuals and groups.

Under an environment of globalization and technology explosion, it is hard to keep business sustained with customers, market and business retained and / or expanded. According to the study of Louw (2013, p. 56), UNESCO called for educational sustainable development in the coming 10 years with the four main goals identified in relation to education, that is, rethinking and revising education from nursery school to university to include a clear focus of current and future societies on the development of knowledge, skills, perspectives and values related to sustainability. Besides, Liddy et. al. (2008) highlighted that education for sustainable development was to facilitate the development of knowledge, skills and attitudes necessary to engage with global social and environmental challenges. Systemic, critical and creative thinking were seen as essential abilities to make decisions and judgements in favour of sustainable development (UNECE, 2005 quoted in Liddy et al., 2008, pp. 429) They also mentioned that active and participatory learning approaches were recognised as enhancing the development of the skills listed above to trigger deep-level learning. "However, the inclusion of such learning approaches in higher education is often seen as problematic and unsuitable for substantial student numbers or in large theatres. Furthermore, independent learning is often assumed as pre-existing ability in higher education students and therefore time it not assigned to developing these skills." (Laurillard, 2002 quoted in Lidday et al., 2008, pp. 429) They also mentioned that educators/ lecturers in higher education settings were employed due to their subject expertise, and were rarely expected to engage in education delivery training or methodology. This opens an improvement area in higher education for educators/ lecturer with more solid experience in utilising different approaches to the traditional didactic methods.

In the 17th International Conference on Teaching and Learning organized by UNESCO-APEID, Bajunid (2014) mentioned that any radical turning points in professional policy shifts required mid-set changes in teachers regarding their beliefs, assumptions, out the box thinking, time management, creativity, edupreneurship and wethanschaaung. "The emerging of basic literacies and new literacies demands continuous learning by teacher as perennial leaner." Bajunid (2014) also quoted the code of practice for quality assurance in public universities in Malaysia developed by the QA Department of the Malaysian Ministry of Higher Education (2008) that the key foci of programme quality were: conceptual

framework, knowledge, skills, content knowledge, pedagogical content knowledge, pedagogical and professional knowledge and skills, professional disposition and assumption system with evaluation, field experience and clinical practice, diversity, faculty qualifications, performance and development, unit governance and resources (p.6) Moreover, he highlighted that all programmes objectives should align with the following learning outcomes:

1. Knowledge;
2. Practical Skills;
3. Social Skills and Responsibilities;
4. Communication, Leadership and Team Skills;
5. Problem-solving and Scientific Skills;
6. Information Management and Life-long Learning Skills; and
7. Management and Entrepreneurship Skills.

For entrepreneurship education, it is not only to nurture future business and social entrepreneurs, but also help learners develop a mindset of entrepreneurs with creativity, problem-solving skills and communication skills which have been uncovered by scholars participating a meeting of entrepreneur education, UNESCO, APEID (2013). Scholars of the said meeting came from Cambodia, China, Hong Kong (SAR), Malaysia, Philippines, and the U.S.; and they further concluded that there were seven elements for a sustainable curriculum, including: environmental elements, life-long skills, transferable skills, cultural characteristics, elements of helping learners to learn new things, relevancy, and interesting. Yeung (2011) also mentioned that educators had been trying to make their overall performance more transparent through adopting different regional and international standards, in order to make the attributes of their students more explicit and to improve their institution's public recognition. With the growing importance of validation of institution's mission, quality of programmes and employability of students, educators need to re-visit the design of assessments to match the programme intended objectives, programme and module intended learning outcomes and ultimately the skills developed by students.

Tracing back to research on entrepreneurship education, different scholars put up different perspectives on the expectations on entrepreneurship education. For example, Chua mentioned in her paper of "Revitalizing Entrepreneurship" that government needed to support programs of Industrial Research Chair Scheme to assist industry and universities with research efforts in technology fields that were not yet developed in Hong Kong but for which there is good development potential and Teaching Company Scheme to foster university-industry partnerships by enabling local companies to hire graduates students from universities to assist in proprietary research and development work. In 2013, Yu mentioned that the sustainability and advancement of the TEC (The Teen

Entrepreneurship Competition) were closely related to advancing 'Character Building' at the individual level, advancing 'Partnership Building' at the institutional level, and advancing 'Social Responsibility' at the societal level. However, she highlighted that the "TEC might still overlooked an alignment with the existing curriculum development. A further capacity building of course development and policy making should be sought."(p. 705)

In 2012, Cheung conducted a study on the importance of entrepreneurship education and the impacts of new Business, Accounting and Financial Studies (BAFS) initiative on promoting entrepreneurship education in Hong Kong. He found that the key components for capacity building in schools were teacher knowledge, skill and disposition, professional communities, programmee coherence, technical resources, leadership. He recommended that teachers needed to work collaboratively and actively building professional, Learning communities for the sake of their own growing and student learning benefits." (p. 708) Moreover, Neupert et al. (2004) also put forward that entrepreneurship education and business plan competitions led to a stronger belief in one's entrepreneurial abilities.

Based on scholars' studies on sustainable development and entrepreneurship education of 2004 to 2014, it is identified that building a platform for learners to implement knowledge and skills learnt is crucial. Besides, education is a process of character building of both the teachers and learners for sustainable development. And, industry and university collaboration plays a definite role in the education process.

6. Future Skill Development - 4Cs and Transversal Skills

Our next generation is moving to seeking for instant and ready-made solutions for problems. This is a challenge for educators, especially in entrepreneurship education, as soft skill training involved with socialization skills and cultural awareness/ expression are seldom be found in the existing curriculum.

Development of relevant programmes and modules with higher order skills well relies on the linkage of timely, relevant and meaningful inputs with design process control for fit-for-purpose outputs. Sibbel (2009) mentioned that higher education curricula needed to offer experiences to develop graduate attributes of self-efficacy, capacity for effective advocacy and interdisciplinary collaboration, as well as raise awareness of social and moral responsibilities associated with professional practice. Back to 2005, Kitagawa emphasized that the role of universities in the knowledge society was examined in light of the emergence of new research and learning systems, conditioned by forces of both globalisation and regionalization. This historic legal change affects state-university relations in a number of distinctive

ways, for example, perceiving the new relationship in four principal dimensions: economy, human resources, governance and community. The impact of university-society relationship is a hot topic which needs to be further studied.

Kivunja (2015) promoted the use of 4Cs (critical thinking, communicating, collaborating and creative thinking skills) in skill development. In the aspect of developing creative thinking that is in great demand under the knowledge-based economy, he invented the use 5E lenses as below:

1. In Engagement Len:
   – "Students engage in inquisitive activities;
   – Respond to 'what if' type of questions;
   – Come up with an answer different to the one given;
   – Design your own questions for the class to answer; and
   – Work individually or ina team and use digital tools to compose a digital story." (Kivunja, p. 233)
2. In Exploration Len:
   – "Take time to reflect and come up with a new idea;
   – Come up with a different ooinion about what has been covered previously;
   – Use new urls to dinf new learning resources and use them to design something new; and
3. Create a curriculum-specific simulation that will encourage your peers to practice critical thinking." (Kivunja,p.233) In Explanation Len:
   – "Link past event to new learning occurrences;
   – Develop a hypothesis to be tested;
   – Come up with a new theory to replace an existing one;
   – Create a glossary of terms from the topic leaarnt and explain them to the class;
   – Compose a narrative and explain it; and
   – Use digital-imaging technology to create a graphic to be used in a digital presentation." (Kivunja, p. 234)
4. In Elaboration Len:
   – "Design and complete a rich learning task;
   – Telegraph new ideas;
   – Develop and use new terminology;
   – Try new skills;
   – Practice injury prevention in the playground at yr school by drawing up a few simple rules; and
   – Create a video documenting a community vent in which yr class or school participated." (Kivunja, p. 234).
5. In Evaluation Len:

– "Complete a SWOT Analysis of a new proposal for changes to a unit they are about to start;
– Use formative assessment to improve performance;
– Create a personal portfolio and assess each others' portfolio;
– Show links between unit completed and the next one;
– Complete open-ended assessment tasks;
– Use digital tools to analyze data and to evaluate a theory learnt; and
– Design a model of legal and ethical behaviours when using the internet." (p. 235).

Kivunja (2015) mentioned that the 4Cs and 5Es were a New Learning Paradigm that brought changes in learning, teaching, assessment and curriculum development to utilize skills for the 21st Century Skills, helping students develop skills for increased productivity, creativity, critical thinking, problem solving, communication and collaboration, not only while still at college but even more importantly, altering in their daily lives after graduation. (p. 235) However, the issue is how to put the 4Cs and 5Es into the curriculum of community development related programmes for learners to develop skills for the future as what Ryan et al. (2010) mentioned in their study that local and regional initiatives for profound change in higher education curricula through collaboration with external communities and stakeholders were need ed though considerable progress in Education for Sustainable Development (ESD) was found.

In 2010, Fisher realised that corporate sustainability and social responsibility were of utmost importance for the survival of organizations and their future generations of employees. "Organizations' product/ service offerings and vendor networks are interconnected globally and are being recognized on a global scale "

(P. 29) If educators can visualise the sustainable development goals of UNESCO, crystallize the manpower projection into curriculum design, can realise the ways of implementing 4Cs and 5Es into designing community development related programmes, the institution is working towards a sustainable organization for the benefit of learners, the industries, and the community as they can develop awareness of sustainability and social responsibility to their peers and influence students to learn in a sustainable way. Based on the literature of the above, the author has generated a model of sustainable curriculum for entrepreneurship education (see Figure 1.0).

7. Skill Development for New Generation to Develop in a Sustainable Way

Under globalization and technological explosion, the

learning mode has been changed significantly in the past few years. The emergence of different kinds of digital electronic devices and user-friendly software, for example, apps and QR code have also make the learning process and assessment methods more playful to the learners. Young people like to use apps in their daily life, no matter the apps are for socialization or for learning purpose.

Recently, UNESCO and United Nations (UN) Global Compact) PRME have promoted the concept of Sustainable Development (SD), Education for Sustainable Development (ESD) and transversal (non-cognitive) skills. Djordevic and Cotton (2011) mentioned that there were difficulties with regard to communicating messages about sustainability successfully even though there was a growing awareness in national and international policies of the need to integrate sustainability into both business and educational arenas." (p. 381)

"Education for sustainability development (ESD) is an issue of increasing importance in HE, steadily infusing the campus , curriculum, community and culture of many institutions (Dyer et al., 2006 in Djordjevic and Cotton, 2011).

According to UNESCO, ESD is "a process of learning how to make decisions that consider the long-term future of the economy, ecology and equity of all communities" (UNESCO, 2004 in *Djordjevic and Cotton, 2011). From an* institutional level, sustainability has the potential to become 'a gateway to a different view of curriculum, of pedagogy, of organizational change, of policy and particularly to ethos" (Sterling, 2004, p.50 in *Djordjevic and Cotton, 2011).* In fact, ESD involves campus changes, curriculum development and pedagogic reform. Specific changes which have been made in successful sustainable universities include: teaching and learning and research policies with sustainability as a key theme; changes to core processes such as course validation and monitoring to enhance sustainability content; sustainable procurement offices to manage the institution's day to day business; and campaigns to change behaviours of staff and students regarding electricity, paper use ad recycling." (p. 381-381)

"Sender and receiver do not share the same understanding about the meaning or value of sustainability, meaning that the recipient will not act on the communication. Perceptions of the ESD unit in some cases reduced the impact of messages, as did the perceived lack of institutional support." (p. 391).

In 2013, Ryan and Tilbury also mentioned that ESD in the higher education curriculum was well recognized in international sustainable development dialogues. However, early pioneers in this area met with substantial obstacles and now faced the prospect of attempting systemic education change in a new and difficult sector climate." (p. 272) They also highlighted that "ESD movement was a commitment to rethink the purposes of education and to reorient curriculum frameworks and pedagogical practice.

Ultimately, it sought to shift education paradigms and extended learning opportunities so that people could contribute to more sustainable futures." They recommended embedding a deeper reflection element in the teaching and learning process to make ESD a viable education proposition, as well as the potential transfer to other parts of the education and skills sector. (Ryan and Tilbury, 2013, p. 272)

Howard and Katie (2014) mentioned the new generation was called the "App Generation" who seeks for identity, intimacy, and imagination. They also concluded that because of the breadth and the accessibility of apps inculcated an app consciousness, an app worldwide: the idea that there were defined ways to achieve whatever we wanted to achieve, if we were fortunate enough to have the right ensemble of apps, and, at a more macroscopic level, access to the 'super-app' for living a certain life, presented to the rest of the world in a certain way. " (p. 160)

"With respect to identity formation : Apps can short-circuit identity formation, pushing you into being someone else's evatar (that of your parents, your friends, or one formulated by some app producer) – or, by foregrounding various options, they can allow you to approach identity formation more deliberately, holistically, thoughtfully. You may end up with a stronger and more powerful identity, or you may succumb to a prepackaged identity or to endless role diffusion." (Howard and Katie, 2014, p. 32).

"With respect to intimacy: Apps can facilitate superficial ties, discourage face-to-face confrontations and interactions, suggest that all human relations can be classified if not predetermined in advance – or they can expose you to a much wider-world, provide novel ways of relating to people, while not preventing you from shutting off the devices as warranted – and that puts you in charge of the APPS rather than vice versa. You may end up with deeper and longer-lasting, relations to others, or with a superficial stance better described as cool, isolated, or transactional." (Howard and Katie, 2014, p. 33).

"With respect to imagination: Apps can make you lazy, discourage the development of new skills, limit you to mimicry or tiny trivial tweaks or tweets – or they can open up whole new worlds for imagining, creating, producing, remixing, even forging new identities and enabling rich forms of intimacy." (Howard and Katie, 2014, p. 33).

As a result, curriculum designers and teachers need to how to modify the existing curriculum, in-class / outside the classroom/ and extra-curricular activities to embed with the characteristics of "App Generation" with entrepreneurship and innovation across multiple disciplines to foster a mindset of creativity innovation, a mindset of responsibility, a mindset of protecting privacy, a mindset of cultural awareness and expression through increasing their exposure to the real world and creating a business-like platform for exchanging dialogue among peers and people at different age groups and cultural

background.

Pinho et al (2015) conducted a study on analyzing and assessing the perceptions of freshman students recent graduating from high school had towards their adaptation in college, as well as comprehending how this process of transition from high school to college occurred. They found out that the aspects related to teaching, didacticism, and relationship with professors was important to the adaptation process and these three aspects were from interdependent categories. They recommended to have diverse activities and policies to support personal growth opportunities as "the university environment was, at first, considered potentially threatening for the college students, however, the subjects showed no signs of mala-adjustment" (p. 162). In the pedagogic perspective, Schoenherr (2015) mentioned that Service-learning (SL) is an approach to engage students in applying course content to execute projects in non-profit making organization for the benefits of creating value and experiences to students and benefits for participating organizations. (2015, p. 45)

Apart from Service-learning, Jaganathan et al. (2014) also mentioned there was a growing importance in Transversal Skills (TS) in the 21st century as "transversal competence could enable graduates to be better prepared and to engage in the interconnected workforce. Digital competence; social and civic competence as well as cultural sensitivity and expressions were the core skills seen as flexible traits of competent graduates. " (2014, p.1) They mentioned that "trans-disciplinary approach reflected the ability of the higher learning institution to keep up to current trends to transform, rebrand, and remodel their teaching and learning approach for further refinement in producing capable graduates. Many higher learning institutions also had customized the trans-disciplinary educational framework according to their needs and requirements to produce relevant programmes. "(2014, p. 2) Hence, it is time to re-think the ways of delivering entrepreneurship related education to learners with transversal skills of language, cultural awareness, digitalization and socialization. Based on the above literature, Figure 1 – a conceptual framework of sustainable curriculum of entrepreneurship education has then been derived.

Figure 1. Model of Sustainable Curriculum for Entrepreneurship Education (EE) with 4Cs and Transversal Skill Development for Economic, Social and Environmental Impacts
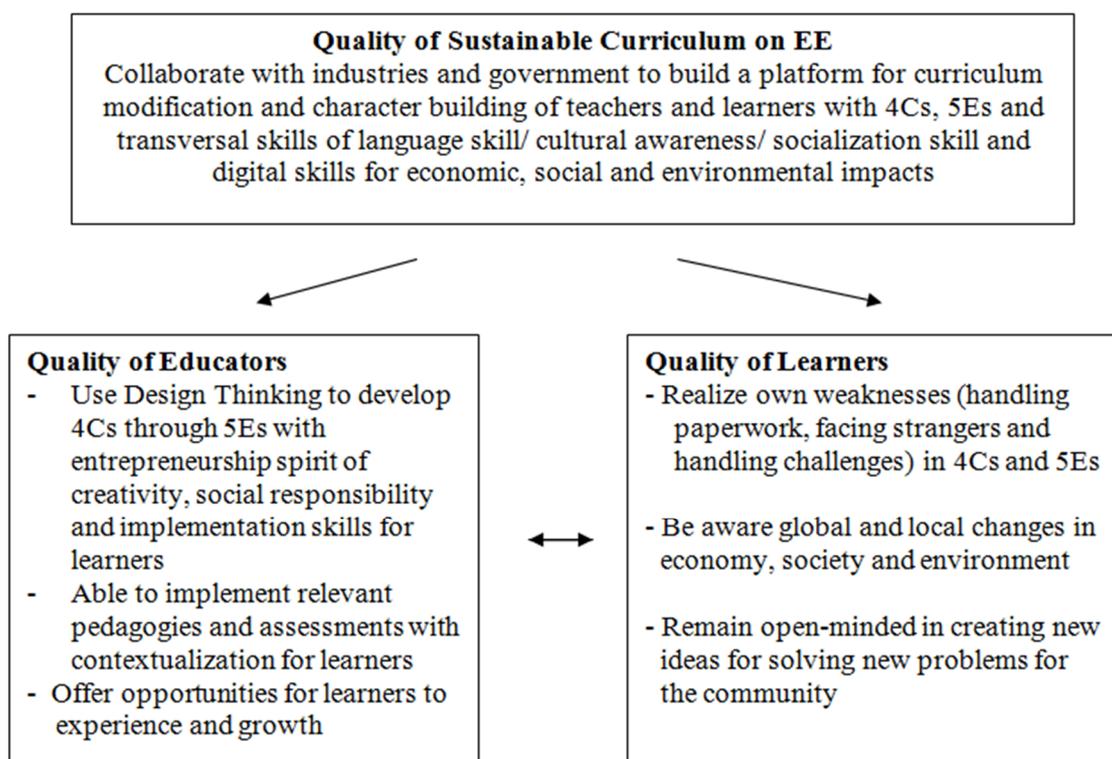
8. The Study – Content Analysis, Quantitative Analysis and Participative Observation

Textual messages are data for conducting content analysis during the process of grounded theory that helps us to induce a concept for generalization and future prediction. From the following quotation, we can realize that content analysis is a technique to enable researcher to study human behaviour in an

indirect way. It is analysis of written contents drawn from a certain kind of communication paper, like textbooks, essays and articles from newspapers. Through analysing these written works of people, the researcher can understand the behaviour of people and organizational patterns.

Communication is to send textual messages - verbal and non-verbal for co-ordinating, integrating, controlling and persuading purposes. Hence, textual messages are tools for persuading people's minds to accept ideas. Organizational behaviour is to understand, predict and control others' behaviour. Management is to manage resources within an organization for achieving organizational goals. These three principles – business communication, organization behaviour and business management bear an inter-related relationship as follows:

– Infer attitudes, values and cultural patterns in different countries or organizations;
– Gain ideas of how organizations are perceived;
– See the trend of certain practices; and
– Differentiate practices among certain groups of people.

"Content analysis as a methodology is often used in conjunction with other methods, in particular historical and ethnographical research. It can be used in any context in which the researcher desires a means of systematizing and quantifying data. It is extremely valuable in analyzing observation and interview data." (Fraenkel & Wallen, 2003 : 482).

Content analysis is a systematic and objective analysis of selected text characteristics. This includes counting the number, frequency of words, finding out the characteristics of themes, characters, building relationship among items, paragraphs, finally establishing meaningful concept. It is not simply a quantitative research method but also a qualitative one as the purpose of the writing is also reflected through the analysis.

In this research, the author built relationship of concepts on sustainable development, curriculum design and skill development in entrepreneurship education in higher education for closing the gaps of existing entrepreneurship related programmes with the skills required in the future.

There are two levels of content analysis - describing fundamental inherent characteristics of messages and applying characteristics into related areas. The former one is objective as collected data are facts while the latter one is subjective as it is derived from researchers' point of view and personal life experience. When handling content analysis of this research, the author bears the research objectives in her mind:

Research Questions:
1) What are the present curriculum features of entrepreneurship related programmes in Hong Kong?
2) What is the perception of undergraduate learners on skill development?
3) What are the elements needed for sustainable

curriculum of entrepreneurship education?

After describing the characteristics of content analysis of the above, its advantages can be summarized as follows:

– No people are involved;
– No experiments are required;
– Cost is minimal; and
– Texts found within a certain period of time in the past can reflect social phenomenon.

However, researchers shall also realize that content analysis may have limitations in the availability of texts. Moreover, they may be subjective when interpreting the selected texts. As a result, they cannot demonstrate the cause and effect relationship within selected texts explicitly. When interpreting or making inference of documents received, researches should follow the ideas of Babbie (2001). That is to:

– Trace the person or authority composing the documents;
– Think about the reasons behind of having the existence of the documents;
– Find out the ways of acquiring the information contained in the documents;
– Investigate the magnitude of biases in the documents;
– Identify the main categories and concepts brought up by the writer; and
– Internalize the theories that the documents have demonstrated.

8.1 Findings – Content Analysis

Based on the content analysis, the author has collected qualitative data through the following three steps to identify the key elements for elements required for future entrepreneurship education:

Step I: Compare three major undergraduate entrepreneurship related programmes in Hong Kong;

Step II: Analyse the perception of skill development of learners studying senior year of an undergraduate programme in Hong Kong;

Step III: Identify elements needed for a sustainable curriculum for the entrepreneurship related programmes.

Research Question (1): What are the present curriculum features of entrepreneurship education related programmes in Hong Kong?

Table 1 demonstrates that the uniqueness of the three selected entrepreneurship related programmes in Hong Kong, focusing on business, management, entrepreneurship issues and soft skill elements in different perspectives with site visits to understand the business environment and professional industry practices. However, *financial and technology related modules* are not covered comprehensively to cater the changing needs of the community under digitization. And, the kinds of *soft skills training* need to match closely with the expectations of employers and the community.

Table 1. Curriculum of Entrepreneurship-related Programmes offered by Universities, Hong Kong

Modules	University A (Entrepreneurship Leadership Progamme)	University B (Entrepreneurship Programme)	University C (Bachelor of Science)
Management related concepts & theories e.g. Team management	X	X	X
Business related concepts & concepts e.g. Business Plan Marketing Position Sales and Marketing	X	X	X
Contemporary Issues in Entrepreneurship e.g. innovation sustainability partnership	X	X	X
Soft Skills Development e.g. problem solving skills diagnosis skills in understanding organization development	X	X	X
Finance related concepts & theories e.g. investment risk management budgeting	**NA**	**NA**	X
Technology-related applications e.g. technology in product / service design	**NA**	**NA**	X
Site Visit for Environment Study e.g. Business environment characteristics Social innovations	X	X	X
Uniqueness of Programmes	Knowledge of Business, Management, entrepreneurship and soft skills are covered with site visit	Knowledge of Business, Management, entrepreneurship and soft skills are covered with site visit	Knowledge of Business and Management, plus finance and technology related concepts are covered with technology and site visit

8.2 Quantitative Analysis – Questionnaire on Skill Development

Drawing upon the literatures on skill development, sustainable development and entrepreneurship education, the researcher designed a survey to gather opinions on the perception of students on their values, on their skill sets, on entrepreneurship skills and on sustainable skill sets. The survey was administered to participants in a post-secondary institution in Hong Kong (N=95) in March, 2015. The focus was on reaching respondents who intended to seek for internship placements in their senior year of studying a undergraduate programme, so a convenience sampling method was used. The questions in the questionnaire were structured to encourage respondents to reflect on their perception on skill development.

A questionnaire was designed with a total of 28 questions, with 11questions on perception of values, measuring the likes and dislikes of learners of respondents, eight questions on perception of skill

sets, measuring how good of the skill sets that respondents perceive, and six questions on perception of entrepreneurship skills, which asked respondents how they think about the elements of making entrepreneurship skills, and the last part with three items on perception of sustainable skills, which asked respondents how they think about the elements of sustainable skills. Here are some examples of the dimensions and the associated survey questions:

Perception on Values (a total of 11 questions)
  – "I like to have freedom to choose"
  – "'I like using technology for interactions."
  – "I like sharing through the use of social media."
  – "I dislike being challenged."
  – "I dislike being isolated."
  – "I dislike facing people I don't know."

Perception on Skill Sets (a total of 8 questions)
  – "My communication skill is good to facilitate interaction."
  – "My critical thinking skill is good to identify the key areas of concerns for discussion."
  – "My creativity is good to have innovations for others to implement."

Perception on Entrepreneurship Skills (a total of 6 questions)
  – "I think entrepreneurship skills can be learnt from taking modules of a programme."
  – "I think entrepreneurship skills can be applied into the workplace."
  – "I think entrepreneurship skills include creativity."

Perception on Sustainability Skills (a total of 3 questions)
  – "I think sustainable skill sets include building a positive mindset."
  – "I think sustainable skill sets include learning how to see the problems with consequences."

  – "I think sustainable skill sets include accommodating people with different backgrounds for partnership."

8.2.1 Participants

The population of the study consisted of students with experience in taking business and supply chain management related modules from a higher education institution in Hong Kong. The participants provided data on their perceived values and skill sets. The response rate is eighty-four percent of respondents (N=95) with 113 questionnaires distributed.

Research Question (2): What is the perception of undergraduate learners on skill development?

Table 2 (descriptive statistics) shows the statements with the highest mean scores over 4.0 on a 5-point scale. The four statements that most respondents agreed with on the dimensions of "Values" and "Entrepreneurship Skills" are:
  – I like to have freedom to choose;
  – I like instant responses from peers;
  – I think entrepreneurship skills include creativity; and
  – I think entrepreneurship skills include risk-taking.

For the statements receiving lowest scores are found in the dimension of "Values", ranging between 2.6 to 2.7 on a 5-point scale. They are:
  – I dislike handling paperwork with details;
  – I dislike facing people I don't know; and
  – I dislike being challenged.

In general, the perception of skill sets respondents perceived falls in the range of 3.6 to 3.8 on a 5-point scale. The statement with the highest score is on:

"My critical thinking skill is good to identify the key areas of concerns for discussion."

Table 2. Descriptive Statistics

	N	Mean	Std. Deviation
I like to have freedom to choose.	93	**4.2043**	.78794
I like using technology for interactions.	93	3.7097	.78824
I like sharing through the use of social media.	95	3.5684	.87096
I like to create my own identity.	92	3.9239	.65017
I like instant response from peers.	94	**4.0213**	.67168
I like to handle things with diversity.	94	3.9787	.70297
I like to handle work in a visual way rather than paper-based.	95	3.7474	.78508
I dislike being challenged.	93	*2.7097*	1.08928
I dislike being isolated.	92	3.7065	1.17237
I dislike facing people I don't know.	94	*2.6915*	1.06787
I dislike handling paperwork with details.	92	*2.6413*	.88431
My communication skill is good to facilitate interaction.	95	3.7053	.72748
My critical thinking skill is good to identify the key areas of concerns for discussion.	95	3.8000	.62908
My creativity is good to have innovations for others to implement.	95	3.5684	.84618
My engagement skill is good to keep others' attention.	95	3.6316	.68499

My exploration skill is good to find out something of my interest.	94	3.7447	.65478
My explanation skill is good to help others understand the details.	94	3.7553	.72862
My elaboration skill is good to let others know the sequence of events in a logical way.	95	3.7158	.69440
My evaluation skill is good to assess issues from different angles.	95	3.6421	.69826
I think entrepreneurship skills can be learnt from taking modules of a programme.	92	3.4674	.88269
I think entrepreneurship skills can be applied into the workplace.	94	3.8085	.73728
I think entrepreneurship skills include creativity.	95	**4.0211**	.77155
I think entrepreneurship skills include risk-taking.	95	**4.0211**	.77155
I think entrepreneurship skills include implementation skill.	95	3.9895	.75081
I think entrepreneurship skills include social responsibility.	95	3.9474	.81695
I think sustainable skill sets include building a positive mindset.	95	3.9684	.69117
I think sustainable skill sets include learning how to see the problems with consequences.	95	3.9263	.65626
I think sustainable skill sets include accommodating people with different backgrounds for partnership.	95	3.9053	.63704
I like to be a business entrepreneur for generating economic impacts in the future, e.g. identify new target customer groups with new products.	95	3.7474	.78508
I like to be a social entrepreneur for generating social impacts in the future, e.g. identify social issues with possible solutions to influence others.	95	3.7684	.75021
Valid N (listwise)	81		

8.2.2 Reliability of Four Dimensions

The Cronbach's alphas for the whole scale and four sub-scales are above 0.7, indicating that there is high internal consistency in the scales.

Table 3. Cronbach's Alpha

Scale	No. of Items	Cronbach's Alpha
A) Perception of Values	11	.563
B) Perception of Skill Sets	8	.861
C) Perception of Entrepreneurship Skills	6	.834
D) Perception of Sustainable Skills	3	.806
Overall	19	.783

Regression Analysis – "I think entrepreneurship skill sets include building a positive mindset".

When separating out the dependent variable: "I think sustainable skill sets include building a positive mindset", it was found that the adjusted R^2 is .326 for the independent variable: "I think entrepreneurship skills include implementation skill." This explains 32.60% of the change in the dependent variable.

Table 4. Regression Analysis

	B	Std. Error	P
Constant	1.658	.341	.000
I think entrepreneurship skills include implementation skill	.390	.095	.000

Method: Stepwise
Dependent variable: I think sustainable skill sets include building a positive mindset.
Independent variable:
"I think entrepreneurship skills include implementation skill"

The adjusted *R^2 is .326* which indicates that one predictor variable can explain 32.60% of the change in the dependent variable.

Table 5. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.583[b]	.340	.326	.56758

Predictors: (Constant), I think entrepreneurship skills include implementation skill."

Research Question (2): What is the perception of undergraduate learners on skill development?

From the above mean and regression analysis of 95 respondents, it is found that respondents like freedom to choose and instant response from peers while they dislike handling paperwork with details, facing people they don't like and being challenged. They perceive their skill sets are above average and they have a basic understanding of entrepreneurship skills and sustainable skill sets.

8.3 Findings - Participative Observation of UNESCO, APEID Meeting

Following the 15th UNESCO-APEID International Conference on Creativity and Entrepreneurship in Jakarta, Indonesia in December, 2011 and meetings on entrepreneurship education in Hangzhou and Malaysia were held in 2012 and 2013 respectively. Based on the experience of the author in discussion with members from nine countries in the meeting held in Malaysia, December, 2013, a summary of findings on sustainable curriculum and issues of entrepreneurship education have been drawn as below:

According to nine members of the countries of Cambodia, China, Hong Kong, Malaysia, Philippines, and the U.S, "Sustainable Curriculum" shall have the following attributes:

1) Environmental elements;
2) Transferable skills;
3) Life-longing skills for survival;
4) Cross-cultural characteristics;
5) Elements of helping students develop abilities to learn new things;
6) Relevancy; and
7) Interesting.

Besides, all members agreed that sustainable curriculum can serve the purpose of:

1) Increasing students' employability;
2) Enhancing students' creativity;
3) Widening the knowledge of students with a multi-disciplinary mindset for employability;
4) Increase students' employability via system thinking;
5) Enhance students' creativity for employability via conceptualizing ideas;
6) Increasing empathy of students in respect to fulfill customers' requirements for employability via quality thinking; and
7) Increasing students' employability via relevant internship placement.

Furthermore, when analyzing the meeting notes of UNESCO, APEID in February, 2015 of nine countries (India, Pakistan, Sri Lanka, Indonesia, Malaysia, Philippines, China Hong Kong, Japan, and Republic of Korea), there is a trend on the importance of entrepreneurship and innovation mindset with three

common concerns. They are:

1) A lack of competent teachers teaching entrepreneurship programmes;
2) A lack of industry exposure; and
3) A lack of government support.

Research Questions (3): What are the elements needed for sustainable curriculum of entrepreneurship education?

Based on the content analysis on entrepreneurship related curriculum, quantitative analysis on skill development and participative observation on entrepreneurship education meetings of UNESCO, APEID, the author has drawn a comprehensive summary for t he future of entrepreneurship education in Table 6 to highlight the key elements of future entrepreneurship related programmes for sustainability.

9. Conclusions

Research on sustainable development, entrepreneurship education, and skill development suggest that sustainable entrepreneurship related programmes are beneficial to students in terms of building creativity, innovations, a mindset of positive thinking and enhancing their transversal competence. And, it is also beneficial to teachers and the community in terms of strengthening teachers' continual improvement and community economic and social development.

Hence, educators who are responsible for designing and delivering entrepreneurship related programmes and modules should:

- Collect relevant information before designing a programme or a module, for example, to understand the needs and expectations, values and perceptions of skill development of students, so as to provide a relevant and sustainable curriculum;
- Review, verify and validate module materials, including the provision of tangibles, to support students' learning;
- Change teaching pedagogy with industry practices, site visits with a diversified group of peers for engagement and support so as to develop transversal skills;
- Consider the needs of stakeholders in society, especially skills required by employers and manpower policy of the government, when designing, reviewing and changing the curriculum; and
- Obtain statistical results to measure learners' transversal skills and learning outcomes as a basis for judging the relevancy of programme or a module.

Table 6. Summary of Findings

Content Analysis of Entrepreneurship Education, Hong Kong	Quantitative Analysis of Questionnaire on Skill Development, Hong Kong	Participative Observation of Meetings with UNESCO, APEID (2013-2015)	Considerations for Future Entrepreneurship Education
Knowledge of : Business Management **Finance Technology related** concepts Site visits of industries with contemporary entrepreneurship issues	The highest mean scores over 4.0 on a 5-point scale. The four statements that most respondents agreed with on the dimensions of "Values" and "Entrepreneurship Skills" are: – I like to have freedom to choose; – I like instant responses from peers; – I think entrepreneurship skills include creativity; and – I think entrepreneurship skills include risk-taking.	Elements of Sustainable Curriculum are: 1) Environmental elements; 2) Transferable skills; 3) Life-longing skills for survival; 4) Cross-cultural characteristics; 5) Elements of helping students develop abilities to learn new things; 6) Relevancy; and 7) Interesting.	1) Curriculum design with academic concepts and theories and relevant practical industry experience/ practice 2) Pedagogic activities with respect learners' choices and engagement of peers to support learning 3) Learning and teaching activities and assessments with entrepreneurship spirit of creativity and risk-taking, system thinking and quality thinking 4) Understanding the perception of learners in removing the fear of handling paper works. facing people of a diversified background and thinking and helping how to overcome challenges that may come across n their future lives 5) Establishment of a competent teaching team with industry exposure and understanding how to make the curriculum relevant, interesting and help learners to transfer skills learnt from school to the workplace 6) Maintain on-going dialogue with the government for financial and policy support
	For the statements receiving lowest scores are found in the dimension of "Values", ranging between 2.6 to 2.7 on a 5-point scale. They are: - I dislike handling paperwork with details; - I dislike facing people I don't know; and - I dislike being challenged.	Important elements for innovation and entrepreneurship education are: 1) Competent teachers teaching entrepreneurship programmes; 2) Industry exposure; and 3) Government support.	

If educational institutions realize the interaction of the present situation of entrepreneurship education and the global economic development, they will offer more opportunities for communication with the government, the academics, the industries and the learners for re-visiting the programmes. It is believed that considering the needs of stakeholders, the competency of teachers and the relevancy of government policy can help ensure that the programme or a module can be sustainable.

The present study has some limitations. The results reported are based on small samples taken from Hong Kong only, so cannot claim to be representative of such institutions. Additionally, cultural differences, and variations in curriculum design and delivery, would probably give rise to different results in different locations, a possibility which is worth checking through further research.

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