

Building Five Minds for the Future in the
21st century school education: using group discussion as
an entry point

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Introduction

This article has a theoretical intent and a practical intent. The theoretical intent is to review trends and conceptualize the outcomes of citizenship development in the 21st century in school education. The reality in schools is looked through a window: group discussion in the classroom. The practical intent is to present an analysis of a school system and suggest a way of integrating group discussion into the 21st century school curriculum.

Knowledge and skills for 21st century citizenship development

At the turn of the century, 21st century citizenship became the catchword in all professions, in academic and non academic fields, in governments and non government organizations. Changes of technology and economics bring changes of meaning of knowledge and needs for skills. A group of New Zealand researchers made the following succinct remarks on 'knowledge age':

'The Knowledge Age (*21st century*) is a new, advanced form of capitalism in which knowledge and ideas are the main source of economic growth ... New patterns of work and new business practices have developed, and, as a result, new kinds of workers, with new and different skills, are required.'

(New Zealand Council for Educational Research,
http://www.shiftingthinking.org/?page_id=58
accessed 19 Dec 2014)

To keep breast of the new age, people need to have new skills and knowledge. Dede (2010) points out that knowledge is not from the single best source, but from multi model and multi-faceted perspectives. Similarly, people valued some skills for their needs in career and life in the new century. However, in progressive approaches to education, no country will share the same set of goals and rationales for their education policy and system and there are 3 stages of approaches:

1. Child development: Education enables individuals to develop their potentials, construct knowledge and enhance personal quality. The emphasis of education is to ensure the younger generation to reach world-class standards, acquire higher-level skills and develop the wider personal skills, characteristics and attitudes they need to succeed. The schools should provide excellent personalised education and development.
2. Reconstruction: The preparation for future citizens as agents of social change and social justice. The emphasis of education is to ensure the younger generation can develop and improve civic learning as part of a well-rounded education and the

country's democratic ideals remain a model for the world.⁽¹⁾

3. Social efficiency: Preparing workers who can contribute to the efficient and smooth running of society. The emphasis of education is to ensure the younger generation meet the challenges in the knowledge based and globalized economy.

The above classification and the examples are not meant to be arbitrary and does not imply that any government emphasis in rational for education (e.g. Social efficiency) means the country or city has moved beyond the child development stage of progressivism. Some governments valued personalized education or national value of democracy, while some focused on sharpening their competitive edge in the global economy.

Owing to globalization in socio-economic structure, since 2000, many governments across the globe also share preferences on knowledge and skills to be developed by their people. Below is a summary of skills and knowledge expressed in the official education documents of five governments⁽²⁾:

- Subject knowledge
- Able to research in-depth
- Bilingual proficiency
- Civic knowledge and democratic participation
- Creativity and innovation
- Critical and analytic thinking
- Digital literacy skills
- Ethics
- Learn and work independently
- Problem solving skills
- Team working
- World awareness

Whereas this composite of skills and knowledge are grouped from different countries and cities, they do have a universal value and are universally applicable. They are important for people in the world to live well, learn well, work and get along with others well. It is also necessary to conceive a vision in relation to 21st century citizenship development. Parents embrace expectations on their children (e.g. I want my son to be a doctor, to be a responsible father). So what visionary profile should people have when they gradually master the knowledge and skills? A useful proposal is given by Howard Gardner (2007, 2010). He initiates 'five minds for the future' to achieve 'the essential goals in a world where diversity of perspectives is a fact of life'.⁽³⁾ Among the five minds, three are related to intellect: the disciplined, synthesizing and creative minds; and two emphasize character: the respectful and ethical minds.

- *The discipline mind*- Students should master information within the major disciplines, like History and Math.
- *The synthesizing mind* - Students with knowledge within a discipline must be able to sort out what is important and what is not from the massive amount of available information. A synthesizer makes sense of learning and sees the big picture then secures adequate details and arranges them in useful ways.
- *The creating mind*- Creating too much discipline or excessive synthesizing may prove counter-productive for the aspiring creator. But the originality of synthesizing must be noted. It gains power when it provides a sense of meaning, significance and connectedness.
- *The respectful mind* - In earlier eras, people only met a few hundred people in the course of their lifetime. Today, people may interact and encounter thousands of people through digital and visual media. A person possessing the respectful mind welcomes exposure to diverse persons and groups. A truly cosmopolitan individual gives others the benefit of the doubt, displays initial trust, tries to form links, and avoid prejudicial Judgment
- *The ethical mind*-The ethical mind steps back from ourselves as a person with this mind can think of himself /herself abstractly- what will the world be like if all workers in my profession took the stance I have.

Although Gardner’s five minds for the future are proposed in the American context, the minds can be regarded as a set of universal citizen attributes which are applicable in some other cultures who wish to foster 21st century skills in citizenship. Therefore, the five minds for the future may be nurtured by acquiring relevant 21st century knowledge and skills as follows:

Table 1: Five minds for the future and 21st century citizenship

Howard Gardner : Five Minds for the Future	Approximation to some 21 st century skills for citizenship development
The discipline mind	<ul style="list-style-type: none"> ● Subject knowledge ● The following can be developed by studying particular disciplines and subjects:-digital literacy skills, able to research in-depth, bilingual proficiency
The synthesizing mind	<ul style="list-style-type: none"> ● problem solving skills ● critical and analytic thinking ● learn and work independently
The creating mind	<ul style="list-style-type: none"> ● creativity and innovation
The respectful mind	<ul style="list-style-type: none"> ● team working ● world awareness
The ethical mind	<ul style="list-style-type: none"> ● ethics ● civic knowledge and democratic participation

The above table shows some 21st century skills & knowledge and conceptualizes the ultimate attributes of citizenship development in the 21st century in school education with reference to Gardner's five minds for the future. What comes next is the question: how well did schools do to accommodate the skills in their curriculum so that the younger generation really learn? Kay (2010) points out that 21st century skills “are rarely incorporated deliberately throughout the curriculum, nor are they routinely assessed.” (p. xx). To address the gap of an absence of an establishment to incorporate the skills in the curriculum, this article illustrates how 'group discussion' can be an entry point in curriculum planning in order to explore and plan the curricula in alignment with 21st century knowledge and skills for development of citizenship in school education. The next section explores some advantages of group discussion and shows how this activity type may make connection with the development of 21st century skills and knowledge.

Group discussion: a value added learning activity

Among the many teaching methods and learning activities for developing different skills and knowledge, but 'group discussion', a traditional method of learning, is valuable for its place in school education. The advantages of group discussion can be easily checked out in any education and workplace websites or in any books on group dynamics and social and communication skills. In a comprehensive study of group discussion in teacher education context, Chu (2006) indicates that group discussion is ‘grounded in theoretical principles of constructivism, which ensures students construct knowledge in an interactive student-centred environment’ and that this method ‘enhances the understanding of some common topics or texts, helps students develop group cohesion, exposes students to a wide range of ideas, views and opinions, helps students develop interest and values to change attitudes, provides instructors with feedback about student learning (*references elided*), and that ‘ a group discussion classroom has an element of dynamics and synergy as it is always a method of cooperative and collaborative learning.’

In fact, group discussion, a comparatively small scale activity, when well planned and implemented, can help students develop 21st century skills and it may be related to the ‘five minds for future’. It is necessary to build connection between group discussion and the five minds for future at this point.

Table 2: The possible relations between group discussion and five minds for the future:

Howard Gardner : 'Five Minds for the Future'	How group discussion may help promote the 'minds' in the students
The discipline mind	<ul style="list-style-type: none"> ● Group discussion on topics of subjects helps students consolidate their understanding of the subject content. ● Group discussion in extra-curricular activities can enhance students' world awareness. ● Preparation before group discussion may require students to use information technology to do information search, and other research skills. ● During discussion, students use language for discussion and this facilitates students' use of expression, communication and interpersonal communication skills.
The synthesizing mind	<ul style="list-style-type: none"> ● Group discussion involves an application of higher order cognitive skills like observing, analyzing, considering, clarifying and tracing alternatives and doubts as an inquiry of intelligence- thus helping students become more competent on synthesizing information. ● Intellectual sophistication benefits the students and they can work independently.
The creating mind	<ul style="list-style-type: none"> ● With teachers' appropriate design of task demands, a student discussion can provoke students' creative attributes and abilities in the process of thinking out of the box for alternatives or solutions to problems.
The respectful mind	<ul style="list-style-type: none"> ● Group discussion provides students an opportunity to nurture their appreciation of multiple perspectives and consider other views with respect. ● Discussion is team work especially when the members all contribute to find a way out for a problem. Discussion reaps the most when all listen to each other and respect each other's idea. ● If democratic participation is effectively promoted in group discussion, the outcome may also be a reduction of quarrels, and violence.
The ethical mind	<ul style="list-style-type: none"> ● Group discussion involving role play compels students to see things from a new identity. Gradually they develop empathy and an ethical mind and will learn to care and support each other.

How can group discussion be thoroughly utilized so that students really learn and develop 21st century knowledge and skills through group discussion? One possible way is to establish group discussion in school education: not only in teaching and learning level, but also at the curriculum level and in the culture of assessment. To explain this, the next section focuses on Hong Kong as a case in point.

Group discussion: Hong Kong case

In Hong Kong, education reform was launched in 2000. In the past years, under the purview of the official education body: Education Bureau, various curricular initiatives were introduced by the Education Bureau for schools to adopt and implement in their curricula. The major ones included:

2001 onward- responding to Basic Education reform in primary schools: 4 key tasks and 9 generic skills; catering for special learning needs; promoting e-learning

2003 onward- preparing for the new academic structure

2005 onward- preparing students for the new Hong Kong Diploma of Secondary Education

2009- new senior secondary curriculum started

2014- Basic education curriculum guide revised (Learning to Learn 2.0)

School teachers are willing to make changes in response to the innovation in curriculum initiatives but at the same time they feel burned out every day after school (from the author's personal communication with some teachers). It is not uncommon to hear Hong Kong teachers complain about the work with their overloaded curriculum. In the time-intensive curricula, school teachers still use group discussion in the teaching and learning, possibly for the following reasons:

- Small class teaching

When student population has been shrinking in the recent years, the class size of schools is getting smaller. The downsized schools with spare classrooms for too few students can practise small class teaching. They hope that smaller classes enable more teacher- student interaction and more peer interaction. Discussion is a way to make small class teaching meaningful and appealing to parents and other stakeholders.

- New curriculum and initiatives

The new senior secondary curriculum launched in 2009 aims at providing students a broad knowledge base and a wide range of options for studying. Liberal studies is a compulsory subject for external assessment. The subject aims at fostering students' critical thinking skills through analyzing and discussing social issues. To teach Liberal Studies, teachers tend to use group /class discussion as a major activity type. Besides, Applied Learning for upper secondary students is a subject which provides diverse learning programmes and extended learning environments (vocational fields).

Students often need to hold group discussion so as to complete the tasks, e.g. discussing the roles and requirements of various positions in engineering.

- School-based assessment (SBA) and speaking paper in public oral examination
Primary schools need to foster generic skills including communication and collaboration skills in the school curriculum. In secondary schools, there are School-based Assessment and oral examinations in HKDSE. SBA tasks require secondary 4 and 5 students to read books or watch movies, then present and discuss the reports with other students.

For the assessment on Chinese and English speaking skills in HKDSE (Secondary 6), and oral exam of HKDSE, students also need to prepare individual presentation and group discussion. The focus of assessment is communication skills in the form of intellectual rules of discourse, procedural rules and conventions, social conventions (Gall & Gall, 1990). For example, the use of practical formulaic expressions during a discussion and strategies to tackle problems when no one talks in the group, or when one does not follow a member's view.

Given the aforesaid policy driven curricular needs, to what extent did the schools help students master group discussion skills in the curricula? How has group discussion been used in teaching and learning? From the Quality Assurance Division (QAD) annual inspection report (2009/10) (the latest online Report available on EDB website), we can get a glimpse of the progress in the work.

At the school-based curriculum level (Pp.9-15)

Primary schools

- Some schools place emphasis on mind training, teaching students to analyze data, and construct writing frames by the use of mind maps (primary schools).
- Rich and diversified school curricula that give sufficient emphasis to student learning inside and outside the classroom are implemented (primary schools).
- Less effort is directed towards the use of IT in facilitating interactive learning in primary schools (primary schools).
- Cross-curricular approaches are promoted in some schools by using thematic subjects with integration of project learning elements. Different themes, such as Moral, Civic & National Education and community and culture, are used in the activities arranged.

Secondary schools:

- The junior secondary curriculum places emphasis on fostering students' generic skills, such as those of communication, enquiry, multiple-perspective, critical thinking and as well as consolidating the foundation knowledge of students.
- Schools, in general, conduct subject-based and cross-curricular project learning in junior secondary levels.

- Project learning is chosen to help students develop independent learning in secondary schools...The learning themes are connected to different types of knowledge and daily life experiences.
- In addition to providing online self-directed learning materials and internet links for students, teachers make use of IT to assist teaching.
- Schools generally have school-based Personal and Social Education lessons, Life Education lessons, Moral Education lessons, Religious lessons and weekly assemblies, systematically cultivating students' positive attitudes and values, and supporting their whole-person development.

At teaching and learning level (Pp.18-20)

The Report points out that around 40% and 30% of the lessons observed in primary and secondary schools respectively included group discussions. The Report does not give any conclusive remarks on general pattern of practice in group discussion in schools. But some examples of good and bad practice are described.

Good practice:

'They can follow teachers' instruction and accomplish learning activities, work cooperatively and engage in group discussion and presentation. The main learning strategies are listening, reading and observing. Some students apply learning strategies, such as using mind maps or concept maps to organize content learning during group discussion, to construct a writing framework or present brief talks.'

But in Executive Summary and also other sections of the Report, some unsatisfactory practice is recorded:

- a great variation among teachers in their use of different techniques, particularly in setting discussion topics, adjusting discussion time, teaching content, and strategies and pace.
- On the clarity of instructions and role of students, the difficulty level of the discussion topic which affects the challenge of activity, collaboration skills.
- On the number of group members.
- On feedback given by the teachers at the end of discussion.
- On adjustment of teaching content, strategies and pace according to the students' performance.

In the brief reference to QAD Report, the curriculum of Hong Kong schools are concerned with consolidating the foundation knowledge in subjects (and this is in congruence with the 'discipline mind'). But schools are reported to have emphasis on thinking skills and project learning (thus developing students' 'synthesizing mind'). The Report did not mention much of school curricular initiatives to show teachers' efforts to develop 'the creating mind' and 'the respectful mind' of students. Infusion of Moral, Civic & National Education and community and culture in projects in primary schools projects and various type of lessons for whole-person development indicate

that Hong Kong schools lay emphasis on nurturing 'the Ethical Mind'- but ethical mind may be defined differently in different countries. Project learning is more commonly used in both primary and secondary schools. In many cases, project learning is assigned on group basis, and involves discussion among the members.

Concerning classroom group discussion, the Report records good practice and bad practice. The unsatisfactory use of techniques when implementing group discussion may be related to 'social powers' identified in the average classroom. Social power belongs to the domain of classroom management in classroom discourse. Chu (2006) defines 'social power' as a fusion of overall strategies and methods of a tutor used in the case classrooms. Social power may be a constraint or an enablement for the accomplishment of the group learning tasks, depending on its nature and attributes. Some negative samples of implementation ('adjustment of teaching content, strategies and pace according to the students' performance) show an exertion of routine power (i.e. A tutor's practice to maintain some particular way of class activities, without variation of task, or techniques to arouse students' interest in the event) in the school classroom. And problems with 'the difficulty level of the discussion topic which affects the challenge of activity, and collaboration skills, the number of group members may reflect an exertion of 'negotiable power' (A tutor's lukewarm manner, indecisive attitude and 'laissez-faire' practice in arranging group work in the class) in the school classroom.

Integrating group discussion into a curriculum framework

This section focuses on some suggestions for re-establishing group discussion in the school curriculum. Similar establishment may be introduced if any country or city share similar scenarios in the school curriculum and teaching & learning like Hong Kong.

Hong Kong is a case in which the curriculum developers (official education body and schools) have launched education reform for over 10 years and the school curriculum is characterized with many diverse curricular initiatives in connection with 21st century skills. But at the same time, group discussion, a major student activity (as found in 30-40% of lessons observed in 2009-10 school inspection), is generally not effective and indeed its value may be underestimated in practice. To help the younger generation learn through group discussion as to develop the five minds for future and the associated 21st century knowledge and skills, some changes may be made in the school education of a society.

- Education reform brought **a lot of opportunities** in the diverse curricular initiatives and assessment needs (i.e. SBA, TSA) to arrange group discussion.

- **Students got used** to having group discussion in the classroom.
- Group discussion tends to **be focused on discursal pattern and communicative strategy** for the sake of external assessment in language subjects and thus **other subjects may also help foster other** 21st century knowledge and skills.

The remainder of this chapter describes how a school may introduce changes into the current curriculum and teaching & learning and make group discussion a high stake learning activity in the school.

1. At school level:

- The relationship between group discussion and 21st century knowledge and skill is written in the annual **school development plan. e.g.**
'All subjects will help students develop 21st century knowledge and skills through group discussion and other appropriate student activities.'
- School negotiates with teachers on target citizenship minds and the checklist of 21st century knowledge and skills and how group discussion may foster the five minds for future through practice of relevant knowledge and skills.

2. At subject level:

- School head then calls upon all subject panels to include group discussion in their **subject programme plans** in alignment with the school development plan.
- Group discussion is made necessary to consolidate subject knowledge and skills related to 21st century citizenship through the subjects, e.g. World awareness, civic knowledge and democracy.
- Group discussion can be in the classroom or beyond the classroom; in physical or virtual environment. Discussion group formats can also take many forms: brainstorming, snowballing, fishbowls, learning cells, problem based learning (Kelly & Stafford 1993; Johnson & Johnson 1994; Corey & Corey 1992; Brown 1997) provided that the tasks allow reasonable time for discussion and the tasks incur appropriate group discussion skills and disposition in the students. **All these help maximize the opportunities of student group discussion in education.**

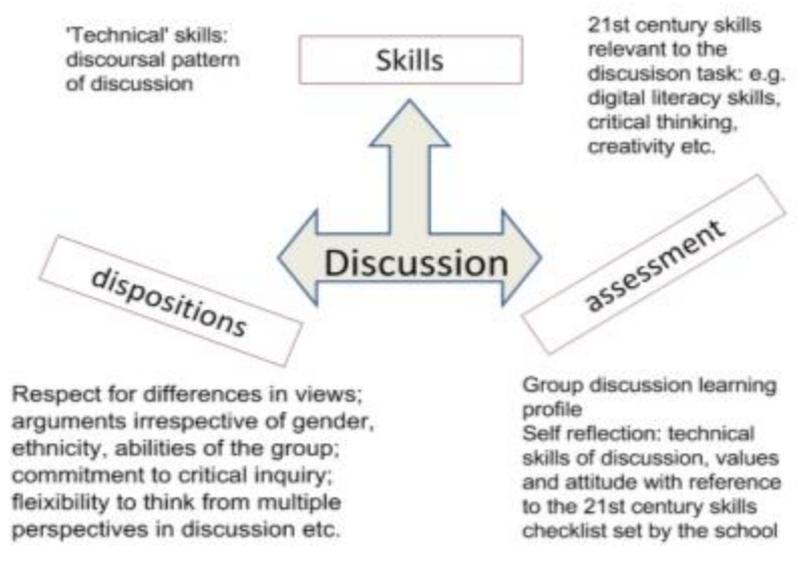
3. Teaching and learning

- **Subject teachers** will enhance their skills of planning, implementing and assessing group discussion in seminar and peer lesson observation as well as refresh **21st century citizenship awareness.**
- **Introduce students to the guidelines of group discussion skills and disposition 21st century skills and five minds for the future** in order that they are clear of the purpose, concept and meaning of group discussion for learning.
- **Assessment:** Students may open and maintain a group discussion learning profile. They are encouraged to record and reflect on their performance in group discussion in a monthly record. Towards the end of a school year, students and teachers will read the profile and evaluate the type of discussion tasks done, the skills practised and the progress of nurturing the five minds for the future.

4. School culture and ethos

For schools which have well established the habit of students in participating in group discussion in the classroom, they can organize **discussion forums in the campus** to further foster the culture of discussion. For example, secondary 4 and 5 students may join movie club and readers forum and discuss movies or books in assembly time or lunch time. Teachers of different disciplines may take turns to organize subject based and social issues forums for students. These extra curricular events will attract all students to observe and implicitly acquire the skills and disposition of 21st century citizenship. The above suggestions can be represented in the following diagram:

Chart: Discussion in 21st century school curriculum: the skills, disposition and assessment



Conclusion

This article begins with an analysis of 21st century knowledge and skills postulated officially in some major countries and cities in face of the changes such as advanced communicative technology and work pattern. Then there is a proposal to adapt Howard Gardner's five minds for the future is adapted for a framework of minds, knowledge and skills of 21st century to guide school plan a 21st century curriculum. The article tries to conceptualise group discussion as a gateway to developing 21st century citizenship skills in this framework. It must be emphasized that strengthening group discussion in school curricula does not mean to preclude other possible

teaching methods, approaches or initiatives for the same purpose.

The curricular initiative related to 21st century citizenship development should start as early as possible and preferably from primary education and continue to secondary education. The five minds and associated skills and knowledge which mirror the minds may be nurtured in a progressive map vertically (e.g. Secondary 1 to Secondary 6) and horizontally (e.g. within primary 6 level) in a school. For example, in a lower primary curriculum, group discussion is used to consolidate discipline knowledge, and in upper primary and junior secondary curriculum, group discussion may shift the focus to the synthesizing mind. When students are more mature in cognition in senior secondary, teachers will help them grow the respectful mind and ethical mind through group discussion activities. Then there may be a higher possibility that for them to enter the threshold of their university may have developed the sincerity and attributes to play the roles of a knowledgeable person, an information synthesizer, a creative worker, a citizen showing respect to others and making decisions out of their ethical mind.

Acronyms:

EDB	Education Bureau (Hong Kong)
IT	Information Technology
QAD	Quality Assurance Division (under Education Bureau)
HKCEE	Hong Kong Certificate of Education Examination
HKDSE	Hong Kong Diploma of Secondary Education
SBA	School-based Assessment
TSA	Territory-wide System Assessment

Notes:

(1) America government calls for action on civic learning as part of a well-rounded education. This is different from the public view on youth education. (See below) Anyway, computer skills (a part of medial literacy) are on the general list of 21st century skills to be developed in schools.

A research paper : 'The 21st Century Teen: Public Perception and Teen Reality.'
Prepared for the Frameworks Institute Meg Bostrom from Public Knowledge, LLC in December 2001 (p.16).

'Americans expect schools to do more than just teach reading, writing and arithmetic. They also expect schools to teach teens a variety of life skills. Computer training, seen as a necessary job skill, tops the list of areas of instruction that the public believes should be required in high school. In addition, majorities support a wide range of life skill instruction including drug and alcohol abuse prevention, sex education, environmental issues, race relations and parenting.

(2) 21st Century skills of Citizenship Sources:- retrieved 30 Dec 2012

- Hong Kong Education Commission 2000 Report
<http://www.e-c.edu.hk/eng/reform/annex/Edu-reform-eng.pdf>
- Malaysia Education Blueprint 2013-2025
http://www4.unescobkk.org/nespap/sites/default/files/Preliminary-Blueprint-ExecSummary-Eng_0.pdf
- Thailand: 2012 Developing 21st century skills
http://www.bic.moe.go.th/fileadmin/BIC_Document/book/MOEleaflet/develop21stcenturyskills.pdf
- U.S. Department of Education 2012- Calls For Action To Develop 21st Century Citizens, Strengthen Democracy: Report released at White House event today stresses importance of preparing students for informed, engaged citizenship January 10, 2012.
<http://www.ed.gov/news/press-releases/us-department-education-calls-action-develop-21st-century-citizens-strengthen-de>

- Britain:DCSF Publications. 2008 by Department of children, schools and families. 21st Century Schools: a world-class education for every child.

<https://www.education.gov.uk/publications/standard/publicationDetail/Page1/DCSF-01044-2008>)

(3) Howard Gardner on Five Minds for the Future. Video interview on website.

<http://www.uknow.gse.harvard.edu/teaching/TC106-607.html> Retrieved 30 Dec 2012.

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