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Perceptions of elements of critical thinking in Liberal Studies classrooms

Ho Sin Loi (2009574327)

Dissertation presented a part fulfillment of the requirements of the degree of Bachelor of Education (Liberal Studies), the University of Hong Kong

May 2013
Declaration

I hereby declare that this dissertation represents my own work and that is has not been previously submitted to this University or any other institution in application for admission to a degree, diploma or other qualifications

May 2013
Acknowledgements

I express my deepest gratitude and appreciation to my supervisor, as well as the program founder, Dr. Ki Wing Wah for his valuable time and intellectual inputs to this dissertation. Together with his four years of teaching and sharing in the program of Bachelor of Education (Liberal Studies), the University of Hong Kong. Without his unlimited support and uninterrupted efforts, I will not able to complete this paper and complete the undergraduate study in the University. Moreover, other teachers and administrative staff play important roles to facilitate my growth and make a completion of this program.

I thank Dr. Ki for his inspiring advice, open-mindedness and patience. Dr. Ki is a cheerful and considerate teacher who always motivates me for being a more rounded person and critical thinker.

Thank you to all the participants in this research for valuable time and for sharing thoughts and giving comments. These views are not only the research data, but I also gain a lot of insights for future teaching career.

Lastly, I heartily thank my companies, including my family members and university classmates for their encouragements and support during the work. This dissertation would not have been possible without so many people’s supports.
Abstract

This study aims at collecting views about critical thinking in Liberal Studies, which is a newly implemented core subject in New Senior Secondary from in-service teachers. By understanding the perceptions of critical thinking and the relations to LS teaching and learning, a better, both curriculum and classroom, implementation of critical thinking can be reached.

Five teachers were participated to share their views on critical thinking and LS. They formed an outline of what critical thinking is in teachers’ eyes. Critical thinking is a transforming concept and, thus, its diversity in perceptions brings different impacts to teaching and learning in classroom. By identifying the elements of critical thinking possessed by teachers, the learning objectives and outcomes may vary accordingly.

This study points out that critical thinking is not a single defined concept, as reviewed in the interviews. The conclusion, then, is the identified perceptions about elements of critical thinking are crucial factors for teaching and learning LS and are subjects for future investigation.
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Chapter 1
Introduction

1.1 Background and Research focuses

In the latest educational reforms in Hong Kong, introducing Liberal Studies (LS) as a compulsory subject in the New Secondary School (NSS) is one major focus. LS is a brand new and unique subject across the globe. In the Liberal Studies Curriculum and Assessment Guide (C&A Guide) published by the Curriculum Developing Committee (CDC) and Hong Kong Examination and Assessment Authority (HKEAA) (2007), “critical thinking” is mentioned 19 times without any discussion on what it is. The significance of LS is its emphasis on “cultivating independent thinking, positive values and attitudes, social awareness and adaptability to change”. The rationale of LS is clearly put on developing high order thinking. Cited from the C&A Guide,

Liberal Studies will help each student to respect pluralism of cultures and views, and be a critical, reflective and independent thinker. (p.2)

However, what does critical thinking mean and how can it be taught in class and learnt by students? These remain unclear and are understood in diverse ways among teachers and students.

Although LS had been launched at the advanced supplementary level in the Hong Kong Advanced Level Examination (HKALE), it was viewed as a failure in developing students’ critical thinking. In the HKALE marker’s reports, “critical thinking and innovative ideas were seldom found in candidates’ answers” (p.200) and “candidates are advised to analyze the data critically to present well-balanced rather than one-sided answers” (2003) were comments given by markers. The teaching and
learning process is influential to the deposition of critical thinking. In the pedagogical level, teachers’ views of critical thinking are influential to the implementation of LS and students’ learning outcomes.

In this small scale research, some views about critical thinking will be collected from LS teachers and the commonalities and variations will be analyzed to provide a useful base for further discussion on the interpretation of critical thinking in LS teaching and learning.

1.2 Key research questions

In order to explore LS teachers’ perception of critical thinking and the implications about the pedagogy in learning critical thinking, this study attempts to address “what perceptions do in-service teachers have about critical thinking and its relations to LS teaching and learning?”.

The guiding questions are also set to seek for understanding from in-service teachers’ perspective.

i) What is critical thinking from the perspective of in-service teachers?

ii) To what extent can critical thinking be taught in LS class?

iii) How do they teach critical thinking and/or promote students’ critical thinking in LS class?

iv) In what ways can students learn critical thinking better?

v) What is the relationship between critical thinking and LS?
Chapter 2
Literature Review

In this chapter, a review of literature is presented to outline the conception of critical thinking and its pedagogy. Starting from a holistic view, definitions of critical thinking are cited and organized to identify different dimensions of critical thinking. With an appreciation of a dynamic understanding of critical thinking in LS, this study establishes a platform for improving teaching and learning of LS in Hong Kong.

2.1 Definitions and conceptions of critical thinking

The ideas of critical thinking penetrate into different disciplines (Peter A. Facione, 2007). It is a vague concept that subjected to be defined differently with references to varied assumptions and philosophical beliefs (Howe, 2004; McPeck, 1981; Smith, 1990). It is also interchanged with critical analysis, critical awareness and critical reflection as examined by Brookfield (1987). Cuban, an education researcher, pointed out that critical thinking is synonymous with metacognition, cognitive skills, creative thinking, problem-solving and reasoning (1984). An earlier educationalist, John Dewey (1910), he described critical thinking as

“active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and further conclusions to which it tends”

Later in 1941, Edward M. Glaser registered three components of critical thinking, including:
1. An attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one's experiences;

2. Knowledge of the methods of logical inquiry and reasoning;

3. Some skill in applying those methods.

These three components, as a conceptual structure, are further examined by comparing different scholars’ sayings.

### 2.2 Critical thinking as an attitude

Critical thinking is put into practice because of certain purposes, such as solving a problem, seeking for truth and making a decision (Halpern, 1984; Yinger, 1980). Regarding this target oriented nature, practitioners of critical thinking endorse an attitude that a convincing argument or answer shall be presented (S. Bailin, Case, R., Coombs, & Daniels, 1999; Kurfiss, 1988). It shows a strong emphasis on results obtained after critical thinking. These purposeful thoughts rest on problem solving (Lee, 2007) and, thus solution seeking. A target driven thinking process occurs and allows judgment on its properness.

Apart from an identified goal, Paul (1995) suggested “[critical thinking] is the thinking that is based on intellectual standards; critical thinkers possessed the awareness about their thought, and will continuously check their thinking and strive to make improvement in the quality of thinking”. His idea yields self-monitoring of thinking and eventually metacognition. The captioned awareness is, hence, a synthesis of positive attitudes and direct confrontation of oneself.
Critical thinking is frequently associated with open-mindedness. Paul and Elder (2006) both pointed out critical thinkers internalized the skills with a fair mind. Such fairness is a necessary attitude for critical thinker, as stressed by Robert K. Merton (1968). Being ready to consider new evidence and unfamiliar knowledge, the existing knowledge can engage in a construction process for formulating a stance and alternatives.

2.3 Critical thinking as knowledge

Knowledge acts as a crucial foundation of critical thinking (McPeck, 1990), when evidence is an important constituent of critical thinking. Without the support of sound and reliable evidence, practitioners may fail to make critical judgments and reflect on the thinking process (King & Kitchener, 1994). Knowledge is essential part in providing and justifying evidence.

Knowledge is a kind of intellectual resource that can be categorized into background knowledge, operational knowledge and knowledge of criticality in simple terms (S. Bailin, Case, Coombs, & Daniels, 1999). The essence of knowledge towards critical thinking, namely background knowledge, is to formulate a specific ground and determine the scope for disposition (McPeck, 1990). Dewey pointed out the importance of knowledge, as operational knowledge, is to enhance a thoughtful and valued disposition of critical thinking in respect to the reality (1910). The role of knowledge, hence, is identified as a setter of critical thinking for its disposition and enhancement.
Ennis (1996) put these required knowledge on his requirement list of disposition in a hidden position. Critical thinking is both knowledge ready for independent acquisition and a skill free from the boundaries of a particular school of knowledge. Unlike Glaser, the claimed knowledge of “logical inquiry and reasoning” is categorized as skill. From multiple sources, we can see that critical thinking is generally considered as values and skills.

2.4 Critical thinking as some skills

Ruggiero, a cognitive psychologist, established a relationship between critical thinking and a range of higher-order thinking skills (2009) and this relation can be found in the discipline of philosophy, cognitive psychology, sociology and education. Critical thinking evolved from abstract values and attitudes to visible processes and teachable skills (Ruggiero, 2012). Scholars suggested critical thinking as a cognitive skill, consisting of,

1. Reasoning
   Critical thinkers ask questions for the sake of making decision on what to believe, distinguishing testimony from unreliable sayings and evaluating different evidence for its reasonableness (Hoaglund, 1995).

2. Problem solving
   Critical thinking takes place where a situation is identified as problematic and, thus solutions are required after evaluation and justification. Problem solving is employed in the sequential steps of critical thinking (D’ Angelo, 1971).
3. Evaluation/ Judgment

Sound and well defined judgment and usage of suitable evaluative criteria in order to determine the trustworthiness, quality or value of something in an explicit and critical thinking process (R. Paul & Elder, 2006). According to the purpose of statement and expected results, a judgment is made with references to sufficient and processed evidence (McPeck, 1990).

4. Reflection

Critical thinking is a reflective thinking that is active and persistent. It is a detailed examination of any belief and a range of knowledge that forms a support to it and gives to conclusions including rational and self motivated attempts for developing reasonable sayings. (J. Dewey, 1938) Its reflective nature is demonstrated in the self supervised progress, decisions to make sense of every steps and self corrections. (Hoaglund, 1995) Participating in the notion of “reflective skepticism”, critical thinking is a propensity and skill for being reflective (McPeck, 1981).

Apart from the captioned four dimensions of cognitive thinking skills, different scholars, like Ennis (1962) and Beyer (1985) offered a more sophisticated expansion of critical thinking as skill. (Appendix 1) Beyer further explained that critical thinking can be free from a specific content and transferrable via different situations, while McPeck conceived it as content and knowledge based.

Ennis brings forth the idea that disposition and usualness of critical thinking is needed (1987) and Facione et. Al (P. A. Facione, Sanchez, Facione, & Gainen, 1995) adds
that the practitioner’s persistence, as intrinsic motivation, is required for critical thinking to occur effectively. The essence of critical thinking dispositions as theorized by Ennis (1996) is listed as follow,

1. seeking a clear statement of the question
2. inquiring about reasons
3. being well-informed
4. using sources with sufficient reliability
5. considering the condition comprehensively and as a total
6. remaining pertinent to the key arguments/ focus
7. looking for alternatives and/or substitutes
8. keeping his/her open-mindedness
9. taking a certain stance/ position when evidence are sound
10. using critical thinking ability regularly

These interpretations of critical thinking are leading to “what to believe or do” and a co-construction of the previous two components of critical thinking. Performing critical thinking, as a skill, is supported by knowledge (point 2, 3, 4 and 7) and thus certain values are formed (point 1, 3, 6, 8, 9 and 10). Furthermore, according to Paul and Elder (2006), critical thinking can be classified into “strong sense and “weak sense”. A strong-sensed critical thinker can question, reconstruct and reason for their own thought and, on the other hand, a weak one is one who fails to make authentic commitment to fairness or openness to diversity and own beliefs. This classification makes an important remark on the differentiation on the degree of critical thinking when combining all of the above.
2.5 Liberal Studies and critical thinking

The rationale of LS is “to provide opportunities for students to explore issues relevant to the human condition in a wide range of context” (Curriculum Development Council & Hong Kong Examinations and Assessment Authority, 2007). On the list of curriculum aims, LS is “to develop in students a range of skills for life-long learning, including critical thinking, creativity, problem-solving skills, communication skills and information technology skills.” In this regard, critical thinking is considered as a skill for the purpose of life-long learning. For broad learning outcomes, critical thinking plays another role that:

- students are able to reflect on the development of their own multiple identities, value systems….; identify the values underlying different views and judgments on personal and social issues, and apply critical thinking skills…in making decisions and judgments on issues and problems…; present arguments clearly and demonstrate respect for evidence, open-mindedness and tolerance towards the views and values held by other people……” (p.5-6)

The captioned learning outcomes recall the conceptions of critical thinking. Revealed by Morris and Chan (1997a, 1997b) LS is result of liberalization of curriculum in Hong Kong education reforms. This is a doubtless process that developing students’ capacity to think is always at the highest priority in education (Reaves & Griffith, 1992). The government confirms the relationship between LS and critical thinking in one of her publication to parents. (Education Bureau, 2010) In order to answer a question, “will [critical thinking] make [students] criticize everything and turn defiant”, the respond given is “Liberal Studies aims to develop in students critical
thinking skills through the study of a wide range of issues……”. The response also makes use of an example of the relationships between young people and their elders to supplement that “issue-enquiry (as the key pedagogical approach) is an attempt to change from a self-centred mode of thinking to one that can see things from different perspectives”. Therefore, LS is interrelated with critical thinking, ranging from its curriculum plan to its implementation in classroom.

2.6 Critical thinking and teachers

Critical thinking itself is a high-order thinking skill that numerous teachers were puzzled over critical thinking (Geertsen, 2003) and its implementation in class. In order to bring critical thinking into classrooms, teachers themselves have to be effective critical thinkers for the sake of actualizing abstract skills and values (Johnson, 1992; R. W. Paul & Walsh, 1985; Swartz, 1987). Given that how students address their learning is related to the quality of their learning outcomes (Prosser & Trigwell, 1999), students are more likely to gain better learning outcomes when they can go into deep learning (Marton & Saljo, 1997). To examine relationships between teachers and students, teachers’ perception of their teaching context, the teaching approach taken and learning context that students are placed in are illustrated in the diagram 1.
Diagram 1: The relationships among teachers’ perception of their teaching context, learning context of students and the ways teachers approach their teaching (Prosser and Trigwell, 1999)

The focus lays on the dynamic between teachers’ perceptions and their approach of teaching. Regardless of other factors, teachers’ own perceptions of teaching content and teaching approaches directly influence their goal of teaching, in another word, the intended learning outcomes as identified by Prosser and Trigwell (1999) and Marton and Pong (2005). Pratt reinforces this idea by the claim that “we view the world through the lenses or our conceptions, interpreting and acting in accordance with our understanding of the world” (1992a, 1992b). Grounded on the consistency between teaching approaches chosen and teachers’ perceptions, as well as conceptions of teaching and teaching content (Prosser & Trigwell, 1999), an attempt to find out the existing perceptions of teaching and critical thinking is carried out in this study in order to seek for better teaching approaches.

With an overview of critical thinking, the diversity of critical thinking is considered. Such variety contributes to diversity of teaching. Taking reference from McPeck, “the
phrase “critical thinking” is both over-worked and under-analyzed in the same way that the term “education” was” (1981). Teachers, as the bridge of learning, determine the development of critical thinking ability of students. After four years of implementation of NSS LS, perceptions of critical thinking, i.e. LS, among in-service teachers is an influential factor that how critical thinking is fostered in classroom.
Chapter 3
Methodology

In this chapter, the research approach adopted in this study is introduced and justified for its creditability. In order to collect in-service teachers’ views of critical thinking, semi-structured interviews, as the data collection method, were conducted to explore teachers’ perceptions of critical thinking, related subject knowledge, personal experiences and LS curriculum.

3.1 Research approach

Using a qualitative way to explore teachers’ view is a regard for the complexity of critical thinking. The research aims at developing an initial understanding of teachers’ views of critical thinking which contains a wide range of ideas varied individually. A qualitative research can serve the purpose of covering underlying factors that influence opinions (Huberman & Miles, 1994, 2006). Without a specific hypothesis or relationship to test, quantitative methods are not adopted for finding a consensus about critical thinking. Meanwhile, many of the qualitative research studies were done by educationalists for eliciting teacher informants’ data (Marton & Pong, 2005; Pratt, 1992b).

3.2 Data collection

Face to face, individual interviews were carried out in bilingual manner, both Cantonese and English and in April, 2013. All the interviews were arranged in the school where the venue was chosen by the interviewees, and so that they could express themselves in a pressure free setting for the sake of in depth discussion (Bernard, 2011; Fontana & Adler, 1994; Trigwell, 2000). Interviewees were able to gradually develop a keen understanding of the topic of critical thinking necessary for
developing relevant insights to respond to interview questions (Fontana & Adler, 1994). Moreover, interviews were semi-structured which allowed interviewees room to explain their ideas and clarify their stance for a comprehensive understanding of experiences and their interpretations of these experiences (Patton, 1980). Eventually, the validity of the study can be enhanced through the good rapport between the researcher and interviewees (Glesne, 2006). This type of qualitative data was hard to be collected by questionnaire and presented without direct interactions.

The interview questions (Appendix 2) were given to interviewee via emails at least three days in advance. In stage one of interviews, questions were arranged in particular order that recent teaching experience was asked at first to engage interviewee in recalling his/her teaching experiences. Then interviewees explained their chosen pedagogical strategies and also the relationships with critical thinking. Their observations about students’ performance came next. At last, the curriculum linkage between LS and critical thinking was questioned as an overview of the subject. These steps formed the stage one which all interviewers underwent. The questions asked in this stage were open-ended that interviewees had opportunities to identify their own way of seeing critical thinking.

In stage two, questions were set based on a preliminary analysis of the first three stage one interviews. Interviewees were invited to give comments on some elements of critical thinking identified in stage one. They established a more dynamic and comprehensive understanding of these elements, especially the relations of these elements and their perceived critical thinking.
3.3 Analysis of data

Regarding the informants of the research, in-service teachers were the target of study. Three teachers from the same government aided school were invited to participate in the stage one interview. Another two informants from another two schools underwent both stage one and two. Their background information of the interviewees was presented in table 1. The commonality and variations of understanding were analyzed both intra- and inter school.

As the interviewers gave answers to open-ended questions, their answers went into different aspect according to their understanding of the questions. Meanwhile, audio recordings were made during the interviews for transcription and analysis (Appendix 3-7). Further examining the interview transcriptions in details, there are diversified perceptions with different focal awareness and, hence, organized into a table shown in appendix 8. These recordings help to maintain the reliability of data and thus enhance the credibility of the study (Guba & Lincoln, 1989).

Another important finding is that the differentiation of interpretation of these elements is based on individuals. Relevant quotations in the interviews are chosen for comparisons and, hence, the perceptions of critical thinking can be identified from the dialogue.
Table 1: Summary of the background of interviewee

<table>
<thead>
<tr>
<th>Age</th>
<th>Teacher A</th>
<th>Teacher B</th>
<th>Teacher C</th>
<th>Teacher D</th>
<th>Teacher E</th>
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<td>Applied physics</td>
<td>Journalism and communication</td>
<td>Anthropology</td>
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<td></td>
<td>Further study</td>
<td>Nil</td>
<td>Master in Science (Environmental Science)</td>
<td>PGDE in LS(^1)</td>
<td>PGDE in LS(^1)</td>
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<td>LS teacher</td>
<td>LS teacher</td>
<td>Panel Head of LS</td>
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<tr>
<td>Level of student taught</td>
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<td>Secondary 4 and 6</td>
<td>Secondary 5 and 6</td>
<td>Secondary 4, 5, 6</td>
<td>Secondary 4, 5, 6</td>
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<td>Current subject(s) taught (beside LS)</td>
<td>Economics (NSS)</td>
<td>Physics (NSS); Science (junior); Religious education (junior)</td>
<td>Religious studies (NSS); Religious education (junior); Moral, Civic and National Education (junior)</td>
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<td>Teaching experience (Year)</td>
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<td></td>
<td>LS</td>
<td>4(NSS); 3(ASL(^2))</td>
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<td>3(NSS)</td>
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<td>Medium of Instruction</td>
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<td>Cantonese</td>
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<tr>
<td>Liberal Studies</td>
<td>Cantonese</td>
<td>Cantonese</td>
<td>English</td>
<td></td>
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\(^1\)PGDE in LS: The Postgraduate Diploma in Education is a recognized teacher training qualification by the Education Bureau of the HKSAR Government. It prepares university graduates to teach in Hong Kong in sectors ranging from kindergarten to tertiary institutions. (Faculty of Education, HKU)

\(^2\)ASL: Liberal Studies is a subject at advanced supplementary level in the Hong Kong Advanced Level Examination. AS-level subjects are taught in half the number of periods required for A-level subjects, but they require the same level of intellectual rigour. (HKEAA)
Chapter 4
Findings and Analysis

This Chapter presents the findings of this study. The first section reports the summary of the perceived elements of critical thinking across interviews in stage one. The second section presents the interview results in stage two that include teachers’ views on the perceived elements.

4.1 Perceived Elements of Critical Thinking

In this section, relevant quotes from the five stage one interviews are used to identify the elements of critical thinking in LS classroom with three sub-categories.

4.1.1 Nature of critical thinking and its required conditions

In the interviews, all five interviewees were agree that they recognized some elements of critical thinking in their teaching, except teacher B mentioned that

“I am not intended to do so.”

Then he furthered explained,

“I think it (critical thinking) is viewing the same object from multiple perspectives. Then it is not as high level as critical thinking, but I think students do not think in one direction, like ‘I think why it is’ and ‘I think what it is’…trying to think in multiple perspectives is the first step of critical thinking by secondary students.”
He set the basic element of critical thinking is thinking in multiple perspectives. Then Teacher C suggested that LS centres on critical thinking and,

“...When students watch the movie about genetic modified food, they have to make their judgment on whether it is good or bad. As there is no fixed answer, their answers are accepted given that they have evidence...... This is a training of critical thinking.”

Echoing to teacher C, teacher E mentioned “giving evidence and reason to support students’ thoughts is included as the element of critical thinking in teaching”. Unlike teacher B, C and E, teacher D added a flow of issue-based teaching and pointed out elements of critical thinking were infiltrated into every step (diagram 2). He said,

“The first step is the process of reading information. Teacher can ask them to criticize the information for any biased views and the extend of reality is reflected....Then the following causality is asking them to analyze what is the effect caused by a specific reason. This means is it a must for the occurrence of the result. Alternatively, which factor is the most import one among all the leading factors of the incident. Then for the suggestion type of questions, we also ask them to comment on these recommendations according to its effectiveness and feasibility, or some questions about principles. At last, I believe it must include a building of students’ value.”
To clarify the last statement about “building of students’ value”, teacher D added,

“Building up his value consists of a component of criticality. This means when they comment on an incident and are asked to express their stance, they must undergo some critical thinking in the process. I think they can do it (critical thinking).”

Diagram 2: The relationship between issue-based teaching and critical thinking suggested by teacher D

In addition to the above sequence, teacher C supplemented on the value aspect as,

“…..I think there are probably less opportunities for them (students) to do some value judgments. This means they spend most of the time very likely on issues, in order to think from the perspectives of other
stakeholders, but probably less opportunity to think about their own stance and alike. …….This is attitude and value judgment and thus less is done…….”

Beside the direct description of the nature of critical thinking, Teacher D stated some limitation he encountered in his teaching, as follows,

“…Sometimes, [critical thinking] may not be feasible in certain objective circumstances. Number of students in class, students’ prior knowledge and language proficiency can influence critical thinking and, sometimes, lead to failure. This means students without sufficient knowledge……[Students] can do [critical thinking] in relation to environmental protection, like what is sustainable development and how to conserve……globalization may be far away from them and they are not clear about the international relationships under globalization. In such unclear situation, they are hard to judge globalization is good or bad……I think it depends on their prior knowledge.”

Teacher E also revealed the same concern about prior knowledge as follows,

“…..There is limited time allocated to critical thinking in the module of modern China, because lots of time spent on teaching the background, introducing some policies and identifying China’s problems……Actually, not much time in class can spend on discussion. Ending the class in such a hurry is a restriction……”
Another viewpoint was suggested by teacher A. He said,

“…for achieving a better critical thinking, I think it is easier to understand in real situation. Hence having field experiences, students can learn easier and clearer.”

Furthermore, the strategies and models used for teaching critical thinking were asked in the interviews and listed in table 2. The interviewees gave diversified answers and took different approaches to bring critical thinking into their classroom. Both direct teaching and issue based enquires were mentioned in four out of five interviews and used in a mixed manner across topics and levels of study. The only shared in-class activity is students’ group discussion. As mentioned by teacher B,

“Finding several different backgrounds… and stakeholders to discuss on different issues can view it from different perspectives and then give different points of argument. Some students may not think about other stakeholders’ views. I think when students consider the same incident, one student has one particular view and others have other views. It allows students to think from multiple perspectives on every matter.”

Another significant finding went to teacher D, he provided different forms and nature of information to students for analysis and critiques.
“……It means using different medium for understanding what is happening, in another words, the background information. …… we (teacher and students), as usual, look at the cause and effect of that incident and follow with suggestions to solve the problem…….”

Similar ideas could be found from teacher A and C, but teacher A stressed on reading. Additionally, worksheets were frequently used, but limited explanations were given on its usage.

For assessments, interviewees put remarks on different forms, but IES was more common for a relatively thorough analysis. Teacher D particularly supplemented on IES that,

“……IES is the real assessment for carrying out information collection and as an important part to achieve critical thinking…….”

Teacher A expressed the same believes and used as the teaching materials in secondary six, that

“…..We use students’ SBA (IES) to carry out critical thinking…….”

The diversity of teaching approaches is an evidence to demonstrate the variety of perception of critical thinking. As illustrated in diagram 1, teachers with different perception of teaching content, i.e. critical thinking, adopt different approaches in teaching.
Table 2: The strategies and models used for teaching critical thinking in LS

<table>
<thead>
<tr>
<th>Strategies and models used</th>
<th>Interviewees</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td><strong>Curriculum planning and strategies</strong></td>
<td></td>
</tr>
<tr>
<td>1. Direct teaching of concepts</td>
<td>✓</td>
</tr>
<tr>
<td>2. Issue-based enquiries</td>
<td>✓</td>
</tr>
<tr>
<td>3. Reading to learn</td>
<td>✓</td>
</tr>
<tr>
<td>4. Cross-modular learning</td>
<td>✓</td>
</tr>
<tr>
<td><strong>In-class activities</strong></td>
<td></td>
</tr>
<tr>
<td>5. Group discussion (peer)</td>
<td>✓</td>
</tr>
<tr>
<td>6. Class discussion (teacher-led)</td>
<td></td>
</tr>
<tr>
<td>7. Debate</td>
<td>✓</td>
</tr>
<tr>
<td>8. Field study (primary data collection)</td>
<td>✓</td>
</tr>
<tr>
<td>9. Information collection (secondary)</td>
<td></td>
</tr>
<tr>
<td>10. Analysis and critique of different information sources</td>
<td></td>
</tr>
<tr>
<td>7.1 Newspaper editorial</td>
<td>✓</td>
</tr>
<tr>
<td>7.2 Film and video</td>
<td>✓</td>
</tr>
<tr>
<td>7.3 Research and report</td>
<td>✓</td>
</tr>
<tr>
<td>7.4 Book and articles</td>
<td>✓</td>
</tr>
<tr>
<td>7.5 Picture</td>
<td></td>
</tr>
<tr>
<td>7.6 Statistics</td>
<td></td>
</tr>
<tr>
<td>7.7 Web resources</td>
<td></td>
</tr>
<tr>
<td><strong>Assessments</strong></td>
<td></td>
</tr>
<tr>
<td>11. Class work/exercise/worksheet</td>
<td></td>
</tr>
<tr>
<td>12. Independent Enquiry Study (IES)</td>
<td>✓</td>
</tr>
<tr>
<td>13. Presentation</td>
<td>✓</td>
</tr>
<tr>
<td>14. Data-based question (examination-type)</td>
<td></td>
</tr>
<tr>
<td>15. Critical writing</td>
<td>✓</td>
</tr>
</tbody>
</table>

¹Direct teaching is used in secondary 4 and 5, while issue-based enquires is adopted in secondary 6.
²A cross-modular issue is taught once every term.
³Teacher C leads the class discussion by questioning to the whole class occasionally.
⁴Teacher B suggested the ideal learning pattern is directly participating in social affairs, like visiting elderly, dock workers’ strike.
4.1.2 Perceptions on students’ behaviours in learning of critical thinking

Apart from teaching, interviewees commented on how students learn critical thinking in class from teacher’s perspective. When interviewees mentioned about students’ performance and acquisition about critical thinking, they, in general, held a relatively pessimistic attitude. Teacher B said,

“This indeed, it is quite difficult (for students to acquire critical thinking). I think critical thinking includes lots of knowledge. If students possess limited knowledge, they are unable to understand the current situation or think from multiple perspectives……”

“Actually, students cannot think in many perspectives. Maybe they can think in one or two perspectives, and then they believe it is enough. It is probably because they are young and do not need to discuss or argue with others in this way……”

Lacking motivations to think further and being limited by their prior knowledge, students, in general, do not perform as what teachers expected. Teacher E noted,

“Students are relatively passive. Even [teacher] spend more time to answer questions, like do you agree with certain topics, they do not think about it seriously. This means they think slowly and look like ‘no idea’ at all. Sometimes, it is hard to identify if they exercise any critical thinking……”
Other recalled examples were arguments without supportive evidence, lacking of arguments, irrelevant ideas, fallacies and wrong logics. Teacher E concluded

“Students failed to give any correct answers as a ground for teachers to identify students’ critical thinking?”

Beyond this uncertainty, teacher D claimed “I think approximately it is okay” and explained,

“It depends on the level…….Judging whether the information is biased or the information reflects the reality thoroughly is easier. With regards to the highest level, comparing the importance of different factors or making a judgment on certain stance is usually difficult. Building criticality is quite difficult.”

A similar view was also summoned by teacher E. She said,

“…….critical thinking] was intentionally taught in secondary four. Their performance in exercises is not good that they do not know how to answer. They can handle simple one, but cannot handle those which are a bit more difficult…….”

“They can handle the easier part in every topic. For example, they can differentiate statement from argument…….They may not able to work on
more difficult or complicated sentences, like the former part is a statement with an argument at the latter part…….”

With reference to above understandings, critical thinking is with levels that higher level is hard for student to achieve. Teacher C has relative positive view on students’ performance, she pointed out,

“[students] can master the skill (critical thinking), but they may not be able to give a clear definition of it or identify it systemically. In general, students possessed this skill.”

Examples that students showed their critical thinking were,

“…..In the classroom, [teacher C] sometimes talk about current affairs with the class, some students can immediately give some verbal responses. I can find they have their own thoughts and they may even able to express some completely different values from hidden meanings of the articles. They are able to criticize and thus it is observable in class. “

Other supportive examples were,

“Indeed, students practice [critical thinking] in every lesson, like in-class questioning, group discussion, debate and response to film. Their participations are related,” said teacher A
“There is a student forum biweekly in our school. [Students] asked lots of questions about renovation and design of the school, like whether it is necessary, the reason for changes, whether any alternative is available. They can ask questions to express their doubts,” said teacher D

To explore the relationship between teaching and learning in classroom and acquisition of critical thinking, teacher D believed,

“The information used by teacher is related to daily life, such as newspaper, online videos, articles and these in contact with students in daily life.”

“……It depends on teacher’s pedagogy and school’s vision. I know some schools conduct lesson based on schools’ traditions. Teachers may be shifted from the old system to new system (NSS). Students’ learning pattern is used to be in one direction which the six modules in textbook are taught one by one. In this situation, students can think, but the process of critical thinking is less.

Moreover, teacher A stated

“Students may not know what critical thinking is, when they are promoted to secondary four…….Teacher, sometimes, needs to provide some examples to students, especially in the early stage in secondary four. After student masters the skill, they will develop their critical thinking.”
“……LS stresses on enquiry type of study. The best enquiry based learning is student owned, but not teacher owned. Hence starting from the issues of students’ IES which are what they discover, students knows better about the background, are more willing to participate and feel more interested.”

The acquired critical thinking is applicable upon certain situations. Teacher C shared similar views,

“……thinking from multiple perspectives is one important skill in LS……Actually, they (students) use this pattern to think unintentionally. I can find that they use it in another NSS subject I taught. This ability and skill is transferrable…….”

Though teacher A and C were in the same school with teacher B, teacher B expressed a disagreement on this relationship. He pointed out,

“……I think [students] can try to experience [critical thinking], but it is another matter whether they practice it or whether they know it. This means students, at last, just run into cliché and do not try to think in multiple perspectives…….Critical thinking is a kind of high order stuff and, meanwhile, demands more from students. Being taught is better because learning [LS] can at least come across this thinking style.”
Students’ learnt critical thinking was expected to be demonstrated in written form which was required in the public examination. The negative view was also found in teacher E’s views, as she commented,

“From secondary four to six, some students do not have many changes. This means some students are unwilling to learn even these materials are related to Hong Kong……Some students have improvements, like providing better answers and being more logical……Some student whose inherent logical thinking, critical thinking is relatively stronger, even they are not taught by [teachers]……These students who are indifferent to learn always tell you LS is very difficult. Especially when LS is taught in English, these students are restricted by their English proficiency and, thus they fail to understand the questions. In such circumstance, they are not motivated to do critical thinking……”

The diversity of students is clearly described by teacher E. Their own learning attitude and abilities underpin the development of critical thinking. It marks an implication that the expected learning outcome of critical thinking cannot be unified.

To sum up the perceptions of students’ performance, students showed a rudimentary form of critical thinking in general as they can demonstrate their owned critical thinking in certain situations or dimensions which they may not even be aware of. Furthermore, as the students vary in ability and academic background, interviewees showed their understandings from different viewpoints. With references to different grounds of dispositions, students’ behaviours were perceived accordingly.
4.1.3 Critical thinking in LS as compared to other subjects

To supplement teaching and learning, interviewees commented on the LS curriculum and critical thinking through comparing with other subjects. Teacher A, B and E agreed that LS and its curriculum framework facilitate the development of critical thinking better than other subjects. Relevant interview dialogue were cited as follow,

“To compare with traditional subjects, like economics, I think it mainly consider economic points of view. Indeed, students are hard to master a boarder sense of critical thinking……” said teacher A.

“Using an issue as the entry point, which is not view an incident separately, is more comprehensive. Critical thinking is objective, so being comprehensive should be better,” added teacher A.

“……assessment is cross-modular and thus, is multi-perspectives……I think it (IES) allows students to enter the society to learn, to analyze from multiple perspectives, to criticize and to think whether it is correct or not under certain regulations. I think IES indeed is a kind of critical thinking. Some students did some specious IES, but they really tried (critical thinking),” explained teacher B

“……This is not a must (LS has advantages to develop critical thinking than other subjects). Nearly every assignment, examination and matter discussed in class are strongly related to critical thinking. This means LS put more emphasis on [critical thinking] than other subject.” said teacher E
Teacher C brought a new idea that other arts subjects showed a trend to be liberalized. She thought other subjects, like Chinese, Chinese history, and religious studies could develop critical thinking and this depended on the nature of subject. The counter example suggested was,

“Sciences or other more academic subjects like mathematics consist of only right or wrong answers. The possibility for developing critical thinking is relatively less.”

4.2 Interpretations of the Elements

The identified elements of critical thinking form the ground of the second stage of interview. Two subsequent interviews with teacher D and E were conducted to seek other teachers’ views on these elements. A table of summary can be found at the end of this section to show the relationships of the elements and critical thinking.

4.2.1 Thinking from multiple perspectives

Teacher D pointed out,

“Thinking from multiple perspectives is the first step for practicing critical thinking and it is fundamental. When you can only think in one single side, you are impossible to criticize because you are not able to evaluate which side is correct.”

He believed it was a prerequisite for critical thinking. However, teacher E viewed these two, to a large extent, were not related, because,
Critical thinking employs thinking in multiple perspectives. While teacher D perceived thinking in multiple perspectives as the necessary condition for critical thinking, teacher E only perceived it as one of the possible conditions in achieving critical thinking. Additionally, logical thinking is identified by teacher E as one component of critical thinking.

4.2.2 Teaching strategies
(debate, commentary of film and critics of editorial on newspaper)

Both teacher D and E agree that these teaching strategies can be used to teach critical thinking. Teacher D said,

“Anything enables development of critical thinking.”

Teacher E supplemented,
“A stance is commonly found in these materials. Then [teacher] is to ask [students] whether he agree with the stance…….When you start to defend your stance or to criticize others’ stance, your critical thinking comes out naturally…….Therefore, I think many of these activities require critical thinking. Not only debate, but role play also needs critical thinking.”

They pointed out that critical thinking could be promoted in all teaching strategies, but it depends on the practitioner’s stance and interpretations. They have the same assumption that all contexts are stance-bearing, which are not bias-free.

4.2.3 First person experience and first hand information collection

To tackle the relationship between first person experience and critical thinking, both teachers put the analytical process in between these two items in lime light. Teacher E presented,

“I may not agree [in-person and field trip experiences helps developing critical thinking]. Even you can be clearer about the information through field trip, the information collection is only a process and may not help you. If you do not use your brain to make sense of the information and formulate a sound argument, this process is not necessarily that important. It means outdoor activities are not so important for developing critical thinking.”

Teacher D put forth this idea in practical terms, as
“It does help but depends on the follow-up work that how students are facilitated to think after collecting information. I think it relies on debriefing done by teachers…….It is important to analyze the process for them to know how to handle the collected information.”

The in-person field experiences were highlighted in the three stage one interviews, but it is not directly related to critical thinking in from the viewpoint of teacher D and E. The information collection process is not the key to develop critical thinking, and, yet, the analytical process of the information is. Having first person experience is only a catalyzer for thinking process, instead of acting as a perquisite.

4.2.4 Content knowledge and personal experiences (life experience)

Content knowledge, personal experiences and critical thinking are closely related in the eye of teacher D. It is, nevertheless, not necessary to stimulate critical thinking as what perceived by teacher E. She said,

“I always think that the student has this experience and the book (knowledge), but he does not use his mind to think. Then, at last, critical thinking is not related…….When we compare the two (government’s initiatives to redevelop and the objections raised by locals), it is better to activate [student] to think rather than [teacher] giving [students] [knowledge]…….”

“I agree (students’ personality and attitude is utmost important). As [student] have the attitude, you will have motivations to work everything out and
from unknown to known…….When [student] is only here to cope with LS, he will not put effort in critical thinking…….”

The hierarchical relationship personal experiences and knowledge, and critical thinking suggested by teacher D was,

“I think [students’] personal experiences and their knowledge are both foundation for critical thinking. Without these, your critical thinking is limited…….Therefore, when the personal experience or owned knowledge is rich, it is beneficial for you to be more critical.”

The discrepancy between the views of teacher D and E is on basis for developing critical thinking. Teacher D considered knowledge and experiences are, while teacher E took willingness to engage in thinking and attitude as key entry points of critical thinking.

4.2.5 Independent Enquiry Studies (IES)

IES is a significant part of LS which contributes to 20% of the total mark in DSE LS. Both teacher D and E assented to IES took longer time in completion and showed the development of critical thinking explicitly. Teacher D explained,

“IES is a good [school based assessment] as it is not asking for an instant answer and focuses on the process…….In this process, students are not continuously move to the front, but they are asked to reflect on the last stage,
and think why they are doing so and whether or a better alternative way can take.

“When [students] answer the [enquiry question], you have to provide [evidence]…..use critical thinking to justify your own stance with reasons.” said teacher E.

This viewpoint was in line with what teacher A and B mentioned in the previous section. They all agreed IES created a comprehensive learning experience of critical thinking. Furthermore, teacher E voiced out her opinions about the contrast between IES and LS examination as follow,

“……As there is data processing, students’ critical thinking is directly displayed in IES. The data (of IES) is different from these in examination paper. Data in examination is relevant for them to answer questions, but these obtained from questionnaires are uncertain……Students make use of their own data collected from their questionnaires to generate some sayings. They can make serious mistakes.”

This claim acted as a supporting argument to strengthen that “IES is the real assessment ….. to achieve critical thinking” expressed in teacher D’s supplement. The relation between IES and development of critical thinking is identified by interviewees except teacher C did not mention in the interview.
4.2.6 Flows for developing critical thinking

The two flows of developing critical thinking were included, namely “knowledge to concept to issue” and “from near incident to distant incident”. Teacher D believed it depended on students’ thinking pattern. However, teacher E recommended the latter one as a better flow in general and said,

“……Starting from personal stuff, the impression is relatively stronger and students have some feelings about the real situation…….He (student) has more responses and easier to go into discussion……..

Teacher D emphasized on learning diversity that,

“No single form of thinking process can be absolutely applicable to every student.”

He pointed out teacher’s role was helping student to consolidate their thoughts. Thus these flows are possible ways to develop critical thinking, but the effectiveness of these flows is subjected to students’ learning pattern and thinking habit.

4.2.7 Value building and teaching

Teacher D affirmed the saying “critical thinking includes value building, but it seldom and hard to bring into classroom” as stated in the interview question. Contrasting view was raised by teacher E as follow,
“……Values include some called universal values. I will talk to students what these universal values are, like peace. I think it is not problematic to talk about these in secondary school. It means [values] can be developed……” she continued to explain,

“……[value building] indeed is about your teacher-student relationship. If your students and you do not have a good relationship, they believe you support the government and rural party regardless of your explanations. Yet, if you show that you are a person with critical thinking, they know you do not follow assentations……. After detailed analysis, they can identify [teacher’s stance] that stimulates reflections and further builds up their values.”

Teacher E conveyed a strong message with two issues as supporting examples, including filibustering in Legislative Council and implementing National Education subject in school, that teacher can build up students’ values in class, especially universal values. Both teachers shared the view value building is part of critical thinking, but, in this process, the role of teacher was a facilitator given that a good student-teacher relationship established.

4.2.8 Influences of examination

As LS is a core subject in DSE, all students will sit for the LS examination. The influences of examination and its question style were asked. Teacher D and E took different stances on this. Teacher D stated,
“The design of question takes reference from the public examination. As a result, the critical thinking that [teachers] teach is only belonged to certain area or certain aspect of critical thinking. It means you are not discussing philosophical questions in class…..”

The disagreement held by teacher E was,

“[DSE LS] consists of lots of questions requiring [students] to use evidence to support (arguments) and seeking for your comments. I think these questions do not limit their critical thinking and examination is not such a big obstacle.”

Hence examination was considered as a limitation from teacher D’s perspective, but not in teacher E’s view. The differentiation was the result of interpretation of examination questions, and hence, teachers’ learning objectives were adjusted accordingly.

4.2.9 Limitation of learning critical thinking

Both teacher D and E possessed a relatively negative view on students’ acquisition of critical thinking after two and a half years of study. Teacher D said,

“I think it (students master critical thinking) is half. They can be critical on the matters coming to immediate concern, but they lose all senses in these apart from them, like these happened in Hong Kong or in history……”
Teacher E appeared to be even more pessimistic and explained,

“……Maybe they are really busy with their studies…….Very little students were happy to study LS for two and a half years as shown in their evaluation. As they think [critical thinking] is what they needed as a human being, they feel that it helps in their life. However, some students hate the subject and think this subject makes them frustrated……”

All the interviewees expressed similar thoughts that critical thinking is essential in life and LS can help student understanding it better, but the result of learning is not significant, except teacher C. In teachers’ eyes, most of the students, to a large extent, were fail to transfer learnt critical thinking in their daily life. It revealed limited immediate result could be observed as application of critical thinking. However, the value of learning of critical thinking cannot be under-estimated.

To sum up the findings in stage two interviews, the interpretations of these elements are in consistent in some particular aspects and overlap partially, but certain elements, like examination and thinking in multiple perspectives are diversified in extreme. As shown in table 3, ideas of teacher D and E are citied with a comparison of how to interpret the elements. Regarding age, gender, academic background and teaching experience, teacher D and E have distinctive background from each other. Though they are both panel head of LS in their school, their beliefs of critical thinking vary in numerous aspects. The relationship of varied background and views is not examined in the study, but the variation of understanding critical thinking, in its coverage and orientation, is shown explicitly.
<table>
<thead>
<tr>
<th>Perceived elements of CT</th>
<th>Teacher D</th>
<th>Teacher E</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thinking from multiple perspectives</td>
<td>➢ Is fundamental and prerequisite for CT</td>
<td>➢ Could be excluded from CT when only logics are involved</td>
<td><strong>Diversified views</strong></td>
</tr>
<tr>
<td></td>
<td>➢ Is the first step to practice CT</td>
<td>➢ Is needed in CT when more information is involved</td>
<td>It is necessary as an entry or for handling large amount of information, but it is also be one aspect of CT</td>
</tr>
<tr>
<td></td>
<td>➢ Is a necessary condition for CT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching strategies (debate, commentary of film and critics of editorial on newspaper)</td>
<td>➢ Any teaching strategy/ activities can help developing CT</td>
<td>➢ Many, nearly all strategies/ activities requires CT as a stance/ bias would be found</td>
<td><strong>Consistent view</strong></td>
</tr>
<tr>
<td></td>
<td>➢ Is not essential in developing CT if that is referring to data collection</td>
<td></td>
<td>Any activities can be help to learn CT given that viewpoints are identified</td>
</tr>
<tr>
<td></td>
<td>➢ Process to analyze the data collected and debriefing from teachers are more crucial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First person experience and first-hand information collection</td>
<td>➢ Serve as foundations for developing CT</td>
<td>➢ Is not that important if data collecting process is referred</td>
<td><strong>Similar view</strong></td>
</tr>
<tr>
<td></td>
<td>➢ Positively correlated to the room to do CT</td>
<td>➢ Process of making sense of data collected and formulating sound argument are more effective</td>
<td>Processing of data/ information collect is more important than collecting</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>First person experience is not necessary for CT</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td><strong>Diversified views</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Teacher D added teacher’s debriefing as another crucial part</td>
</tr>
<tr>
<td>Content knowledge and personal experiences (life experience)</td>
<td>➢ Repeated reflections throughout IES facilitate CT</td>
<td>➢ Is not related to CT if students do not go through any thinking process</td>
<td><strong>Similar view</strong></td>
</tr>
<tr>
<td></td>
<td>➢ Process of answering enquiry questions (justifying own stance and reasons) allow students fully involving in CT</td>
<td>➢ Attitude is comparatively a lot more related to CT</td>
<td>Content knowledge is needed for CT, but it is not influential</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Diversified views</strong></td>
</tr>
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<td></td>
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<td></td>
<td>Attitude is more important that it is the most basic component for CT</td>
</tr>
<tr>
<td>Independent Enquiry Studies (IES)</td>
<td>➢ As school-based assessment (SBA)</td>
<td>➢ Answering the suggested inquiry questions is a process to express CT</td>
<td><strong>Consistent view</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>➢ Level of CT can be fully demonstrated</td>
<td>IES is both a learning process and assessment of CT</td>
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<td></td>
<td></td>
<td></td>
<td>CT is shown more comprehensively in IES</td>
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<td></td>
<td></td>
<td></td>
<td><strong>Similar view</strong></td>
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<td></td>
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<td></td>
<td>IES is positively related to the development of CT</td>
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</tbody>
</table>
| **IES (con’t)** | **Compared to DSE** | **Consistent view** | **IES is better assessment of CT**
<table>
<thead>
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<tbody>
<tr>
<td></td>
<td>IES, including data collecting, is a true practice of critical thinking for better learning outcomes over exam</td>
<td>Both can assess CT</td>
<td>Data processing in IES is comparatively more useful in developing CT</td>
</tr>
<tr>
<td></td>
<td>IES is a better assessment method of CT than examination</td>
<td>CT is shown more explicitly in the process of data collection and analysis</td>
<td></td>
</tr>
<tr>
<td><strong>Value building and teaching</strong></td>
<td>Is included in CT</td>
<td>Is possible to be achieved if that is referring to universal values</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Is hard to achieve in classrooms</td>
<td>Depends on how good teacher-student relationship is</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Is seldom brought into classrooms</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flows for developing critical thinking</strong></td>
<td>It depends on students’ thinking pattern and learning diversity</td>
<td>Starting from personal stuff is better</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No one single form of thinking process is applicable to all</td>
<td>Without any experiences, students are hard to understand the situation and start discussions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teachers’ consolidation plays an important role</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Influences of examination</strong></td>
<td>Limits CT as certain aspects related to examination are covered, like excluding philosophical questions</td>
<td>Does not limit students’ CT as questions in examination requires students to argue and comment</td>
<td></td>
</tr>
<tr>
<td><strong>Limitation of learning critical thinking</strong></td>
<td>CT can be mastered by half of his students in general</td>
<td>Very little students are able to do CT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Students can practice CT only when these come into immediate concern</td>
<td>Some students cannot do CT because they hate LS feel frustrated</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>In general, they can only apply CT to data analysis</td>
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</tbody>
</table>

**Data collection is essential to develop critical thinking, but it is absent in exam**

**CT includes value building**

**It is not easy to achieve in classroom and one identified factor is teacher-student relationship**

**Learning diversity and learning habit is crucial in deciding the effectiveness of flow**

**Examination limit CT in terms of scope/aspect, but it employ CT by its argumentative and comment-seeking questions**

**CT is partially applied to other contexts, such as instant events or simple tasks**

**Only half or less than half of students can do CT**
4.3 Chapter Summary

The findings over the five interviews yield sets of perceptions of critical thinking. These perceptions are attempts to address the nature of critical thinking, its required conditions for development, students’ behaviors on learning it and its linkage with LS. Through examining the interview transcriptions, the perceptions are diversified among interviews. Regarding different learning environments and settings, different approaches to implement LS are adopted according to the understanding of critical thinking, vice versa. No single or a particular idea of critical thinking gains more recognition by all interviewees. Consequently, we are not here to get a generalized perception, but examine what critical thinking is perceived by in-service teachers and the implications for better teaching and learning.
Chapter 5
Discussion and Conclusion

This chapter provides a discussion of the overarching research question, “what perceptions do in-service teachers have about critical thinking and its relations to LS teaching and learning?” and the five subsequent questions as listed in chapter 1. By understanding the limitation of this study and significance of the findings on the perception of critical thinking, implications on teaching and learning of LS are highlighted in the last part of this chapter.

5.1 Perceptions about critical thinking

As shown in the chapter 4, there is no one single definition of critical thinking found among five interviews. Critical thinking is an abstract matter in teachers’ understanding that it can be skill, value and a mixture of the two. Elements of critical thinking are perceived from different points of view. Namely, there are four major basic elements made up the foundation of critical thinking, including thinking in multiple perspectives, making judgments with justified evidence, making criticism towards information and possessing own stance. Apart from these named elements, there are five required conditions for developing critical thinking as follows,

1. Sufficient prior knowledge and/or content knowledge
2. Sufficient time
3. Working in an authentic situation
4. Adopting mixed teaching strategies
5. Creating a multimodal learning environment
These two sets of understandings are not uniform among interviewees. This result shares the sophisticated and cross-disciplinary conceptions of critical thinking discussed in chapter 2. Owing to varied their students’ learning needs and demography, teachers’ perceptions of critical thinking change accordingly. Meanwhile, they may have different understandings of the role of LS teacher and, eventually, they take different viewpoints to interpret critical thinking. A similar result is derived from the perceived students’ behaviours in learning critical thinking. Therefore, understanding of critical thinking is a concept which changes across situations.

In term of knowledge, critical thinking is closely linked to knowledge, both prior knowledge, which are student learnt in earlier day or other subjects and content knowledge, which is the chosen issue and the six modules suggested in curriculum guide. Teachers pointed out that required knowledge for critical thinking disposition is too compact in the curriculum and that time is insufficient for them to develop higher quality thinking with students. The concern about knowledge is frequently associated with the background knowledge. This is different from the understanding of Glaser’s idea about knowledge of logical enquiry and reasoning (1941). With references to Ennis (1987, 1996), knowledge is a support for critical thinking disposition. The relationship between knowledge and critical is not determinate, but teaching is definitely conducted under the pressure derived from knowledge.

The learning outcomes of critical thinking are not satisfactory as expressed by most of the interviewees. They believed students can acquire critical thinking, as a skill, in classroom. Regardless the quality of learnt critical thinking skills, it is considered as a
cognitive skill, and expressed in associations with the subsequent elements, such as reasoning, making suggestions, judgment and reflection in the transcription. Though a set of well-organized and theorized ideas of critical thinking as cognitive skills is not found in interviews, its essence as listed by Ennis is recalled repeatedly (1996). The perceptions of critical thinking as skill are in line with the scholars in multiple aspects. Given to this strong awareness to the skill domain, specialized pedagogical designs for better acquisition of these skills are frequently mentioned.

Furthermore, the current development of critical thinking is described as a rudimentary form after years of study of LS. Students are able to master the critical thinking skills in different situations. They can apply in classroom and transfer to other subjects and life occasions. However, the application varies upon familiarity, ownership and others’ requests. This variety in application implies the instability of learning outcomes and, to a large extent, students’ abilities. With different thinking pattern, students required different ways of learning. Likewise, the development of critical thinking cannot be standardized and should be based on the students’ own talent.

Another focal point is value building and attitude. Developing critical thinking requires learners’ attitude as a necessary driving force. Interviewees presented their position in value building explicitly that it is necessary, though the effectiveness may not be significant. The value education part of LS is undoubtedly incorporated into classroom. This value bearing process of learning critical thinking is claimed to be necessary by various scholars (S. Bailin, Case, R., Coombs, & Daniels, 1999; Kurfiss, 
Additionally, the issue of teacher’s neutrality is risen in this aspect and leave for future investigation.

The discussion of value is not only rest in its presence in and out of classroom. In pedagogical aspect, the effectiveness of value building is uncertain, but it tends to be partially done. The more successful part is identified as universal values, such as respect, peace and democracy. The sequence of teaching also casts a difference in critical thinking skills and values. Teachers pay attentions to different aspects of LS, like examination and personal development. Although these emphases are not mutually exclusive in pedagogy, teachers are restricted by time and, consequently, have to make a pedagogical decision on prioritizing these critical thinking elements.

In a macro point of view, LS is a subject with larger room to develop critical thinking among students by schooling. Framed by the curriculum, the prevalent issue based enquiry enable adaption of current affairs as one of the majors in subject based knowledge. Meanwhile, the two key assessments of LS, i.e. public examination and IES are in parallel with the development of critical thinking. Diversified views on the impacts of these assessment, but students are being more active in socio-political affairs and more aware of social affairs.

In short, we can appreciate the diversity of critical thinking, and its implementation in classroom. The complexity of critical thinking is a challenge to LS teachers and also the whole curriculum. With such high variations, both teacher and students can develop their capacity to a higher level in regards to this flexibility. Moreover, as illustrated by Prosser and Trigwell (1999), the perceptions of critical thinking shape
the learning content and pedagogical approaches. Metacognition of teaching and learning is, hence, encouraged for a better and tailor-made learning community for both teachers and students in LS.

5.2 Limitations
The scope of this small-scale research is bounded into NSS LS and critical thinking. Teachers’ perception is the only object to examine through qualitative interviews, but it is subjected to other influences. As there were only five teachers from only band one and three schools included as interviewees for data collection, unbalanced views may be obtained with similar school setting.

A more systematic and wider scale investigation can be conducted to increase the sample size and, hence the significance of study. Limited by the time and resources that an undergraduate student has, the diversity and complexity of data is not sufficient for comparing the internal variations of understanding critical thinking among LS teachers.

5.3 Implications
In this study, in-services teachers’ perceptions of critical thinking are indicated for reflection and modification of current pedagogy of LS. As NSS LS is a newly established subject, without a solid and habitual teaching and learning practice, teachers’ own perceptions determine the ways of learning. The identified perceptions, firstly, enrich the understandings of critical thinking among LS in-service teachers in Hong Kong context. A revision of current practice with insights generated by this study, eventually, promotes reflection for better practices.
Furthermore, the ideal learning condition for critical thinking is not present in current school setting. More investigations on these conditions are needed for re-developing a better learning environment and community. Taking a small scale of comparison is done in stage two interviews into account, the conceptual gaps among teachers should be addressed properly and, hence this can be fully utilized to promote students’ critical thinking development and whole-person development. In addition, LS teachers are called to re-think on whether themselves strong critical thinkers are.

5.4 Summary

This study is an attempt to investigate in-service teachers’ perceptions of critical thinking in classroom. In their daily teaching and learning practices, critical thinking is infiltrated into learning activities, assessments and curriculum planning both intentionally and unintentionally. Considering the dynamic nature of critical thinking, teachers expressed their identification of critical thinking with different focus and expected dispositions. The diversity of conceptual understandings among teachers, on one hand, facilitates variation of pedagogical strategies to cater learners’ diversity, as well as teachers’ diversity. On the other hand, the teachers, for being a model and facilitator, demonstrate and promote students’ critical thinking development by themselves. The diversified perceptions of critical thinking, as an essential breeding ground, are necessary for students to identify the complexity of contemporary issues and to develop their own values and stances.
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Appendix 1: Conceptions of critical thinking as skills

Critical thinking for making “correct assessment of statements”
1) grasp the meaning of a statement,
2) judging the ambiguity in the line of reasoning,
3) judging the degree of contradiction of statements,
4) judging if the conclusion follows necessarily,
5) judging if the statement is specific,
6) judging if a statement is applying a particular principle,
7) judging if the statement about an observation is reliable,
8) judging if an inductive conclusion made is reasonable,
9) judging if a particular problem is acknowledged,
10) judging if something is an assumption,
11) judging if the definition is adequate,
12) judging if a statement made by an assumed authority is accepted


Examples of critical thinking dispositions
1) inquire about reasons,
2) to be well informed,
3) consider the total condition,
4) look for alternatives,
5) be open-minded,
6) take a certain position only when evidence are sufficient, and
7) habitual use of critical thinking abilities.


Set of skills for students to make “reasoned judgment”
1) distinguishing between verifiable facts and value claims,
2) distinguishing relevant from irrelevant information, claims or reasons,
3) determine the credibility of a source,
4) determining the factual accuracy of a statement,
5) identification of an uncertain argument,
6) identification of a hidden assumption,
7) detection of prejudice,
8) identification of logical fallacies,
9) recognition of logical confliction in a line of reasoning, and
10) determination of the strength of an argument

Appendix 2: Interview questions

Stage 1
1 Recent classroom experiences
   1.1 Which module/issue is now being taught in your class?
   1.2 How you teach the module/issue?
2 Teaching of critical thinking
   2.1 Does the teaching process of the module/issue include some elements of critical thinking? How?
   2.2 Are there any elements of critical thinking you would wish to bring in but cannot? What are they, and why not?
   2.3 Do you have some general strategy or model to teach critical thinking in LS class?
3 Learning of critical thinking
   3.1 In your opinion, do students understand what critical thinking is through teaching and learning in class?
   3.2 Do you have some positive and/or negative examples in which students can and/or cannot acquire critical thinking in class?
   3.3 Is there any general relationship between classroom teaching by the teacher and acquisition of critical thinking by students? If so, what are they?
4 Critical thinking and LS
   4.1 Does learning LS help students develop critical thinking better than other subjects you have taught?
   4.2 In general, how do you evaluate students’ development of critical thinking after learning LS

Stage 2
5 Response to some findings about critical thinking
   5.1 What is the relationship between the critical thinking and thinking from multiple perspectives (多角度思考)?
   5.2 How would you comment on these strategies like using debate, commentary of film and critics of editorial on newspaper for the sake of teaching and learning critical thinking?
   5.3 Do you agree in-person experience and first hand information, like conducting field trip, facilitate the developing of critical thinking?
   5.4 What is the relationship among module-related knowledge(content knowledge), personal experiences (life experience) and critical thinking?
   5.5 In your opinion, what is the relationship between IES and critical thinking?
   5.6 For your comparison, how would you comment on these two different flows in promoting critical thinking? “knowledge to concept to issue” and “from near incident to distant incident”
   5.7 Do you agree this saying “critical thinking includes value building, but it seldom and hard to bring into classroom”?
   5.8 To what extent students able to master critical thinking after three years of LS class?
Appendix 3: Transcription of the interview with teacher A

This appendix presents the transcription of the interview with Teacher A in mixed-code with both Cantonese and English.

Date: 15th April, 2013
Time: 08:45
Venue: Meeting Room 2 in school
Participant: Teacher A and interviewer

Interviewer: 我地就著剛過去的上課情況，現在教授的議題或單元是甚麼？
Teacher A: 中四現在教的是香港和中國，中五就教環境和公共衛生，中六現在就應考公開試。

Interviewer: 你在教學這些議題或單元的時候，你會運用甚麼方法和策略？
Teacher A: 中四五大多會運用概念作教學，以概念作課堂管理，而中六則以議題 issue 作教學。

Interviewer: 為甚麼會有議題和概念兩種不同方式處理課堂？
Teacher A: 因為我想同學在中四開始學習的時候，基礎知識比較少。如果單以議題學習，其實他們可以運用自己的能力去分析，可能未必足夠。而運用概念去教的時候，其實個好處就係容易讓學生去掌握，同做分析，同時做評估亦比較容易。同時，要清楚學生係課堂裡，學到些甚麼，會比較容易評估。但當然到了中六，因為要應付公開試，而且我地通識科去到最後都是個議題的探究，當我們對一些概念掌握的時候，用一個議題去學習會比較全面一點。即以我的理解，以概念學習係一種微觀的學習，從議題學習係一種宏觀學習的方法。

Interviewer: 這些方法有沒有包含一些 critical thinking 批判思考的元素在裡頭？
Teacher A: 其實有，係課堂入面一定有這些元素，即包括了係我們平時，有中四開始的一些課業，係讓學生做一些社評的評論，亦或者課堂上用概念學習會用一些小組的...評論...又或一些辯論，都可以做到 critical thinking。

Interviewer: 這樣，又有沒有一些是課堂上未能帶出來的 critical thinking 的技巧和元素，係暫時未做到或者有困難的？
Teacher A: 其實都會有一些，要去到做到一些好的 critical thinking，其實是我想是要有實際的處境中會較容易些了解。故所以同學有一些實地的考察是會容易些清楚點。

Interviewer: 即現在是少了親身經歷？所以難做？
Teacher A: 而...其實都有安排的，我地科都是有在早兩、三年在內地睇高鐵，睇環境，睇可持續發展。其實透過實地的體驗，同學的 critical thinking 係好過係課堂裡頭學習。但是限制於實際，我們不可以經常出外，有時候我會多用一些影片去帶出，即係比佢地(學生)去睇一些情況，尤其是一些關於中國的議題。

Interviewer: 影片方面，日常課堂裡學生大約的反應會是怎樣？
Teacher A: 佢地(學生)都係積極的，即係...都...鍾意的。

Interviewer: 但在比較不同的方法時，如刚才提及的小組討論、辯論和影片這些方法，同學在批判思考上的表現有何不同？那一個好些？會見到(批判思考)多一點？
Teacher A: 其實影片會好一點。
Interviewer: 為甚麼你會認為影片會好一點？
Teacher A: 我估同學在睇影象的時候，會留心一些、專注一些。這樣他們的感覺會...清楚一點、實際一點。但純粹讓他們做一些辯論，他們就會自己去構思、去想一些東西的時候，反而他們會無，無睇影片這樣好。

Interviewer: 以刚才兩項出發，學生是不是需要多一些背景去作批判思考？
Teacher A: 是，無錯。

Interviewer: 就批判思考而言，有沒有一些策略或鋪排讓學生學會批判思考呢？
Teacher A: 有，其實在通識科裡頭，其實除了課堂學習的三年裡，我們仍會配合課本評核的 IES。其實做一些批判思考的訓練，而佢(學生)在中四除了社評的寫作，其實社評寫作都是為了配合校本評核而設計的。這是因為佢地(學生)要多點尋找社會議題，了解社會議題，將來作為自己的議題。而中四我們會要求佢地(學生)進行一些小組的閱讀，而閱讀都是針對批判思考。這個閱讀學語文科是不同的，佢地(學生)不是要做閱讀報告，而佢地是要在閱讀以後，找出他們懷疑書中的想法是否正確，然後設計一點方法作研究和調查真相。而這就是批判思考 critical thinking 的一個方法。而在中五，我們都有做，中五就是透過提供一些...一些...研究，讓同學閱讀，叫同學找出研究當中的一些問題，即他們(研究報告)的研究方法、調查的方法在些甚麼問題。這兩個活動都是幫助學生去準備他們自己的 IES，即校本評核。而校本評核的精神都是提升學生的批判性思考。而其實到了中六，我們就集中在批判性思考，就是學校用的方法係 critical writing，即是學生做完校本評核後，學生是需要 present 他們找回來的調查、研究，這樣同時我們(老師)會有一些題目去反思一些研究是否做得好。這樣每一次其實所有學生都會參與的。

Interviewer: 以你去看批判思考 critical thinking，你覺得有些甚麼包括其中？
Teacher A: 我想批判性思考，第一是要個人能獨立地睇一些事情，而是客觀的，即是客觀地找一件事物。而最重要的是我想，個 critical thinking 是要睇到事物的真相。

Interviewer: 有沒有一些過程，有日常課堂裡能透過老師，透過教學而引導學生去做，或做了可更了解 critical thinking？
Teacher A: 都會的，其實有平常的課堂裡，著重多角度思考，即幫同學在不同角度去看一件事情。其實當佢地學會了用不同角度看事物時，其實佢地就會知道，在某個角度未必看到的真相，慢慢就會用另一個角度了解事情，最後就可以得到一個自己的睇法。

Interviewer: 有沒有一些例子是同學在日常課堂裡做了 critical thinking，令你感到 impressive？
Teacher A: (思考約三秒)......其實我所說的事物，在每個課堂裡，課堂的題問、小組討論、一些辯論、一些影片的回應，其實都讓學生做緊呢樣野(critical thinking)。其實，佢地(同學)的參與都是有關。

Interviewer: 在課堂裡頭，你認為你在課堂所教的與學習 critical thinking 有甚麼關係？
Teacher A: 有時有中四開始的時候，同學其實未必知道甚麼是 critical thinking，故所以，與剛才所說的亦有關係，作為老師，我會在課堂上提供一個例子或做法讓學生參考，然後就分組去做。舉個例，我最近做過一個是在課堂上，睇下政府係最近過去一年係回應香港的房屋問題的回應是否足夠同有效呢？這樣都幫到同學去看，看下香港的房屋存在甚麼問題...政府做了甚麼回應，這些回應又是否真的可以處理到我地的房屋問題。做完這個以後，我會要求同學分組去做的，
同學分組做就會揀一個題目去做，而各組都會是不同的，有一些組會做就香港的醫療問題，有些就教育問題，有些就環境問題，有些就垃圾問題，有些著做法就是做個細一點，如玻璃樽回收問題。同學以這些問題去賭政府的回應是否足夠有效。其實，他們在此都是做到的。

正如刚才所講，老師有時候是需要提供一些例子給同學，尤其是中四早期的時候，同學掌握了技巧以後，其實他們都會發展到自己的 critical thinking。

Interviewer: 刚才提及過主要是中四級的同學，如果同學去到中五、中六級的時候，老師的角色有甚麼改變？
Teacher A: 有...有...中六級的同學已經完成了校本評核，我地會用學生的校本評核作為出發點去帶出個 critical thinking。而呢個是最好的，點解係最好？因為，其實通識科的學習講求探究式學習，最好係個探究式學習係屬於個學生自己，而不是屬於老師，咁所以從學生的校本評核的議題出發。其實係學生找到的東西出發，學生的了解會更加清楚，個背景，同時其他同學的參與會更加容易，而趣味亦更加大點。為甚麼他們選擇校本評核(題目)？正正是他們覺得有趣，他們才會做，故所以這樣是真正可以做到學生為本的一個課堂。

Interviewer: 在學習的鋪排上，有沒有一些特別的策略去學 critical thinking？有一些學習的步驟？
Teacher A: 在我們的學校裡，如果要分步驟，會按中四、中五、中六就如我之前所講。我地會比較有系統，想學生會在中四從閱讀去發現、探究性的 critical thinking，呢個批判性思考，即是希望學生不是憑空去、純粹去做一些 critical thinking。他們會睇一些書，而書入面會有一些立場、一些睇法。而去到中五的時候，我們唔再係用一些書本，而是用一些調查去睇，找出一些事物是不是真的。而去到中六，就會是從學生的校本評核出發，用學生自己的東西去睇。其實都有不同的 steps 去幫學生。

Interviewer: 有沒有一些課堂上的策略，係每一個在校的通識科老師都會用到？
Teacher A: 其實我們在每一個學期的...我地一年有三個學期的，其實我地每個學期都會有兩個單元的部分，係跨單元的學習。在每一個學期的期中，我地在兩個單元之後，我們都會有兩堂會針對一個跨單元的題目去做一些 critical thinking 的，一些比較 high order 的 critical thinking 的教學。這些就是，即係所有老師都會做的，就是課堂裡有一個課題，然後同學會就著課題去做一些討論，去找出不同的看法。

Interviewer: 去到最後，我地看一看 critical thinking 與通識科之間的關係，同學會唔會係學習通識科之後對 critical thinking 的發展有正面的幫助？
Teacher A: 會，呢個...我想這是一個相互問題，學通識科會幫助 critical thinking，critical thinking 又會幫到通識科的學習。因為通識科其實比較涉獵的範圍比較闊，學生對不同的 area 的事物識知多了，其實有利他們去做多角度思考。即比較傳統科目，傳統科目係一個課堂入面，譬如經濟科，我想都主要是以一些經濟角度去考慮，其實學生會好難去做到...一個闊的 critical thinking，因為其實他們唔會用通識科要有的條件。

Interviewer: 通識可以用一個議題去做單位，會唔會有一個便利去令到學生去發展批判思考，而比其他科較好？
Teacher A: 係呀...其實以一個議題出發的，即不是割裂去睇一件事。其實反而去睇，critical thinking 是客觀，全面地去睇一些事情，全面去睇是應該會好一點。
Interviewer: 整體而言，總結四年通識科的教學經驗，同學由唔識批判思考到學會批判思考，同學在行為或說話上沒有一些改變？
Teacher A: 有，有幾點真的是有改變。他們睇事情會多角度了，在態度上會包容多了。
Appendix 4: Transcription of the interview with teacher B

This appendix presents the transcription of the interview with Teacher B in mixed-code with both Cantonese and English.

Date: 15th April, 2013
Time: 14:35
Venue: Meeting Room 2 in school
Participant: Teacher B and interviewer

Interviewer: 就著剛過去的通識科課堂，現正主要教授的議題或單元是甚麼？
Teacher B: 現在，中六就完了，中五現在沒有教，但之前六個單元都曾經教過。中四就只有一班，所以就是個人成長和中國。

Interviewer: 你在教授個人成長呢個部分的時候，有沒有一些方法或你會如何教授？
Teacher B: 無，其實時間都比較緊迫，主要以教授知識為主，而...亦...有一些 value 的教授。

Interviewer: 在 value 的教授，大概有沒有一些方向，或做了甚麼作 value 的培養？
Teacher B: 咁即是...即係你都知課程都幾緊，都會是就內容去教左先，起碼都知道個內容先，同時就可能...(思考約 3 秒)即係 value，就可能是一個人的個人成長，可能要...要...想的...要想的可能有好多的事情。譬如佢地...佢地去睇拍拖，拍拖係睇一個人點樣去睇佢自己，係別人的價值，可能就唔係俾得太高，即係同時要學識欣賞自己，同時肯定自己。這些好重要，即如果不是，一個人知道甚麼是自尊，知道自尊的高低，佢地要識得睇佢地自己應有的價值。即是好過佢地只是會有知識，這些就是我想講的 value。

Interviewer: 教的時候，有沒有一些關於批判思考 critical thinking 的元素加入在教學的過程？
Teacher B: 我想沒有特登這樣做。

Interviewer: 在你心目中，你有沒有一些想透過 LS 的課程或日常課堂，想學生做到一些批判思考或一些批判思考有關的？
Teacher B: 我想是多角度去看同一東西，即未必可能...好似...好 high level 去講 critical thinking，但我想學生不會走單向，就是從「我覺得係點解」、「我覺得係點樣」。而是學會多角度，我想即他們嘗試多角度，都可以係中學生初步的 critical thinking。我想通識都是講，學生從多角度去分析一些議題、事件。

Interviewer: 如果以你平時的教學習慣或方式入面，如果你想教 critical thinking 批判思考的時候，你會用甚麼方法、甚麼策略去教？
Teacher B: 即時想到的是可以...就著一些議題要他們找一些背景資料，接著分開不同的角色，可能...就好似有一些辯論或討論，情況就都幾似城市論壇一類，找幾個不同背景、不同的持分者的，他們就不同的議題去講，可以不同的方向去看，接著不同的論點都出到，可能有些學生會...未必想及其他持分者的意見。我想這樣都可以讓學生都可以睇下同一件事...A 君 A 的持分者睇落去佢地會覺得係咁樣睇，但係 B 同 C 會另有這些睇法，可以讓學生凡事都以多角度去想。
Interviewer: 這一個策略，而中四到中六都有教過，不同的級別會不會有不同的方法係用過？
Teacher B: 剛才這個會用過，正反都可以，正反辯論都可以。(思考約 9 秒)我想都係正反，即好似辯論。

Interviewer: 我地睇下學生學習的情況，你覺得他們在課堂入面有無学到 critical thinking?
Teacher B: (思考約 3 秒) 其實會幾難的，即是我想 critical thinking 他們會有很多的知識係入面。
如果少一點知識的話，就算嘗試去從多角度去想，但地都唔可以知道現況是如何。如果個議題係近佢地的話，但地會易點去做。

Interviewer: 經過課堂以後，你覺得他們有沒有做得較好、多了？
Teacher B: 其實都會，其實因為他們考試上，那些「多大程度同意」，即「認不認同」、「是否」這一類，其實都要嘗試正反去想。

Interviewer: 有沒有一些子是課堂上，見到學生做到或者不能做到 critical thinking 的例子可以舉出來？
Teacher B: 學生通常思考比較單向，即是他想了 A、B、C 解釋就當答完。即佢們多角度、批判的話，我先講多角度，多角度，但地其實唔會好多角度，可能一個角度、兩個角度有點 point，但地就會覺得完左，可能一黎但地細個，二黎但地無需要這樣同人去傾，同人去交這些事。

Interviewer: 你覺得在上課的時候，會唔會影響到他們學習 critical thinking？
Teacher B: 我想他們由成長到現在，最接近 critical thinking 的學習，其實是通識，即最接近呢樣野。佢學過一定會好少少，同時呢一科都會，如果時間是許可及 class size 是許可的話，其實即係如果可以做到一些活動是多點的話，當中就會有一些機會，讓他們去嘗試...去 critical thinking，即是可能做一點討論，這些討論是需要爭辯，可能要去攻擊對方的論點，要自己去搜集一些資料，又可能除了要想自己的論點，又要想對方的論點。即是有很多 stakeholder 好多持份者的話，即是要睇下其實持分者的理據，背後的論點論據是怎樣，即有無例子。我想這些都是一些...這個學習...是他們之前所缺少的。
Interviewer: 剛剛提及時間許可，是不是在理想情況下，critical thinking 係可以係通識入面教到的？

Teacher B: 我想是 critical thinking 是不是可以教到，我想是嘗試比他們去經驗、經歷得到，他自己的話會比他們去用係另一回事，而他知唔知道 critical thinking 又係另一回事。即...我有些學生其實到最後都只是堆砌一些東西，都不會嘗試多角度分析的同時，都要視乎學生願不願意學習，及他有幾掌握得到。即是我想 critical thinking 始終都是 high order 的東西，同時都是對學生要求高少少。有學是會好一點的，有學這一科起碼會涉獵到類似的思考模式。

Interviewer: 剛剛提及過一些限制，如果撇除所有的限制，你認為最理想學習的方式，或在課堂上，在學校裡頭，如何才是最好學生可以認識、學習 critical thinking？

Teacher B: 最理想... (思考約 15 秒) 我認為 critical thinking 是同他個人的人生經歷有關係，(思考 3 秒) 即如果學生可以有更多一點的經歷的話，他們的思考會更加實際，即可以走出，即係離開課室，做義工，去做參觀，去做一些觀察，以老人問題這樣，老人問題他們可能知道都比較片面，他們嘗試去跟一些婆婆去拾紙皮，去居住的地方，點解他們會住得好差，無子女養。我想這些對學生需要的是第一手的資料，而不是一些二手的資料，一手資料的話，他們會有一個感受，即系... 除了有一個感受的資料之外，他們會嘗到老人家的感受，這樣會多一個層面。如果在這方面，有長少少時間的考察，跟一整日的課，可能就見到實質上，一些他們見不到，經歷不了，體驗不了的東西，這些是二手資料不能告訴他們的。即是他們有多些時間去讓他們觀察社會的人生百態，或者有一個實際的參與，甚至後一些社會的事件。其實話如果可以涉獵得到的話，我想這樣相信會好過他們自己在上堂看書。就好像去年國民教育的事件，我想這樣一件事，有好多中學生都是經歷過呢樣野，他們會看到同一件事，有不同的持分者，可能就對推行國教的... 的... 論點，家長會點睇，學校又怎樣看，可以錢銀上，又怎樣令到推行國教有誘因，學校會想推，就... 即這樣是一個具體的例子，要學 critical thinking 可能就需要走入一些事件上，去經歷過，會易好多。即是跟著一些模式，可能相似的模式就可以套落去好似今次、最近這個碼頭工人的辛酸一類，接著他們就罷工，要求他們的工作要有尊嚴同合理的待遇，即... 但... 在這件事上，又可以疊到好多，背後突然好多的人，人點解會有人支持碼頭工人。我想這些事務，好多中學生都會支持，好多不認識的人會支持，本來好似係單單一個碼頭工人去爭取一些合理待遇的罷工，但衍生的係整個社會對一些... 商家怎樣刻薄基層員工，基層員工又有怨無路訴，有很多人都有這樣的共鳴。睇到成個香港社會有好多矛盾的時候，衍生一個好似社會。這樣，如果有機會去參與的時候，數目人點解會自發去捐錢，短短可能只是個多月就捐了四百萬... 有好多中學生會去支持，又去送飯盒，又去送衫比他們。即是會疊到，參與這些事件，其實會更加具體去學習 critical thinking。

Interviewer: 我地睇下 critical thinking 同我地的通識科的關係，你認為學習通識會唔會比其他科目較好去學習批判思考？

Teacher B: 我想會，因為是通識主要會... 是可以有好多的議題，好多的 module 的知識都要學。這樣就著議題學生要學識怎樣去分析、去思考，即是如果整個課程，六個模組，接著考的... 考核的內容是跨單元，跨單元就自然多角度，同時他們要做個人的 IES。IES 他們或多或少都學習去拿一些持分者的意見，set 一些的問卷，去看一些文章、報刊，就著相關的議題的內容所得出的文章他們都要看。我想就是，其實就是... 就是比學生有一個規範的情況之下走入社會，去學習... 怎樣多角度去分析，去批判，去想下這樣對不對。我想 IES 其實是一個... 就是一個 critical thinking 的... 的... 真係俾他們去執行的。縱使學生做的一些似是而非的 IES，但他們真的試過。最後得出的結論，他們... 究竟所得到的假設是對與不對，他們都識得批判過他們自...
其實是沒有的，即是你可能話科科都可以有的，但科學科的...其實空間比較少，一係對一係就不對，但多角度思考或 critical thinking 有時並不是絕對是對絕對是錯，又或者對之中又為甚麼是對，又或者點解有些...有些地方並不是全對。我想這裡有一些空間讓學生去睇事件，而不是是非一定是黑白。

Interviewer: 你覺得你會如何衡量學生已發展的批判性思考？經過這幾年學習通以後。
Teacher B:...睇他們答題目，其實都見到他們會嘗試學習多角度去做，即他們知道，從個考試技巧，他們就是要多角度，要去...去...有些是可行的...論點，背後有一些的實質的例子論証去支持。即是我想這些其實是一個成果，他們答題目同中四的...好...好新鮮，甚麼都不知道，他們想到甚麼就答甚麼，在堆砌，即是抄書，抄一些資料，抄一份就當答完。我想從答題上，他們所表現出來的能力的進步，這裡是睇到他們是會成長了。

Interviewer: 在日常表現，其實他們有沒有一些學批判思考有關的行為？或者言行？
Teacher B:...咗....比較少，因為課堂其實他們去到中六的時候，他們會就著 IES 去...去睇他們做成就...睇他們的分享...去睇他們的研究結果，同時就...主要就是埋尾，完成埋個課程。變左課外，以外去睇學生行事為人的，我想這裡比較難，我無有一個客觀的機會去看一班學生...係有讀 LS 同一班學生無讀 LS 之後他們的表現有何不同，我想做不到一個比較，直接去量衡得到，即是在讀完通識之後，對於學生果個的學習 critical thinking 果一方面的成果會不會特別多了好多。但我可以肯定的是有的，就是多了幾多，有實甚麼實質的改變就難的，因為始終...我們的 sample size 好細...我...教得一班三十幾人，除非有個客觀少少的衡量，即是個 critical thinking...我想暫時未有一些...一些客觀的衡量一個人的 critical thinking，去有幾大的進步，呢樣難一點。

Interviewer: 最後，就著 critical thinking 批判思考，你覺得 critical thinking 是甚麼？
Teacher B: Critical thinking...(思考 3 秒) 面對一些論點...論點，不會假設這些論點一定是對的，要睇下論點是不是可以站立得住，背後有無一些理論、驗證、有沒有事例...(思考 3 秒) 我想這是我所想的 critical thinking。
Appendix 5: Transcription of the interview with teacher C

This appendix presents the transcription of the interview with Teacher C in mixed-code with both Cantonese and English.

Date: 17th April, 2013
Time: 10:15
Venue: Meeting Room 2 in school
Participant: Teacher C and interviewer

Interviewer: 首先，我想問剛剛過去的、近期的正在教的 topic 或者 issue 是關於通識方面的？
Teacher C: issue，即是 module 是不是關於邊一個單元？

Interviewer: 係，即是邊一個單元或者是議題，現在是上堂教緊的？
Teacher C:上堂，呢排教緊生物科技，基因改造食物...近期...呢個就真係好近期。

Interviewer: 接著，你有教這些 module 又或你頭先講的議題的時候，你會用咩方法又或者你上堂的時候會點教？
Teacher C: 都主要是睇影片，有簡報，同埋有一些題目去比他們做。

Interviewer: 題目方面，會是點樣的題目？
Teacher C: 頭先就會是仿併文憑試，即是自己就議題去訂一些題目，這樣比他們做。

Interviewer: 是類型會是資料回應題？還是？
Teacher C: 是，題目會是資料回應題。

Interviewer: 會唔會一些文章、短文比學生睇？
Teacher C: 唔會有文章，只是會睇影片。

Interviewer: 即是上堂時會就剛才提及的影片出一些相關的工作紙嗎？
Teacher C: 是。

Interviewer: 在教學的過程入面，頭先提過的議題和方法裡面，會唔會有一些批判思考的元素是否包含在裡面？
Teacher C: 係有的，通識科其實都好講呢個批判思考，係睇的過程都要同學自己判斷番影片，呢個議題就是基因改造食物，他們判斷番呢樣野是好定唔好，係因為無固定答案的，就只要同學有理據，其實都係會接受。所以呢個都係訓練他們去批判思考的樣子。

Interviewer: 這是做的過程。而有沒有一些關於批判思考的元素，在暫時這個方法或這個議題裡是未包含到的，是可能在之後會做或者今次是暫時未做到的？
Teacher C: 想個批判思考是...可能時就少一些機會同他們做一些關於價值的判斷這樣，即是他們好多時候都是可能就著個議題，去想其他持分者是怎樣去睇件事的，但是佢地自己個個人就佢地學生的立場等等，就可能是少一些機會的，因為課程都好緊迫，好多時候都是會以考試主導去訓練佢地，而這個態度、價值觀判斷就少一點做。不過這個是通識科課程要求入面...其實...最終都是想佢地可以做到這個技巧的。
Interviewer: 就著你一路的教學過程入面，撇除剛剛所講的所選擇的議題或者單元，有沒有一些常用的策略或者常用的方法係著教的時候可以帶到 critical thinking？
Teacher C: 常用的策略都是比一些資料他們去判斷，而這些資料的內容都是影片，一些文章，又或者會是圖畫。呢個都是常用的。而佢地果個批判思考的訓練模式通常都是用一些題目的，或者口頭回答。

Interviewer: 在課堂上堂，有沒有一些活動是可以見到或者表現到佢(學生)有批判思考的？
Teacher C: 都有的，如果在課堂最快、最明顯見到佢思考的對答，平時一些恆常的功課都會見到佢有個人的見解，即是我地學校都有剪報，因為剪報的發揮空間比較大，都會見到佢地有個人的睇法。

Interviewer: 以你意見或你的認識裡，同學明唔明甚麼叫做 critical thinking? 同學會點認為？
Teacher C: 佢地係會掌握到個技巧，佢又未必可以好定義性、好有系統咁叫做批判思考，但佢係有呢個技巧，我覺得一般的學生都是。

Interviewer: 剛剛提及過的課業是不是可以表現到？
Teacher C: 是...

Interviewer: 有沒有一些例子你可以講是見到同學的 critical thinking，除了剪報，課堂上有沒有的一些言行、行為是可以見到？
Teacher C: 我想言行就是...如果在課室裡面就是...即是有助我會同佢地分享一些時事，其實是純粹分享，其實是無話有任何話想同佢地做訓練，但是有一些同學都即刻有一些口頭回應，即係其實都睇到佢地有自己的一些想法，或者甚至是同...可能果篇文章背後所隱藏的一些價值是完全唔同的，佢地都會批判到。這些就是在課堂入面都會見到。

Interviewer: 你覺得你帄時的課堂入面，你的教學入面會不會對他們學習 critical thinking 的時候有一些關係？
Teacher C: 我覺得都有的，因為通識其中一個好重要的技巧就是多角度思考，這是一個題目的基本要求，故所以很多時候都會是要他們去可能從不同方向，或者是自己角度、人地角度去想。這其實，他們就不知不覺係會用呢種模式去思考。甚至其實我有教新高中的另一個學科，咁其實都睇到的，他們這個能力，技巧是都可以轉移到，至少在我教的另一科就都見到他們有這個的能力。

Interviewer: 剛剛提過一些能力的轉移，其實會不會是其他科目做不到一個批判思考的培養，反而系通識科做到？還是換轉，不是通識先至做到？
Teacher C: 我又覺得不是的，因為好視乎科目本身、性質，其實通識、中文，又或是我教的倫理與宗教或者中史，其實而家都是趨向所謂的「通識化」。因為我學得比較文科的學科，其實都做到呢個...即是做到呢一樣野。中文我知道他們都是要去學先破後立，又或寫文...都是要多角度，甚至英文科都是這樣。但當然其他的學科，例如話是理科的，又或者是一些比較...學術性比較重的科，它真是就只有對同錯兩種答案，數學一類。可能做到批判思考就是會比較少一點，這就是科目本身的...的果個性質。
Interviewer:相較其他科，通識會唔會有一些的優勢，相較於其他科是通識才能做到，而其他科所培養的批判思考是不同的？
Teacher C:通識最大的優勢是得多的教材其實是同時時事好有關，變左...個教材真是要佢地睇很多的報紙，所以變左那些教材就是本身可以令到佢地可以睇到多點不同人的觀點。這可能是其他學科就是少一點的，未必是所有時事都這樣容易成為其他學科的教材，通識就可以容易點做到這樣。

Interviewer:你會如何衡量一個學生學了通識科和未學通識科的改變？
Teacher C:我想整體而言，雖然同學都有學習差異，但我覺得都是有提升的，一定是會有所提升的，他們的批判的能力。但是...即至少他們都有個意識，我覺得所有的學生的意都會提高，但批判的能力就唔乎不同學生的能力而異。(思考 2 秒)即有些學生做的批判會理性點、有理據點、有邏輯點，這是能力比較高的學生，而能力低一點的學生，他們是純粹知道有一些事未必是對，但他們又未必是...好有組織地表達到是這樣。

Interviewer:即相对上，同學的表達有所不同，但心態上就同學都有批判思考。
Teacher C:是...是...
Appendix 6 - Transcription of the interview with teacher D

This appendix presents the transcription of the interview with Teacher D in mixed-code with both Cantonese and English.

Date: 26th April, 2013  
Time: 16:00  
Venue: Staff common room in school  
Participant: Teacher D and interviewer

Interviewer: 你現在所教的課堂，與通識有關的議題或單元會是甚麼？  
Teacher D:唔同級都不同。

Interviewer: 中四、中五、中六級教緊的是？  
Teacher D:中四教緊全球化；中五教緊中國，中六就走左。

Interviewer: 你會如會如何教中四及中五的這個 module？  
Teacher D:我想最主要都是 issue based。

Interviewer: 大約會是如何進行 issue based？  
Teacher D:Issue based 最簡單是...都有一些步驟的，譬如一開始會是透過一些 Information，即是透過一些圖片、一些 statistics 或者一些片段或者短片、報章，即是不同的媒體去到..首先要去了解發生緊咩事先，即是一個 background information 這樣比了學生先。之後就開始，如果最普通的做法，我們通常都會睇下那件事的因果關係，跟著就如果是一個問題的話，可能就會叫他們 make 一些 suggestion，怎樣去解決。最終的目的都是想他們對這一件事建立了他們的睇法，即是他們的價值觀在裡頭，建立一個價值觀...個步驟大致上都會是這樣。

Interviewer: 在教的這個步驟入面，有沒有一些批判思考的元素是包含在裡頭？  
Teacher D:都有的，最簡單每一個步驟都可以滲入些這樣的元素，譬如第一個就是...睇資料的過程之中叫他們批判一下個資料是不是...有無 bias，能不能夠全面反映到...即是...實際的情況。睇資料會是這些，睇下有沒有批判性思考。跟著因果關係是會要他們，如果深層次點，就會是叫他們辨析那個因會不會導致那一個果，即是是不是必然會發生那一個果，又或者在眾多的因 素導致那一個事件裡面，那一個是最重要的。跟著到譬如建議果一類，我們都會叫他們評論一下那建議，循著一些建議的成效、可行性。又或者是一些原則的問題，去到想呢樣野(建議)。最後，如果叫他們建立一個價值觀，一定會包含到的我相信。

Interviewer:你相信會包含到價值觀的意思是...其實去到最後有機會做不到價值觀，還是價值觀是一個(被打斷發問)...甚樣的部分。  
Teacher D:不是...建立他的價值觀是會有一個批判的成分在裡面的，就是要他們評論一件事，要他們表達立場，當中一定會經過一些批判性的思考，這樣才會做到我覺得。

Interviewer: 剛剛提過的那一個步驟入面，又或是平時你教學入面會不會有一些批判性思考的元素其實是你想加入去但暫時是未做到，或者是未有在現在的步驟裡未有包含到的？  
Teacher D:我想就剛才講的都是有做過的，但你話有無些想做但未做到....(思考約 5 約)有時可能在一些客觀的環境裡是做不到的，班的人數、學生的基礎知識、語文的水平都會影響到，有時未必做到批判性思考的。即是他們未有足夠的知識在裡頭，即是譬如某些位他們已有一套價
值觀就會易些去到做到評論，他們最簡單去到做一些涉及到環保的事，他們知道譬如甚麼是可持續發展的，如何保育的一類，但問到一些深層次的，他們就未必會講得到，譬如就是可能在全球化對他們來說比較遠點，至於那個全球化那種國與國之間的關係，他們未必這樣清楚之下，其實他們好難判斷到究竟全球化是好定壞，這一類他們是做不到的。即是都好睇他們的知識去到邊我想。

Interviewer: 你剛剛說「知識去到邊」其實是不是他們的已有知識有幾多？
Teacher D: 已有知識呀。

Interviewer: 在這個課堂入面，剛才提過的策略又或者是頭先講過的步驟是不是每一個班別都可以用到？其他通識科的老師都會用相應的方法去教的？
Teacher D: 我想是，因為始終無論你去討論一件事或者到時到考試所問的問法都是大同小異的，整個步驟都是這樣子去，故所以我們用番這個都可以呼應番 assessment 果度，所以都每一班每一級都會是這樣子用。

Interviewer: 就著你的意見，學生明不明白甚麼是 critical thinking，在上課之後？
Teacher D: 我想大致上都可 okay 的....(靠近椅背並抬頭仰望)

Interviewer: 大致上 okay 的意思是指大部分的同學都掌握到、都明白是甚麼，還是甚麼？
Teacher D: 要睇個 level，正如刚才所講，去到判斷個資料有無 bias，或者是能不能夠反映到，好全面地反映到個實況。這些都比較易的。至於去到最高層次的，你叫他比較那...比較邊個因素重要些，又或者是叫他們判斷個立場，就有些困難的好多時。果種價值觀的建立是有點困難的。

Interviewer: 有無一些例子可以舉到是學生學了批判思考的前後不同，又或是做到是怎樣，做不到是怎樣的表現？
Teacher D: 我想我們期望他除了是落堂之後，他們識做另一份練習之外。即是在日常生活中，他們能夠做到一些判斷對一些事，譬如你睇報紙能夠指出到果報紙的立場有無偏頗，譬如 Facebook 上網上一些留言又或是傳緊的一些事，他們能夠判斷到是真是假，同埋能夠話到比我們聽倒他...即是通常都會譬如話真定假，我們通常都會問得他們仔細點，睇判斷真假的過程會是怎樣。我發覺他們是有進步的，在教完之後，可能唔單只是通識科，每一科裡面共同建立到他可以批判思考這一樣，即是不是全部相信。

Interviewer: 如果上堂以後，有無一些你日常的接觸你會見到其實他們有一點批判思考的行為會體現得到？
Teacher D: 都有的，譬如最簡單因為我們學校有一個學生的論壇，隔個星期就有了。學校話要...好像今日為例，學校話要改建一些裝修、設計，他們就問好多問題，譬如話會是是不是有必要，做這件事果個原因是甚麼，是不是無其他方法，即是他們會有很多質疑的問題問番出黎。

Interviewer: 剛剛提及他們會提出一些質疑的問題，其實你覺得會不會是學了通識科先做到？又或者個關係是怎樣？
Teacher D: 我想我們都唔辦法可以講得到是有直接的關係，生活的一類。我想我睇他們學不學到好多時都會是睇他們做通識的功課去到做判斷，或者去做 field trip 裡面，即是都是與通識有關的先會判斷到。
Interviewer: 在你日常的教學裡面，老師教的同學們學 critical thinking 之間會不會是有一些關係在裡頭？
Teacher D: (思考三秒)即是點呀？

Interviewer: 即上了通識課後，他們會有一些具 critical thinking 表現的行為，好似剛才所講他們會提出一些質疑，這些行為同我們的課堂之間會不會有一些特別的關係可以見到？Teacher D: 我想會有的，我們通常比他們睇的 information 都是日常生活的東西，即是譬如報紙、網上的一些片、一些文章，這些都是他們日常生活接觸到的東西。故所以我們...即是我們覺得他們上堂學一種會是他們平時好少會接觸到，即是話反而在中文教得深一點是...是一些語意、邏輯、謬誤，這些可能會遠點，但是通識上他們會睇資料，睇片，這些我又覺得在日常生活中都是貼近的。

Interviewer: 在通識同 critical thinking 之間的關係，你覺得通識會不會幫到學生去發展 critical thinking，相較其他科是為之好的？Teacher D: 我又覺得得的，但是都要睇老師的教學法，同埋學校的一些理念。我知有一些學校，其實譬如上堂的模式基於學校的傳統，或者老師可能是由舊制轉到去新制，又或者是學生的學習模式是習慣了一些比較單向的課堂，好多時他們都只是會...即是六個單元有本教科書，這樣教完一個 chapter 到一個 chapter，這樣當中可能會比到學生去思考、批判的過程是會少點，呢個都知道的。但是你會見到個趨勢現在是去考核的，其實佔了很多會是考核一些技能，他們是不是會真的用得著那些 concept，其實又不是...即是你是會見到是需要的，但你見到整份卷的篇幅佔了一半以上都是技能为主的，反而 concept 一類只要他們是理解的，根本就不需要背很多的東西，故所以我覺得個方向是幾正確的，通識而在所考核的。

Interviewer: 正確的意思是指？
Teacher D: 它所考的真的是考一種能力而非背誦。

Interviewer: 這種能力其實算不算是批判思考？又或者是其他？
Teacher D: 其中一樣。批判思考是其中一樣。

Interviewer: 如果是批判思考以外的，你覺得會是甚麼能力會是現在所考核中？
Teacher D: 可純粹是一些，即是一些閱讀理解，即是理解個資料之後回應題目，會是一些...譬如有一些都未必涉及到批判思考，一些簡單分析原因，比一些建議，這些都未到批判性思考的層次。

Interviewer: 一般來說，最普通的就是考試，但是我們不時都會注入不同元素，譬如可能是不用他寫的，在辯論的過程之中，又或者是一些小組討論的過程之中...呢兩樣野偶然都是會做的，即是睇下他們會不會運用到...即是他們會有一條辯題的，辯題之中其實他們要表達到立場的，能夠回應對方的觀點，能夠...考慮得全不全面，這些都可以見得到的在一個辯論和小組討論的過程之中，其實會靠其實不同的元素。

Interviewer: 你覺得這些說法點睇，第一個是你覺得呢個多角度思考同批判思考的關係是甚麼？有些甚麼關係在其中？
Teacher D: (思考 3 秒)你要做到批判思考第一個步驟你需要有多角度思考的，這是最基本的。即是如果你只是想一面的，是無可能做批判的，即是無可能衡量到邊一面才是對的。個關係可以是...我覺得是一個先決條件，即是多角度思考是。

Interviewer: 日常課堂入面你會銳意培育多角度思考先，還是無分的？兩樣一齊做的？
Teacher D: 多角度思考先是重要一點的，即起碼去到 brain storm 了大量有可能的原因，之後再進一步才可以做到邊一個是真，邊一個是個主要原因。會做左多角度思考先的所以。

Interviewer: 另一個是有一些老師會用這個 debate 辯論，或者播一些片跟著比一些意見去評論那一段片，又或者是一些社評、報紙上的社評做評論，這些方法你會唔會覺得是教到 critical thinking，或者學 critical thinking 的發展有無關？
Teacher D: 絕對會，其實又任何一樣東西都可以發展到批判思考其實，因為我們...就算是一套記錄片都系有個立場在入面的，即是當你整理過之後就系有，無論是社評，即是無一份報章系是完全中立的，故所以...我覺得任何的東西其實我們接觸到的都可以做到個批判思考的。

Interviewer: 有些老師覺得親身的經歷 in-person 的或者是第一手的資料，譬如我們去 field trip 之後拿回來的資料都會幫助到 critical thinking 的，你覺得這一方面會不會在你的識認入面都係有幫助的？
Teacher D: 絕對有，但是要睇之後的 follow up，即是搜集一些資料後，點樣去到幫助學生去想。所以之後要做的都是些功夫來的。
Interviewer: 比你比較兩個不同的睇法, 有人覺得教 critical thinking 的步驟應該是由知識去到概念最後就去到議題, 有些就是由近的、身邊附近的事情開始再去到遠的事情, 你覺個這兩法想法, 或者這兩個教 critical thinking 的想法或流程, 你會如何睇？
Teacher D: (思考 3 秒) 我覺得是.. 個個都... 要睇個學生本身他是一個怎樣的學習者。有些學生不喜歡一條直線去學習的，他是喜歡有些東西刺激到他先去學的，他就會是識合後者的方法；但有些就會要搞到件事好清楚先的，一步一步來的，我想兩個都有效，最緊要的就是... 即是選擇到一種他... 他的思考模式是怎樣，取決於是。

Interviewer: 這個一個差異，你在課堂上多少多見得到？
Teacher D: 這個都多的其實，又或者其實是可能不單止這些差異。有些學生喜歡從頭到尾都是自己做，就不是你教他的；有些學生就本身的思考的方法是比較跳躍一點，你又要幫他重整番。故所以無辦法用一種的，即是無辦法用你講果種思考的過程用得著在每一個學生身上絕對會的這一個。

Interviewer: 有個說法「批判思考會包括一個價值觀的建立，但這一樣好少又或難去帶入課室入面的。」你會如何看這個說法。
Teacher D: (思考 5 秒) 點樣睇？即是點呀？

Interviewer: 個說法剛剛提過是「批判思考包括一些價值觀的建立，但是這一個是好少又或難去帶入課室入面的。」這個說法你同不同意？又或者你覺得有沒有類似的感覺？
Teacher D: 這不是我刚刚講的嗎？

Interviewer: 這個都是，這樣你即是？
Teacher D: 我認同的。

Interviewer: 考試方面，LS 的考試同答題的技巧會不會影響你教 critical thinking 的方向和方法？
Teacher D: 絕對會的，這可在問題上的設計會參考公開試的模式，故所以我們所教的果種 critical thinking 都只是某個範疇又或某個面向的 critical thinking。就即是你不會討論一些哲學的問題，所以我想我們會按照... 畫像... 在課堂即興的話就討論到好遠，一些哲學的問題，但基本上如果你編排課程裡面，盡量都是會跟著它... 經常考核的模式去設計一些問題出來。

Interviewer: 最後一條是，在多大程度上你覺得你的學生可以做到 critical thinking? In general 所有學生去計。
Teacher D: 我覺得是一半一半，他們會比同自己切身關係的事上面就會好 critical，但可以同他離距太遠的東西的時候就頓時沒有所有的感覺，即是遠少少，都不用好遠，可能是... 在香港發生的事、歷史的事，他覺得過多幾年就不需要再判断果一件事是對是錯，因為已經是過去了，他們覺得。果個... 我覺果個問題都是好即食的，所有東西都是，即時在他面就想多點，如果過去了，或者亦都覺得想黎都無用的一些，他們就不想。

Interviewer: (Teacher D 一面狐疑) 有無問題想問番？
Teacher D: 我一些想補充番頭先，我覺得現在最大的問題是我想未必是個課堂，課堂都好睇個老師點樣啟發到學生，反而考試果個設計是有些問題的。考試問的問題我又覺得不大，反而是時間上是有點奇怪的，因為是條題目可以問到好闊，而你又無可能，無可能你在一個鐘頭之內
答到這些問題的。如果你真係要學生訓練到 critical thinking，無可能從一、兩個資料入面可以知道，其實他要自己去搜集資料，所以其實 IES 現在就只是得 20% 反而 IES 才是真正做到資料搜集，做到批判過程的一個好重要的部分。但是反而現在它放得最重要的就是考試，所以考試我覺得...我寧願它是出少一點題目，比學生真是想多一點，當然你話無可能即時比他們去找資料，呢個是考試的局限，但是如果題目上少點，反而令到學生真是用心去到想果條題目。現在就會流向了因為要快，故他會有一種結構去答問題，知道這樣答一定是不會死，故這個會是我見到最大的一個問題要改善。
Appendix 7: Transcription of the interview with teacher E

This appendix presents the transcription of the interview with Teacher E in mixed-code with both Cantonese and English.

Date: 29th April, 2013
Time: 13:35
Venue: Common area outside staff room in school
Participant: Teacher E and interviewer

Interviewer: 現在班入面正在教通識科的，有沒有..(發問被打斷)
Teacher E: Form 4 在教 energy, Form 5 教緊中國。

Interviewer: 你會用什麼方法教這兩個 module?
Teacher E: 都係比一些 issues 他們討論，中國基本上都係俾一些背景資料，之後令他們掌握左背景資料之後，再進行討論。

Interviewer: 在這裏教的過程入面，有無係 critical thinking 的元素係加入左去入面？
Teacher E: 這樣都要有的，要找因果關係呀，要有邏輯的推理呀，或者要做一些合理的解釋啦去驗證一些東西。這些都是同這個邏輯思維.. 即是同這個 critical thinking 有關。例如他要俾證據呀，俾一些原因去 support 他的想法，都會是有這些元素。

Interviewer: 那麼有無一些部份是你覺得 critical thinking 的元素是未包含在入面的暫時？
Teacher E: 通識科應該都算，即是我想都將 critical thinking 真係都全都包在入面了，即是都沒什麼漏了其實。

Interviewer: 在你的教學過程入面，有無一些 critical thinking 有關的部份你是想帶入去，而是未做到，或者做得沒那樣好的現在？
Teacher E: 其實又..又有時都會的。中國果度呢，因為每堂浪費了很多時間講背景資料俾他們聽，認識一些政策呀，認識中國的問題呀，那麼所以其實在中國果度真的好 少時間在 critical thinking 度。那麼可能到差不多落堂的時候，只是得一條題目是問他一些..一些的意見啦，但是其實可能都無什麼時間在課堂裏面討論呀大家。那麼都可能是匆匆忙忙地完結，這樣子。那麼這個就是比較..制肘的。那麼同樣也是了，全球化在中六也是的，其實你要先認識全球化先，那麼認識了全球化之後，你根本無什麼時間真是去到一些全球化的議題裏面，去做到一些討論嘅。即是可能你會介紹俾他聽什麼叫做文化全球化呀，做左好多 examples 呀，但是在 examples 當中裏面令他明白左之後但是你就無辦法去好多時間俾他們去同你一齊去討論，比如全球化帶來的影響呀，究竟邊個是最大的..最大的負上責任 果 d，你都沒什麼時間去做囉。

Interviewer: 那麼如果是教 critical thinking 的時候，有無一些策略或者方法你是採用了是去教的？
Teacher E: 其實都是唔覺唔覺在那些課題裏面呢攝入去的了，因為如果你真是話只教 critical thinking 其實中四我們一開學呢就有教他們 critical thinking 的，就教識他什麼叫做 argument，argument 同普通一個 statement 有什麼分別。有教他..要比.evidence 啦，即是這類啦，同埋有講到那個因果關係啦，有教的其實。這麼即是中四一開學教任何單元之前教的，這樣子。但是有很多時候發覺到學生學就學了，但是之後好 似又運用唔番在其他通識科的課題上..那麼而其
他理论上那么你已教了，那么之后到一些课题里面再讲的时候呢，即是其实要运用番这个技巧的时候，可能他又好似觉得自己好似无学过这样的，又用唔番些技巧出来。那么但是...都唔理得这样多了，但总之教了他，他用唔用得番之后就唯有在课堂里面再提番他，即是例如话你因果都未能处理(搞得掂)，即是果类这些啦，又或者是你都无一个合理的原因去做到一个判断呀各样东西呢，那么..是了，即是我们就基本上会特意教他，有近乎 6-7 堂呀，应该在中四，那么之后先开始有那些单元。在单元里面其实就是无话，我们就不就会话好限死自己在，例如话中四上学期呢，就教因果关系，下学期呢就教第二样东西，这样就能见到那个题目呀适合摄什么呢，那么他到中..
或者是那個..是喇那個 logical thinking 上面他們就可能分不了..即是一樣東西不是包在另一東西裏面呀這些。但是如果你想講如果你上堂他自己是講到一些要點出來，而你可以指定到他就會比較理想一些囉。但是很多時候他們連很基本的一些答案都俾不了你的時候呢，根本上你就比較難去睇到他們有無用到他們的 critical thinking 出來。

Interviewer: 那麼剛剛都講過 d 學生表現其實不是這麼理想啦，其實個主因會是些什麼令到他們做不到這麼多學過的東西？
Teacher E: 主因我覺得可能他們真是..懶去思考..不習慣去思考..或者是馬虎，求求其想一些東西，求求其其寫出來 d 東西，即是不是好經過即係深入的分析，覺得什麼都話立法的，那麼我就有時同他講，你什麼也立法的話，將來香港就變了比起共產黨那麼嚴重，就快會變了北韓呀這樣。即是他們就會是..是不是都會用這些這 樣的兩三下功夫來..這樣的兩三下功夫來..應付這樣子囉..來應酬囉。所以我覺得他們都不是很努力即係通識科..調番轉頭啦，可能正因為通識科要求他 這些東西，他們就覺得很難做，所以就更加無心機做。即是可能通識科就是要求講這些邏輯上的東西，要求他們講這些東西，那麼正因為他們不喜歡這些東西呢，所以就更加無心機做囉。

Interviewer: 那麼都其實有兩年的同學考過這個通識的公開試，那麼總結下這麼多年的經驗或者現在教緊的同學這樣子，其實他們上完通識課之後同他們的 critical thinking 的發展有無一些關係？或者個成效系怎樣呢？
Teacher E: 其實有些同學真是講真句，由你最初教他，中四教他去到中六畢業，其實也差無幾的。即是你都不斷指出了通識科要哪些東西呀，講真就不是講緊全香港所有野呀， 好似剛才那樣講啦，即是這樣去教他，但是有部份同學硬是不入耳的，所以出來的成績呢都是強差人意。有部份同學呢，就你真是有些睇到他進步的，即是真是通識越答越好，東西越來越有紋路的，是的..那麼但是又理所當然啦，亦有部份同學呢天生出來其實就是就算我們無教他，他都其實本身自己有邏輯思維呀，他的 critical thinking 都比較強的。那麼那些同學基本上你唔需要話真是教得他很厲害(犀利)，其實也是這樣子的。那麼所以其實就是那麼為什麼有些同學又可以，有些同學又無進步呢？有同學有..有進步的同學我會覺得他們真的在科裏面肯落功夫囉，即是比如話真是比較認真些去溫習呀，認真些去上堂呀，比較專心些，真是將你講的東西放入耳，同埋真的自己會去嘗試去做的，那麼我覺得那些同學通常表現就相對比較好些囉。但是真是「唔啱唔吊」呀，常常話俾你聽通識科好難好難呀，那麼那些..同埋可能加上呢我們學校又用英文，那麼英文就更加弄不懂，他都無特別興趣去搞 critical thinking 喔。我覺得其實有影響的，那麼有時你見學生呢，如果你用中文和他對答呢，其實他都唔 ok 唔 follow 嘅，如果你用英文呢，那麼可能又真係搞唔黎，那麼所以英文都搞唔藜，就更加不知道你 thinking 繁什麼，所以就可能有一定程度影響到個表現。

Interviewer: 你覺得學通識幫不幫到學生發展批判思考相對其他科來說，會不會有些優勢呢？
Teacher E: 其實就..其實認真來說，你其他科讀得好，其實你個批判性思考都要強的了，即是無論我以前的主科 geography 都是的，你都要講批判性思考， 即是不是真是..不過無理所當然啦，無通識科這麼多的訓練啊，那麼通識科差不多你每做功課也好，每一次考试又好，你上堂討論的東西，全部都基本上牽涉到比較強的 critical thinking 的，那麼所以應該通識科就比其他科呢更加著重這一樣東西，更加講求這樣東西囉。

Interviewer: 那麼普遍.. In general 來說啦，你會怎樣 comment 這些同學的學了批判思考之後的發展同通識的關係？
Teacher E: 其實我都會覺得就是..怎樣說呢..其實都會是難的，這樣東西呢就是同學可能是好細
個都無特別去訓練他這類的情況呢，那麼所以變了通識科好似好強調這樣東 西的時候呢，其
實他是比較難的。那麼比如假設 d 理科，即是不計做數丫，如果你計理科，其實真是好少這麼
講求那個。即是其實都要的，你做了一個實驗去解釋 俾別人聽為什麼這個現象得不得呢，可能
他比較用實證的，即是 evidence 呀，比如話張 PH paper 轉做什麼顏色，所以他 alkaline 還是
acidic，那麼變了他就已經有一些很實在的客觀的 evidence 去證明囉。但通識科你都知道啦 我
們很多時候都是涉到人的 opinions 的，你有你這樣講，他有他那樣說，所以我們每次去聽別
人說話的時候呢，其實我們就要好小心去想下究竟這個人 講 的東西信不信得過對嗎..那麼所
以呢，即是變了在這個裏面來說啦，可能就是他真的很細個的時候呢，無這麼多這些訓練呢，
一下子上到來通識科呢，由其是 高中啦，那麼就會覺得吃力的。那麼..他不是那麼慣性去搞下
別人那些說法..即是講即是講東西的那些講法呢有無問題呀，同埋很多時他是慣了聽啦，那麼
因為 好似..我有時也問 d 細路，為什麼會這樣？為什麼你覺得是這樣？報紙寫的."那麼我就
說"報紙寫你又全信的嗎？"接著還要大大聲同你講《南華早報》寫 的！我話「南華早報就好
叻嗎？好頂尖兒嗎？」即是變了他們就會用一些這些完全無通..無 critical thinking..即是人云亦
云呀..還要大大聲同你講因為是報紙寫所以好權威了..這樣子。那麼完全都無這個批判性思考，
即是不去想下究竟報紙寫的東西是真，或者甚至乎我同他講的東西是否全都是真，他也要丫..
即是好多時養成一些習慣比如就是說老師說的、報紙說的，就要全信了，那麼所以變了我覺得
他們是有一種的。有一種慣性在，慣性去信別人說的、接收別人說的，他沒有提出一些懷疑
呀，提出一些疑問呀，那麼所以其實在這樣的情況裏面所以其實都..都在 我們科入面我們都盡
量提他們，但是呢他們就..怎樣說呢，都不是那么強的，很多时候我覺得他們答的問題呢，其實
最叻是什麼呢，就是在 source 裏面找原因 去 support 他。比如話個 source 入面提供了 citizen A
的 opinion 的時候，比如 citizen A 就可能話 "喂我們交了稅的，那麼應該拿回我們應有的福利
呀.."這樣那麼他們就會照抄回這個論據呢就好 "哦因為呢我們香港人交了稅的，所以政府要
做一 些東西為我們。"即是這樣去利用那些 source information 他們很慣常囉，但是真的..你無
去想下那些 source information 其實背後想帶出些什麼意思呢？同埋是否真的就這樣抄出來就
用得呢？那麼他們就真的不用他們的腦筋去想下，見到似樣就抄下來，見到似 樣就抄下來這
樣。是呀..所以變了在我們科裏面呢，其實真是要的，但是問題是他們都不是好睇到真實的
用處在哪裏囉、即是或者是真正的運用在哪裏，就會以 為抄下 source information 呀，作下一
兩個原因俾你呀，這樣就叫做 okay 呀這樣子..對呀。

Interviewer:有些老師就 critical thinking 有些睇法，你對這些睇法的意見會是怎樣的。那麼首先
第一個，有些老師覺得 critical thinking 同埋多角度思考是有關係的，那麼你覺得這兩個的關
係會是什麼呢？多角度思考同 critical thinking
Teacher E: 其實都會係嘅，那麼 critical thinking 你即是不全信別人啦，那麼不全信別人的時候
，可能你現在在處理一堆人的說話，可能只是得一個立場、一個考慮點的。這麼所以如果你
有 critical thinking，那麼即是話你真的要多聽一些、了解多些才去做一個判斷。那麼所以就不
能夠單從某一種角度，比如話在..在一些重建的意見上面，你不能只 全聽發展商或者政府的意
見，都要睇居民的情況。那麼所以我覺得都會是..多角度思考是重要的，因為變了你睇的東西
比較全面，你才能夠有一個正確的 judgment 去同別人爭辯囉我覺得。

Interviewer: 那麼兩者的關係可不可以說成「我有夠角度思考才能做到 critical thinking 」？
Teacher E: 這樣說呀..那麼我又覺得未必的。因為有時有些東西你是真是個 critical thinking 不
是真的包括多角度思考，比如話有些東西是講求邏輯的，那麼在講求邏輯裏面其實你不需要
怎樣多角度思考。好像刚才那樣的例子，不出聲的是否代表他就同意呢，或者無反對即是。
他無出聲，即是無反對就是贊成啦，那麼這個也不需要多角度思考的其實，只是一個很純的邏輯問題囉我覺得，所以未必一定要的。這麼子。但是理所當然如果那件 issue 是 involve 到比較多資料的時候呢，那麼可能就真的要了解但是就...又未必真的是全部囉。

Interviewer: 那麼另一個 saying 就會是如果用一個討論、辯論或者一些影片之後做評論，又或者利用這個報章的一些社評去做這一個評論的都是會容易些數到 critical thinking 的。這些方法你覺得會不會比較好呢？

Teacher E: 其實可能會比較好呢就是因為你剛剛用的資料裏面呢比較常用呢個立場在的。那麼變成可能你就是..叫他去認不認同那個立場，那麼所以呢比較明顯些要他們舉到些原因去..一些原因啦或者證據去證明他的講法是對的，或者是你接受呀..這樣囉。但是至於其實做討論裏面呢，就算無一個立場，即是不是做辯論又有什麼都好，其實就這樣做一個討論呢，其實因為你是未有立場嘛，那麼可能你就要在討論裏面表達自己的立場，其實都好似我刚才那樣說，其實開始要去辯護你自己的一個立場的時候呢，或者去批評別人個立場的時候呢，其實你的 critical thinking 自然要出來的。即是比如你信他俾你的原因其實好弱的，那個相關性好弱的，根本上是..對了，比如他說..香港是在講納稅人交錢，接著你俾的好多只是香港市民，根本就不會是納稅那班人，那麼你講什麼呢？那麼其實即是都會是..無論什麼討論也好，其實就算你去 reading 一篇 article，其實都用 critical thinking 的啦。因為你睇那篇文章你都要想下究竟那篇東西信不信得過，它講的東西有無 bias 有無其他東西，所以其實我覺得是做很多種的 activities 那麼其實都要用 critical thinking 的，就算不是說一個辯論呀，或者是 role play 呀其實都一定要用到的其實。

Interviewer: 那麼亦都有些講法就會話是你的親身經歷或者一些 field trip 的經驗，其實是會幫到發展這個批判思考會好一點的。

Teacher E: 這個我又未必那麼認同。因為其實你 field trip 即使令到你得到清楚點的資料去做一個討論，但是始終這個只是個搜證啦，那麼搜證未必幫到你，你就算有一堆證據在，但是其實如果你的腦筋無的話，你都不能夠拿來變成了呈堂的證供或者是做一個好的 argument 去 defense 你的立場或者去 against 別人的立場。所以我覺得這個又未必真嘅話這麼重要..這麼重要囉，即是說一些戶外活動呀各樣東西呢不是這麼重要去發展他個 critical thinking。

Interviewer: 接著，又覺得啦，這個 content knowledge，一些 module 有關的知識及他的個人經歷，以及批判思考，這三者是有關係的。那麼你覺得這三者的關係會是什麼關係呢？

Teacher E: 個人經歷..還有呢？..書本上的知識及最後的是 critical thinking..其實我覺得都是未必個相關性真偉大得這麼厲害。因為我常常想，個學生有這樣的經歷，有這樣的書本，但是根本他不用腦去想東西，其實最最後都扯不上去做個 critical thinking，書有書睇，當一本百科全書這樣睇。另外那樣東西就照做，其實樣樣都無怎麼用腦的，那麼其實你也發揮不了個 critical thinking 的。即是話如果他無那個意識，就算他睇完全本書，知道全世界幾多個國家，有什麼用呢？所以我覺得知識果度未必那麼能 stimulate 到他個 critical thinking 我自己覺得。反而是他會不會這個心比較強 d，他還會去多找一些有關的相關的資料，睇下例如那班人為什麼事要嘈反對重建，為什麼事政府想重建呢？睇下兩者之間的講法有什麼差異，可能好似還比較是 activate 到他的 thinking rather than 你塞了這堆東西給他後，之後他聽完都是無意識的，那麼他都不會去睇下究竟應該重建好還是不重建好我自己覺得。

Interviewer: 那麼會不會是那個學生的性格或者他的態度重要過其他東西？

Teacher E: 我覺得係其實。因為你有這個態度，即是樣樣都是有 motivation 才有動力去做些東西，由唔識做到識，對嗎？但是如果他都不覺得有需要去識的，那麼其實他都不會是即是盡力
啦。即是等如很多學生覺得睇不通通識科讀得好，其實是在幫他去讀其他科，他只是覺得是為了應付你通識科而讀的，那麼變了他不會搞 critical thinking，那麼在我那科的 critical thinking 搞得不好呢，在其他科呢其實相對他不會拿到一個很高的成績。因為其他科總有其他 subject knowledge 去支撐下，那麼但是也不是真的拿一些最高級數的層級啦，因為他始終真的欠缺了 critical thinking。那麼所以我覺得..其實是反而是應該是要培育學生的 critical thinking，因為你的 critical thinking 才是 life-long 的嘛，知識其實真是那天你不識的，那麼上網搜尋番，好快就識番了。但是你 critical thinking 就好似之前說過由細到大都無 training 的，那麼你其實就是..你就真是到到由中四讀完中六都是繼續無什麼拿捏不了 critical thinking 的那些技巧囉。

Interviewer: 那麼，LS 入面有一個校本評核的部份是 IES 啦，那麼這個 IES 同 critical thinking 之間又會有什麼關係呢？
Teacher E: 那麼其實都會是有關的，因為你就等如有一個議題，你現在去立論，接著去做推論，接著去做辯論，各種東西，之後就寫個 conclusion。根本上是你提出了一些探究的問題你要去解答。那麼你在解答當中你就要提供一些..即是用批判性思考去..去合理地支持自己的立場呀各樣。所以其實完全是可以表達到..表現到他的那個 critical thinking 發展到什麼水帄。

Interviewer: 比較 IES 同考試，通識科的考試，哪一樣會比較容易，或者更具體地反映到學生的批判思考發展，或者能力？
Teacher E: 其實差不多的兩樣東西。因為如果考試題目簡單些，IES 就拖得長些。但是基本上呢，你都會睇到他..在那個答案裏面，他的討論裏面呢有無做到這些東西。因為..不過呢，好多時候就因為有 data 的處理，所以在 IES 更加睇到呢個學生有無邏輯的思維，即是話比較容易點睇到。因為那些 data 呢不同於考試卷的 data 呢，其實 data 通常俾些好 relevant 的 data 他去回答題目的，但是你在 IES 就完全在你問卷裏面，你都不知道邊題打邊題，那麼接著就自己去對對番而已，那麼可能他真的是完全無把握，就找配對的人啦，比如好似是那時教個學生啦，那時做 IES 就話呢，他做一個 project 啦，某地方的 museum 啦，個 museum 就在..當然某一個地方啦，那麼他就說去做訪問了，訪問了後，假設那區是尖沙咀，尖沙咀呢居住在尖沙咀那班人呢都唔去過這間 museum，這間 museum 就很失敗了。即是你是睇到就是他去處理那些 data 的嘛，接著就問他我話「那麼你做問卷裏面呢，幾多個人住在尖沙咀，幾多個人不住在尖沙咀呀？」原來不對比的。不是五五十十這樣的，接著你就這樣 draw 了個 conclusion，那麼我話那麼你明明住在唔知尖沙咀 的人少些還是多些，我話這樣也可以的！？即是話你至少都做到同様數量先去做比較啦，你這也不錯。接著另外一樣東西我就話不一定是這個因一定果囉。結果就是真的，就是你找出來就是這麼少人去了住在尖沙咀。但是不代表那是唯一原因，可能住在尖沙咀的那群人佢老在工作呢，可能他..常常都要上班，星期六日要開 OT，所以令到他們無時間去到..那麼你不能，夠抹殺其他的 factors 喔，即是你要去找，是由兩條問題去串連的，兩條獨立問題，一條問居住地方，另一條問題就問別人你去過那个 museum 未，這樣夾硬串連在一齊。今日你問過他說你有無去過那個 museum，未，有，有去過因為什麼，因為我住在附近，他不是這樣問的。他這樣斬兩條出來，那麼你說他有無 critical thinking。那麼所以在 IES 更加容易睇到學生有無 critical thinking 的，因為你在考試入面呢，多多少少我們俾他們的 data 總有..不會是「傻更更」的 data 來的嘛，不會睇得他們這麼厲害的嘛，但是去到 IES 果度呢他自已在問卷裏面拿回一些題目出來去 generate 一些講法，這樣就可以錯得很離譜。

Interviewer: 嗯。那麼即是換句說話講 IES 是一個..
Teacher E: 應該容易點睇到他的..
Interviewer: 更加容易睇到學生的 critical thinking..
Teacher E: 對，因為它更加 freehand 嘛。

Interviewer: 那麼相對上來說他們的成長會不會有更加大的幫助，在 critical thinking 方面的。
Teacher E: 都未必的，因為可能去到他也是完全是搞不通呀，經歷了又好，但是問題真是太多地方要改這改進那，其實都真的已經很徬徨呀，所以即是好唔知自己，差不多二十樣東西錯，你數一次佢聽，他數完個人都頭暈暈，所以通常呢些，執番番來都不會執得很好，因為其實是根本上他，由其是思維不是一下子講的，還要一下子數佢聽這麼多大問題呢，其實都幾「睇晒」(le hea)的。即是個同學會幾「睇晒」(le hea)，幾崩潰呀其實這樣。但是有些同學去到做 IES 真的幾「亂龍」，對呀真的幾「亂龍」，那些都幾難執番東西同埋他不知道為什麼腦入面有很多這些完全不合邏輯不合根據的東西去做囉。其實反而是 IES 挫敗感更大，更加顯示到他 critical thinking 的不是。

Interviewer: 接著另一方面，有兩個流程是關於 critical thinking 的學習上面的，第一個呢就是 from knowledge 去到 concept 再落去 issue。另一個流程就會是由他身邊周遭的事物再去一些遠點的事物。那麼這兩個的流程你覺得哪一個會比較好一點去發展 critical thinking 呢？
Teacher E: 通常第二種會好點呀，由近身的去遠點會比較好點。

Interviewer: 但是為什麼會這樣。
Teacher E: 因為其實經歷呀或者你自己個人經驗之後開去會比較好點。如果之前第一個呢，就太過飄渺了。即是只是去 input 一些他完全沒什麼認識的東西去給他，之後就去做這個討論，但是如果簡自個本身，多多少少印象會比較深刻點，同埋他會感受到當中的情況嘛。推番遠點都能夠估到嘛。對嗎比如話假設啦，如果你屋企受過災難影響的，去到講四川大地震，他就比較感受到那些情況囉。但你是說地震的級數是幾多，震到這樣，八級其實是超級嚴重的地震了。那麼個學生未必能夠真的感受到，只是知道書本上說八級是很強烈的地震，未必知道嚴重到什麼地步。即是可能如果他已經經歷過一些小小的災難。但是有些個學生會好點的，他有多點，容易點進入那個討論囉，如果不是的話呢，是好遙遠的東西呢，他就比較難去處理囉。

Interviewer: 這個 critical thinking 會有價值觀的建立，但是很難在課室入面做到或者帶出來的。你覺得這個說法你有無睇法？
Teacher E: 又不是的我覺得，其實價值觀呢就有些所謂的叫普世價值觀啦，你都會同學生講 的，始終講真一句，如果話得到一些普世的價值觀，這樣設置無論什麼中學都講和平是 okay 的，那麼我覺得這些跟他們說又無什麼問題。即是不會是說建立不了，同埋有時我會自己在堂入面我都會對於某件事話俾他們聽我的立場是什麼，理所當然啦我會講這是我自己的立場，你可以不接受或者是你覺得不是的，那麼但是我都想俾你知我自己的立場是為什麼有這個立場同埋為什麼我有這樣的睇法囉。因為通常我都會解釋話為什麼我有這個立場，而不是說”對呀我撑，我支持這個拉布呀，我一定會講俾他們聽如果我真的支持這件事，原因在哪。那麼其實我只是將一面的 argument 講俾佢聽，但是我亦好強調一樣東西是這是我個人睇法，你自己可以想下究竟你想採取你自己的立場是怎樣。所以我覺得又不是的，那麼理所當然啦，我又不會話是一個很偏激的態度裏面呢，拍拍去講呀，同民主黨呀，民建聯呀這樣的，不會的。不過但是有時候我自己睇到一些，或者好明顯有一些普世價值觀上面的東西，我會比較話俾他聽一些正確的睇法囉。就不會話完全不出，聰明嘅對的對的，即是比如話一些藥物專利上面，我都會講俾他聽比喻話是否真的一定要例如藥物專利我都尊重專利的，但是問題是條件是否要這樣 harsh 呢？是否可以是那個藥物專利是 apply to 發展了的國家，接著呢？所以我會覺得不
是無的，其實是你同個學生的關係囉。即是如果你同個學生一向俾他睇到你是有一個好有 critical thinking 的人呢，他就知道你不會盲從附和人呀，對呀我自己覺得會是這樣的。上次講國教科
這樣，盲從附和人話取消國教呀那些東西呀什麼洗腦科呀，那麼我就會問他們我話”你們沒被
西方洗腦嗎？那麼為什麼你們這麼喜歡喝可口可樂？為什麼你們這麼喜歡用西方的那種生活
模式？難道你沒想過你的生活模式怎樣來 的？中國人不是這樣的，為什麼你們會是這樣的？
“其實是俾一個地方他們反思番是否這麼容易能被人洗腦呢，洗這種腦是否真的這麼大問題呢。
洗你腦要你捧這個共產黨，可能你不喜歡的，但是如果洗個腦是去捧...這個愛國，那麼我也會
講一些外國的經驗比如說就算去到美國加拿大，別人也是很強調愛國的。即是中學小學裏 面也
很強調愛國的，好細個已經教他們要愛自己的國家。那麼這些又是洗腦？那麼這些洗腦又見不
到西方人嚟的？我想是要俾他們搞清楚話你反對洗些
什麼腦，不反對那些去培育你腦入
面的一些思想，所以其實我覺得是要，真的要慢慢分析，俾他們睇番一些東西，令到他們去
反思番，從而去令到他們自己的價值觀..去建立他們的價值觀。我自己這樣睇的。

Interviewer: 另外考試方面的，這個 LS 考試同埋它的一些題型啦，或者答題的方式會不會對
critical thinking 的發展有所影響呢？
Teacher E: 又不是的，它都有很多題目俾他們論證論據去 support 呀，或者是問你的意見呀，
那麼我覺得這些題目題型未去到話局限他們那個 critical thinking 的。我就覺得考試不是一個這
麼大的障礙。

Interviewer: 最後一條，你覺得學生讀了三年之後，你覺得他們整體上的表現會不會多了一些
批判思考的行為或者表現，在課堂以外能睇到？
Teacher E: （思考三秒）其實有時真的不是太睇到。可能他們真的很忙於他們的學業，即是大
家急急趕、急急趕趕的，但是睇番一些同學的 evaluation 呢，即是好少量啦，他們會很開心
讀了這兩年半的 LS，因為他們覺得真的是做人是需要的東西來的，他們就真的很覺得這些真
的幫得到他生活的東西。但是有些同學又真的是好不喜歡這一科，覺得這一科是令到他們很
有挫敗感，所以變了好明顯呢，如果會挫敗感，這些同學根本上就是 handle 不了了 critical thinking，
所以在生活上面都未必能睇到呀各樣東西。所以我覺得在他們的表現來說呢，其實真的不太睇
到他們表現出來囉。即是通識科題目逼他們要「疙」出來啦些 critical thinking，但是呢就..有
時同學做 d critical thinking 好膚淺，例如你俾一堆數據他，就拿點最容易睇到現象的去 support
他，難小小都不去解釋為什麼會是這樣子的。所以變了不是太睇到他們 在課堂以外或者考試
以外那種 critical thinking 的表現。
Appendix 8: The perceived elements of critical thinking in stage one interviews

<table>
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<th>Interviewees’ perceptions about critical thinking</th>
<th>Perceived elements of critical thinking</th>
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<td><strong>Teacher B</strong></td>
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<td><strong>Teaching of critical thinking</strong></td>
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<tr>
<td>Studying in field is better than classroom learning</td>
<td>Collecting first hand information and conducting field study for enriching life experiences is easier to learn CT</td>
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<td>Watching video is for knowing the situation and better CT</td>
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<tr>
<td>Having more knowledge is better for CT</td>
<td>Owned knowledge affects the possibility and quality of CT</td>
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<tr>
<td>Using cross-modular issues to teach higher-order CT</td>
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<tr>
<td>Editorial commentary for exploring different social issues</td>
<td>Making judging on the basis of videos, articles or pictures</td>
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</tr>
<tr>
<td>Conducting group discussion and debate is for acquiring concepts</td>
<td>Discussion with peers with reference to the same piece of information facilitates CT</td>
</tr>
<tr>
<td>Students develop their own view by identifying different viewpoints</td>
<td>Defending for own stance in debate/discussion</td>
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<tr>
<td>Teacher provides examples as students’ references</td>
<td>Teachers can create experiences of CT with students</td>
</tr>
</tbody>
</table>
## Learning of critical thinking

| Students learn CT steps by steps which is from other content to their own work | CT is a higher order matter | The ability of CT varies according to students’ abilities. CT is an ability with levels and can be applied across different subjects as it is transferrable | CT varies in levels | CT contains levels, i.e. simpler and more difficult. Performance in exercises is not desirable that only easy tasks are correct | Employing a structural variation with different levels |
| Inquiry based learning is better possessed by student | CT training is usually by questions and giving verbal responses |  |
| Adopting students’ work (IES) in class is for promoting ownership | Initial stage of CT is viewing and analyzing from multiple perspectives | Current affairs allow students to come across different viewpoints | Thinking in multiple perspectives is a necessary condition for critical thinking | Students do not use to consider others’ views | Viewing from multiple perspectives |
| Identifying different views by discussion | Thinking in multiple perspectives is a fundamental skill for CT |  |
| Reading in group leads them to have reflection | IES requires student to reflect and rethink the previous steps |  |
| Correcting and reflecting on others’ IES | Learning CT from thinking in multiple perspectives through discussion and debate | Could be reflected in discussions and debates |  |
| Using discussing to find out different points of view | Attacking others’ points of view in debate/discussion |  |
| | | | | | |

**Inquiry based learning is better possessed by student**

CT training is usually by questions and giving verbal responses.

**Adopting students’ work (IES) in class is for promoting ownership**

Initial stage of CT is viewing and analyzing from multiple perspectives.

**Identifying different views by discussion**

Thinking in multiple perspectives is a necessary condition for critical thinking.

**Reading in group leads them to have reflection**

IES requires student to reflect and rethink the previous steps.

**Correcting and reflecting on others’ IES**

Could be reflected in discussions and debates.
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<th>The six modules of LS form a ground of knowledge for CT</th>
<th>Reflected in the answer given by students in examination</th>
<th>Students could do so through newspaper cuttings</th>
<th>Knowing the content of the six modules is the initial stage</th>
<th>Requiring content knowledge to support learning CT</th>
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<tr>
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<td>Lesson time is a constrict for teaching CT</td>
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<td>CT is not to act in conformity</td>
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<td>free from a content</td>
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<td>LS demands for CT as a skill</td>
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<td>CT is an ability that can be assessed</td>
<td>CT can be taught but hard to transfer</td>
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<td>a skill</td>
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<td>CT is a thinking pattern</td>
<td>CT is a thinking flow</td>
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