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Enhancing critical thinking: analyzing classroom interactions in the age of web 2.0

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Abstract

This study explores the classroom interaction that enhances students’ critical thinking ability in a Liberal Studies classroom in a Hong Kong secondary school. In particular, I examined class period about modern China both off line in the physical classroom and on line with the help of iLAP. Preliminary results indicate that the use of iLAP has contributed to the development of students’ independent thinking and argument skills. I also argue that Web 2.0 has expanded the physical boundary of classrooms and multimodality is becoming a hallmark of urban classroom discourse due to advancement in digital technology.

Keywords: Liberal Studies, critical thinking, Web 2.0, classroom discourse analysis;

1. Introduction

Since 2000, education reform in Hong Kong has entered a new phase when the Hong Kong Education Bureau launched the ‘3+3+4’ scheme-3 years of junior secondary, 3 years of senior secondary, and normally 4 years of tertiary education. Aligned with the new senior secondary curriculum, Liberal Studies has been listed as one of the four core subjects (i.e., Chinese Language, English Language, Mathematics and Liberal Studies) in Hong Kong Diploma of Secondary Education (HKDSE) Examination. As it is the first time for Liberal Studies to be taken as a core subject, much discussion has ensued in Hong Kong on the teaching and learning of the subject. However, few research studies have been done so far on how to enhance students’ critical thinking ability, an important objective of the subject. In light of this, my study aims to identify the characteristics of the classroom discourse and events that enhance students’ critical thinking capacity in the Liberal Studies classroom. For this purpose, I shall examine a period of class on “World Factory” in the theme of China’s reform and opening-up policy under the module of “Modern China”. I shall also briefly discuss the subsequent discussion on iLAP, an online learning and teaching forum developed with Web 2.0 to illustrate the efficacy of the technology on development of critical thinking.

2. Classroom Discourse Analysis

Classroom discourse analysis is the discourse-based approach to ethnographic education studies. The specific theoretical frameworks that inform classroom discourse analysis depend on the research aims and the data collected. Traditionally classroom discourse analysis may draw on theories from sociology (e.g. interactionism, ethno

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methodology), anthropology (e.g. linguistics anthropology), and linguistics (e.g. pragmatics and sociolinguistics). There are three interdisciplinary methodological traditions involved in classroom discourse analysis, namely ethnography of communication, micro ethnography, and interactional sociolinguistics.

Before 1970s ethnographers did not analyze dialogues. The first ethnography approach to analyze verbatim dialogues is Hymes (1964)'s ethnography of communication framework. Ethnography of communication (also known as sociolinguistic ethnography) is used for collecting data on a long term basis, and audio recording is the primary method. Microethnography (Erickson, 1992) is first developed for an educational study. Its main method is video-recording. It aims to deconstruct the social inequality perpetuated in the classroom context from bottom-up. Theoretical tools for the microethnographic analysis of classroom language and literacy events include contextualization cues, turn-taking, thematic coherence, and intertextuality (Bloome et al., 2005). Specifically, analytical phenomena include but are not limited to turn-taking, turn allocation, structures of participation, types of questions (i.e. open/close), para-verbal communication features (e.g. tone, volume), non-verbal communication features such as eye-gaze, body position, gestures, and interactional sequences.

Microethnographic classroom discourse analysis portrays students’ and teachers’ classroom practices as dynamic, emergent and situated vis-à-vis the local interactional contingencies. Besides this method also reveals the static social order and power relations, and uncovers how, when, where, and to what extent student and teachers prompt agency to attest often tacit and unreflective behavioral conventions. As a result, in the current study, I will be attached to the secondary schools and observe Liberal Studies classes while I am helping as a teaching assistant. Observational data were generated in field notes and supplemented by audio-recorded classroom interaction.

3. Web 2.0

The term Web 2.0 is initially coined by O'Reilly (2005). It differs significantly from Web 1.0, the read-only web. In his article O'Reilly identifies three major features of Web 2.0, namely “Web as a shared space for ‘collective intelligence’, more focus on participative and collaborative user experiences, and the notion of the ‘Web as a platform’ for applications which were formerly found on individual computers” (Guth & Thomas, 2010, p. 41). In sum, Web 2.0 advances learning through knowledge co-construction. Table 1.0 provides a comparison between Web 1.0 and Web 2.0 with respect to its impact on learning and teaching.

<table>
<thead>
<tr>
<th></th>
<th>Web 1.0</th>
<th>Web 2.0</th>
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</thead>
<tbody>
<tr>
<td>Web as Medium:</td>
<td>Where content is transmitted from a webmaster or company to an audience.</td>
<td>Web as platform: where content can be stored, created, shared, remixed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and commented by.</td>
</tr>
<tr>
<td>Web of geeks and techies: HTML knowledge needed.</td>
<td></td>
<td>Web of anyone willing to try: Web-based publishing platforms (e.g. blogs, wikis), no need of technological language.</td>
</tr>
<tr>
<td>Web as Broadcast: One to many.</td>
<td></td>
<td>Web as Conversation: Many to many.</td>
</tr>
<tr>
<td>Web as Static: Applications and websites are closed.</td>
<td></td>
<td>Web as Dynamic: Applications are open and remixable, recombining and deconstructing Web.</td>
</tr>
<tr>
<td>Web of Copyrighted Content</td>
<td></td>
<td>Web of Copyleft and Commons: Content can be licensed for re-use and derivative works.</td>
</tr>
</tbody>
</table>

4. Critical thinking

Critical thinking is one of the nine generic skills in the senior secondary school curriculum in Hong Kong. The subject of new senior secondary liberal studies contributes directly to this goal. In particular, Legal Studies Curriculum and Assessment Guide (Secondary 4-6) has stated that its curriculum rationale is to help students to “respect pluralism of cultures and views, and be a critical, reflective and independent thinker” (p.3).

Critical thinking has been defined as learners’ abilities “to draw out meaning from given data or statements, generate and evaluate arguments, and make their own judgments” in Package on “The Learning & Teaching of
Critical Thinking Skills” (Senior Secondary) distributed to liberal studies school teachers by Hong Kong Education Bureau. However, there have been many controversies on the definition of critical thinking in scholarly literature in philosophy, psychology, and critical theories. Tsang (2010), for example, delineates two major approaches to define the definition and training of critical thinking: mechanical logicism that treats critical thinking as gradable skills (from the philosophical perspective) and the critical and political perspective.

For example, in the philosophical tradition, Ennis (1962) has defined critical thinking as “a correct assessing of statement” (p. 81). In this line of enquiry, critical thinking has been specified into testable abilities and skills (e.g., Ennis, 1987). However, this approach has been criticized for reducing critical thinking as “purse skills conception” (Siegel, 1988, p. 7) and denying the “comprehensive and circumspect judgments” inherent in critical thinking (McPeck, 1981, p. 149). According to Paul (1994) and Siegel (1988), critical thinking should also include reflections on world views and forms of life placed within reasoning. In areas of disciplines of critical literacy and critical pedagogy, however, critical thinking refers to the ability to problematize the frozen ideologies and power relations embedded in knowledge (e.g., Freire, 1972; Habermas, 1971). In this study, I adhere mainly to the political approach while also taking into accounts the philosophical definition of critical thinking which underpins and enables critical reflections on knowledge and information.

5 Physical classroom interactions that fosters critical thinking

In this section I will demonstrate characteristics of discursive interaction in the classroom that foster critical thinking. Data for this paper is collected by field note and audio recording in my ongoing PhD project that examines gender awareness and critical pedagogy in Hong Kong Liberal Studies classrooms. I participated and conducted class observation as a teaching assistant in a Form 5 (the second year of senior high school) classroom of a local co-educational secondary school that uses Cantonese as the medium of instruction. Ms Lau is the supervisory teacher and Liberal Studies teacher of that class. There are altogether 44 students. All names are pseudonyms. All excerpts in this paper were originally in Cantonese, and transcribed and translated into English by the author. The following excerpt happens right after a student made a presentation on “World Factory”, an issue in “Modern China”, one of the six modules in the curriculum.

Excerpt 1

1   MsL: Any questions for this student?
2   Ada: Just now you’ve talked about the advantages and disadvantages of becoming a world factory. You mention that the foreign
3 companies can bring their technologies to China so China offers labour, and the foreign countries offer technologies. Does it
4 mean that China can take all of the foreign manufacturers’ technologies?
5   Max: Not all of the technologies.
6   MsL: Max’s presentation reminds me of the huge differences between developed and developing regions. Last week when we went
7 back to Dongguan, we visited the Central China Technology Institute, and we were shown the balance scooter.
8   Do you know how much it is in mainland China?
9   Ss: Several thousand RMBs. (Students are speaking out the price.)
10  MsL: No. It is 10,000 RMBs.
11  Ss: Wow!
12  MsL: Yes. It is developed based on a technology from a European country. So it is still expensive and it’s still considered something
13 new in mainland China. In Europe you can see many people use it on the streets already. Another example is Apple’s
14 iPhone. Do you know the worth of Apple Company this year? (Few students answer.) It is worth about 500 billion USD this
15 year. Its net worth has increased really fast over the last few years. iPhones are pretty expensive, while the ghetto iPhones
16 made in mainland China are cheaper. So Apple Company grows faster and makes more money.
17 (Kate walks up and presents on the topic. She mentions that the separation of the executive, legislative and judicial powers is one of the solutions
18 to the problems.)
19   Rose: As you all know, it is “one country, two policies” in Hong Kong. How can the powers be separated in mainland China?
20   Kate: That is a good question. I’m not talking about changing the system, but suggesting the balance of powers so that different
21 government departments can check on each other and power will not be abused.
22 (Another female student asked questions in a very low voice.)
23   MsL: This question also explains the dramatic decline of peasant workers in the factories. The government just wants to keep the
24 highly profitable factories. So it uses contract law and policies of environmental protection to close down some of the less
25 profitable ones. Where are these factories moved to?
26 (No student answers.)
There are all together three student presentations in this period, Max, Rose and Lily. A recursive feature in Ms Lau’s class is that she will not make the teacher talk before the students make their presentations. She will ask all the students to prepare a presentation on the class topic in front of the class as their homework, and students take turns to make presentations at the beginning of the class. After the question and answer section, Ms Lau will ask more questions about the topics, and ask students to take notes of what she is saying.

Although at first glance such a pedagogical pattern indicates a student-centered interaction, the content knowledge is still mainly constructed by Ms Lau. It is indicated by the long responses and explanations about facts and examples related to the topic from lines 6-8, 12-16, 21-23, 38-41, 48-52, 54-56, and 62-65. By so doing, she constructs herself as the distributor of content knowledge. However, it does not necessarily indicate that such interactions do not help cultivate critical thinking skills. Decades of cognitive research has shown the important status of knowledge in higher order thinking developments (e.g., Bereiter & Scardamalia, 1993; Bransford et al.,...
Prior knowledge is the first pedagogical principle for fostering higher-order thinking in the classroom as “it would be difficult for problem solving to take place if students have fragmented knowledge and cannot use knowledge flexibly and meaningfully. Thinking skills are best developed in the context of rich knowledge domains. Accordingly, whatever tactics or strategies teachers use, thinking needs to be integrated with the subject matter. Factual knowledge and lists are of limited use but coherent knowledge is the basis of good thinking” (Chan, p. 5). What should also be noted is that Ms Lau actually scaffolds students’ understanding of the knowledge by asking questions (see lines 8, 28, 43, 46, 48, 56, 60-61) and commenting on students’ responses. The questions serve as prompts for the logical connections among these facts as well as eliciting students’ attention. So the content knowledge distributed by Ms Lau will form a basis for students’ critical thinking in the online discussion.

The knowledge provided by the teacher is also worth a note. She does not only provide the benefits of China’s opening up policies which have already often been reported by the local mass media, but also elucidate its negative impacts on human rights (lines 48-52), the environment (lines 43-45), China’s long term technology development (lines 12-16), and Sino-US relations (lines 62-65). The knowledge co-constructed between the teacher and the students (but still distributed mainly by the teacher) also serves as a basis for students to problematize the production of popular discourse about the benefits for China being a world factory.

In this excerpt, it can be shown that the face-to-face classroom interaction has provided a knowledge basis for students’ development of critical thinking. Although such a process seems to be co-constructed by both the teacher and the students, the teacher remains the main distributor of content knowledge. In this sense, the off line classroom interaction tends to be teacher-centered.

6 Enhancing Critical Thinking in Classroom Interaction with Web 2.0 Tools

On iLAP, Ms Lau posts a question that she asked in class (See line 28, Excerpt 1), which has elicited 16 responses from the students. Among them, 7 students agree while 8 disagree. Over one fourth of the class students participate in the discussion, which far exceeds the number of answers in the physical classroom (See Excerpt 1).

As the topic has been mentioned in Excerpt 1, there is thematic coherence between online and offline discussion, which breaks the physical boundary of the classroom. In the discussion, the students constantly draw on the knowledge mentioned in Excerpt 1 and use it to support their claims. Furthermore, half of them show attitudes contrary to the popular media, which shows they are gradually developing critical thinking skills based on domain-specific knowledge.

| Teacher’s Question: Should China continue to be a “world factory”? |
|-------------------|---|---|---|---|
| Responses | Agree | Disagree | Neutral |
| 16 | 7 | 8 | 1 |

7 Conclusions and Limitations

From data analysis, it can be seen that there is a thematic coherence between the face-to-face and cyber classroom interaction. The continuity of topics both online and offline seems to be the prerequisite that guarantees adequate time and space for development of students’ critical thinking ability. The face-to-face and cyber classroom interactions have their distinct features and serve different purposes. In the physical classroom, with the traditional IRF pattern and long feedbacks and explanations, the interactions tend to be rather teacher-centered. The teacher constructs herself as the major constructor of knowledge and facts about China’s opening up policy, and China’s status as a world factory. In the physical classroom, students can obtain basic facts and content knowledge from the teacher, which serves as the basis for development of higher order thinking. iLAP, the Web 2.0 tool, on the contrary,
has relieved the time and space constraints of the physical classroom, and enabled more intellectual conflicts among students which contributes to the development of critical thinking. It can be found that the teacher has only initiated a question and has not given any feedbacks online, which constructs her as a facilitator of peer group activities. So cyber classroom seems to be more student-centered. These preliminary findings indicate that Web 2.0 has expanded the physical boundary of classrooms and multimodality is becoming a hallmark of urban classroom discourse due to advancement in digital technology. However, more data should be collected both in the physical classroom and iLAP to verify these findings.

References


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