Exploring online spaces to support multi-ethnic Asian undergraduates' critical thinking

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Engaging students to think critically especially in a large tutorial group setting is problematic. Many literatures have cited the problem of Asian students being critical thinkers. Observation from several researchers noted that deeply rooted Asian cultural traditions such as maintaining social harmony, filial and obedience to people of authority, inability to voice ones opinion, undivided loyalty as well as avoiding conflicts in public were some of the obstacles that discourages critical thinking. This study seeks to investigate the use of online tutorial (online forum/discussion) in supporting critical thinking among Asian undergraduates. The methodology used for this study is a mixed-method case study approach, utilizing techniques such as interaction pattern mapping and content analysis. Data will be culled from students' postings and comments in the online forum at the end of study. Coding of data is reflected and based on the Newman, Webb and Cochrane's paired indicators of critical and uncritical thinking. Results show that there is strong evidence of critical thinking among the students participating in the online forum. Content analyses revealed general positive ratios of the critical thinking indicators with (O+- Bringing outside knowledge/experience to bear on problem) being the strongest.

Keywords: Online forum, critical thinking, computer mediated communication, multi-ethic Asian culture

Introduction

Many literatures have cited the problem of Asian students being critical thinkers. In one such article, Atkinson (1997) argues that critical thinking seems to be an Eastern cultural problem compared to the Western cultural values that seems to embody it. Observation from several researchers noted that deeply rooted Asian cultural traditions such as maintaining social harmony, filial and obedience to people of authority, inability to voice ones opinion, undivided loyalty as well as avoiding conflicts in public (Davidson, 1998; Chang, 2000; Williams, Watkins, Daly & Courtney, 2001) were some of the obstacles that discourages critical thinking. Malaysia has one of the most diverse multi-ethnic Asian cultures where the predominant races consist of Malay, Chinese, Indian and other indigenous people. At the year 2006, 70% of graduates from public universities, 26% from private higher learning institutions and 34% of those graduated from foreign universities were found to be jobless (Suresh, 2006). It is not surprising that in Malaysia, factors commonly cited for unemployment of our local graduates are lack of communication and critical thinking skills (Ambigapathy & Aniswal, 2005).

Critical thinking and online spaces

Critical thinking in this paper is defined as a kind of problem-solving process (Garrison 1992). According to Garrison (1992), there are 5 stages that a critical thinker will move through: problem identification, problem definition, problem exploration, problem applicability and problem integration. From Garrison's 5 stages of critical thinking, Newman, Webb and Cochrane (1995) expanded to 10 categories of critical thinking indicators of which this study adopted in evaluating critical thinking among the participants.

Critical thinking has always been a challenging issue with students of the Asian origin (Atkinson 1997). Many of the practices in Asian culture seemed to be a drawback and often act as barriers in facilitating critical thinking. Nash (2006) claims that it is vital that students are active in their learning to develop

critical thinking skills. She further pointed out that online space such as discussion boards can create an effective place to require students to engage in focused analysis of each other's work. While extensive history and research on online interactions and critical thinking has been long established in the Western countries (Hara, Bonk & Angeli, 2000; Henri, 1992; Newman, Webb & Cochrane, 1995), there is a notable dearth of studies that involved the Eastern counterpart. There is, however, several notable empirical research involving groups from Chinese cultural background. These research studies reveal there are positive opportunities in online interactions to support critical thinking among Chinese students (Chiu, 2007; 2009; Wang, Woo & Zhao, 2009). This research is an attempt to fill in the gap especially in a more varied and multi-ethic Asian culture. In exploring the use of online forum to support the traditional classroom lecture, this research seeks to investigate the use of online tutorial (online forum/discussion) in supporting critical thinking among multi-ethic Asian undergraduates.

Hence, the main research question addressed in this paper is: To what extent can online forum support multi-ethic Asian students' interaction and critical thinking?

Method and approach

Participants and setting

This research project was implemented across the whole cohort of entry level students with a total of 154 students. The course consists of lectures and tutorial sessions of which the online forum/discussion was used for the tutorial sessions. Students were asked to form a group of 10 people to participate in the online forum. The online forum covers 4 topics of the semester. Topics of discussion related to the content delivered during mass lecture were posted for the tutorial session. Specific media issues and concepts were deployed for reflection, debate and discussion. Each topic was designed to encourage the students to think critically as well as giving constructive response to other member's comments. Students were told to set the online forum's environment as relax and informal as possible. The students were free to interact and reflect in conversational style throughout the weeks. Each student is required to participate in the online forum within their groups and is accounted for 20% of the final grade of the course. The duration for each topic of discussion is one week. Students are required to post their discussion or opinion at least once and comment or respond to other group member's postings and opinions at least twice within this time frame. However, there is no limit to the number of times they wish to post.

Context of the study

This humanities department course is offered in the foundation year of the Faculty of Creative Multimedia, Multimedia University. The course is one with a large (>150) group of students from various ethnic background. The students are from various ethnic groups and nationality such as Malay, Chinese, Indian, Eurasian, Indonesian, Thai, Pakistani, Bangladeshi, Iranian and Arabian. It is a content-rich course with students having to digest great amount of information at every lecture. With a limited number of instructors (<2) allocated for the course, it is quite a heavy task to facilitate effective face to face tutorial sessions with the students. Students' engagement was found limited only to a few especially in a large tutorial group setting. The potential problems of conventional large classroom and issues of passivity, information overload, decreased motivation, feelings of isolation and alienation among students were pertinent among the students. Majority of the students expects to be spoon fed coming directly from a heavy instructor-led high school environment. To further complicate the situation, the Asian cultural values mentioned earlier are much ingrained in them. Hence, having to facilitate critical thinking in the class was found to be difficult, challenging and an almost impossible task to fulfill. Another pertinent issue would be language. Even though this course was fully conducted in English, all of the students are not native English speakers. Previous research highlighted those students who are not native English speakers experience difficulty in expressing their views face-to-face (Song & Yuen, 2008). This course, therefore, takes a blended approach to teaching and learning: face to face lectures with asynchronous online tutorial sessions.

Data collection method

The methodology that was used in this study is a mixed-method case study approach utilizing two approaches i.e. interaction patterns and content analysis.

1. Interaction patterns between and among students within each group

2. Content analysis based on empirical data (postings and comments) between and among students in the online forum

Interaction patterns
Each group's interaction were plotted to analyze the quality of interaction, level of interaction as well as to recognize any emerging patterns from all the group members in terms of postings and comments. A graphical representation of the interaction will be used to illustrate the flow of messages. A descriptive analysis of interaction patterns among students can reveal the quality of interaction.

Content analysis and coding scheme
Content analysis is described by Krippendorff (2004) as an "unobtrusive view of data that must be interpreted through classification and evaluation". It is a commonly used technique in the assessment of online interactions. This study takes a qualitative approach to content analysis, based on the interpretive reading of the postings and comments of the students in the online forum. Neudendorf (2002) identifies this type of content analysis as "interpretive analysis", claiming it to be a valid source of "deep" information about text (p. 14).

The classification and indicators of critical thinking for this study adopted Newman, Webb and Cochrane's paired indicators of critical and uncritical thinking (1995) of which is a combination of Henri's five dimensions of computer mediated communication (1991) and Garrison's five stages of critical thinking (1992). Newman et al. (1995) addresses the social side of critical thinking and the collaborative nature of the technology. 10 categories of critical thinking was identified namely *relevance, importance, novelty, ambiguity & clarity/confusion, outside knowledge, linking ideas, justification, critical assessment, practical utility* and *width of understanding*. Within each category, there are positive and negative indicators. All data were culled and analyzed using these categories of coding scheme.

Results, analysis and discussion

Only snippets of the results obtained will be discussed in this report. The first section considers the interaction pattern of a sample group. The graphic illustrations of the interaction pattern reveal the level of engagement and interaction among the participants. The second section uncovers the content analysis of the online forum messages which investigates the existence of critical thinking among the participants.

Interaction patterns analysis

Figures 1-4 illustrates the interaction patterns of a group of students for the online forum of Topics 1-4. Evidently, the interaction patterns show that the online forum within this group has been highly interactive except for a decline in the final topic. It is said that heavily interactive participation from each participant would be a strong indicator of peer-to-peer learning and support (Curran, Kirby, Parsens & Lockyer, 2003). Generally, it didn't look like that there were any particular student dominating the discussions but it is interesting to note that student A (ellipses represent students) seemed to receive many responds from the rest (flow of messages is indicated by the arrows) and had been the starter (represented by the double circle in the figures) of the discussion for two topics. Dotted lines represent postings or statements that were independent and directed at no specific person. Topics 2 and 3 show signs of high level of engagement with 57 and 56 posted messages while Topic 1 has 43 posted messages. Topic 4, the final topic has the lowest participation with 35 posted messages (See Table 1). The average word count per message ranged from 255 to 398. They are of quite a substantial length indicating probable critical reflective activity among the students. Though quantitative measures such as total number of messages, word count, sentences or paragraphs per student do not reveal much on the quality of content, research has pointed out that extended messages tends to indicate a stronger and critical reflective activity among the participants (Hara, Bonk & Angeli, 2000).

One of the probable reasons for the drop of messages in Topic 4 could be that it was near end of semester with students having many submission deadlines for other subjects, hence the lack of participation. In addition to that, there was some evidence from students' comments that points to the poorly structured topic of discussion given for this particular forum that might have given rise to this result. For example: Student D stated that "There is nothing much to be added to it, without sounding like a repetitive parrot." Student H made this remark: "This topic is REALLY hard to discuss about, it's like there isn't anything to argue as it is all facts and really hard to find anything to post since 9 other people are searching and posting as well!"

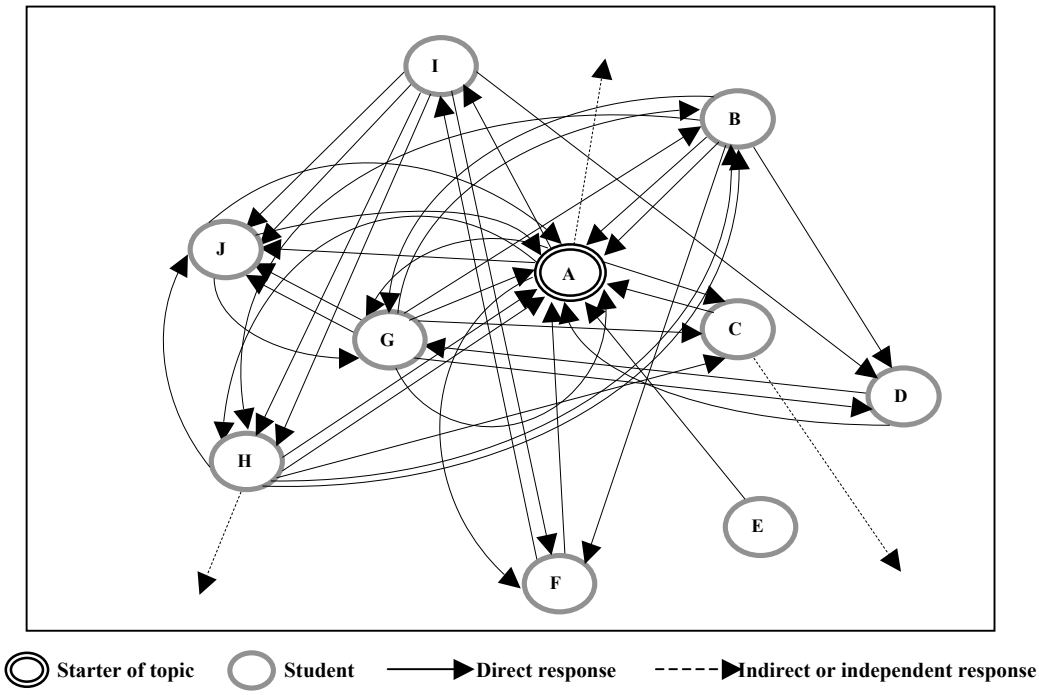

Figure 1: Interaction patterns for topic 1

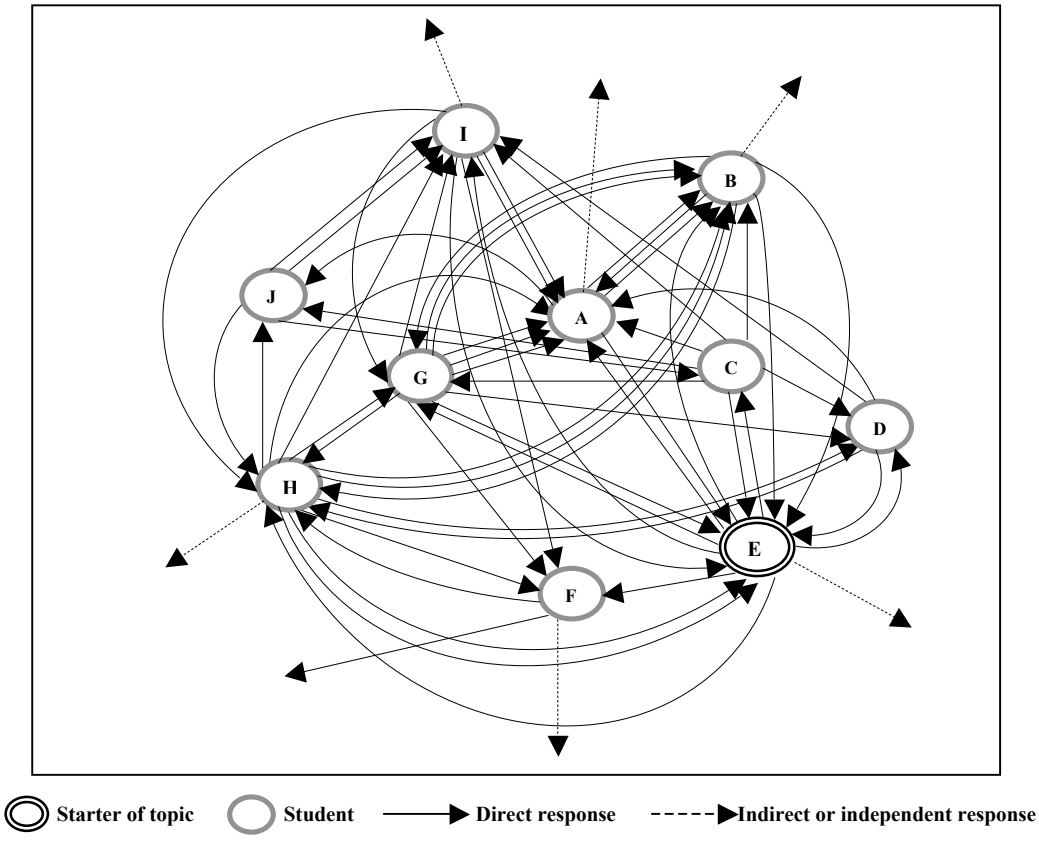

Figure 2: Interaction patterns for Topic 2

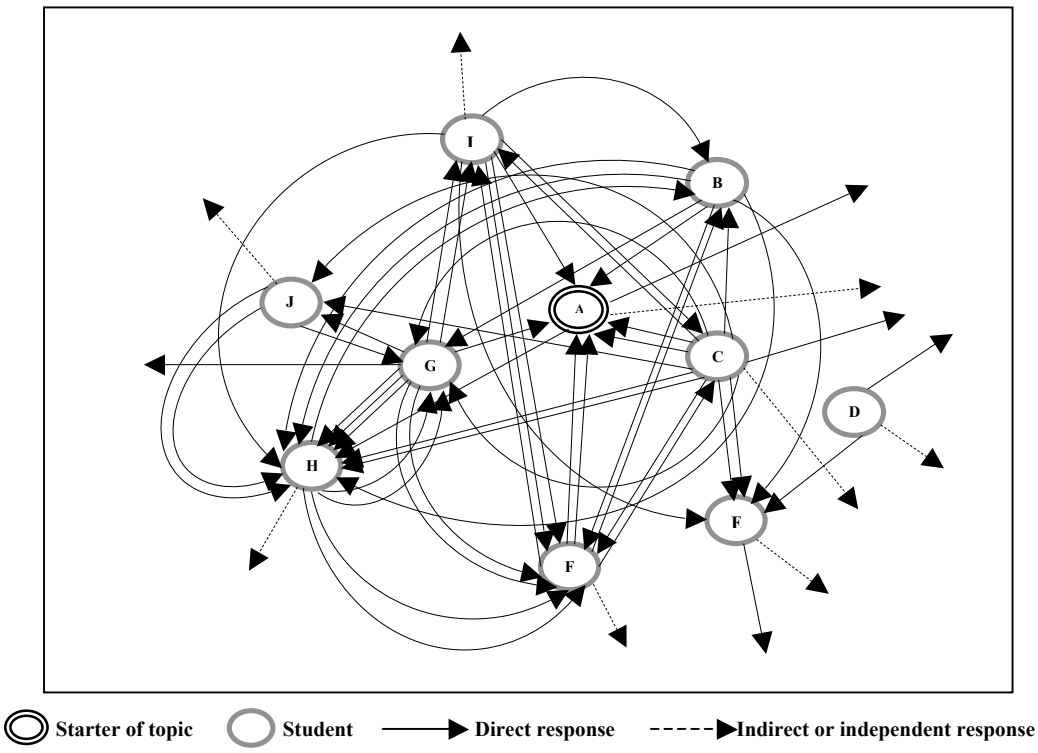

Figure 3: Interaction patterns for Topic 3

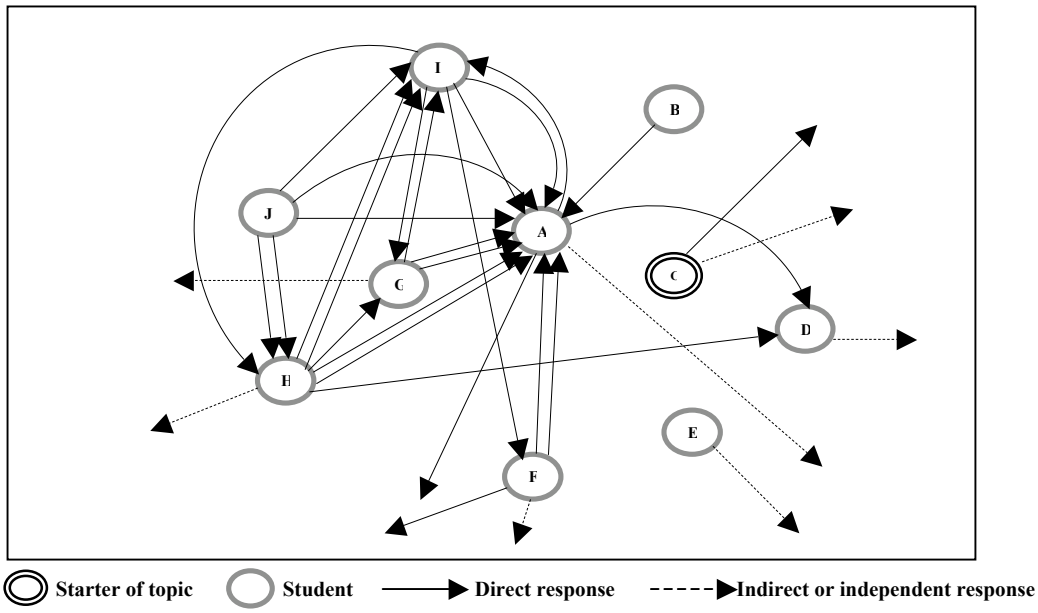

Figure 4: Interaction patterns for Topic 4

Table 1: Quantitative measures of posted and viewed messages

	Topic 1	Topic 2	Topic 3	Topic 4
Numbers of messages posted	43	57	56	35
Numbers of messages viewed	164	155	136	108
Average words per message	398	314	255	296

Table 2: Critical thinking indicators and ratios

	Topic 1			Topic 2			Topic 3			Topic 4		
Scoring criteria	Ratio	+	-	Ratio	+	-	Ratio	+	-	Ratio	+	-
R+- Relevance	0.75	14	2	0.74	20	3	0.89	18	1	0.67	10	2
I+- Importance	0.65	14	3	0.68	16	3	0.73	13	2	0.60	8	2
N+- Novelty, New info, ideas,	0.41	19	8	0.68	26	5	0.75	28	4	0.23	8	5
A+- Ambiguity and	0.10	5	4	0.75	7	1	0.50	3	1	0.20	3	2
O+- Bringing outside knowledge/ personal experience	0.90	38	2	0.95	37	1	0.96	50	1	0.65	14	3
L+- Linking ideas, interpretation	0.45	8	3	0.50	9	3	0.88	15	1	0.25	5	3
J+- Justification	0.74	27	4	0.85	25	2	0.80	18	2	0.33	2	1
C+- Critical assessment	0.45	8	3	0.80	9	1	0.85	12	1	*	0	0
P+- Practical utility (grounding)	0.60	4	1	0.43	5	2	0.56	7	2	*	0	0
W+- Width of understanding	0.33	2	1	*	0	0	0.60	4	1	*	0	0

*not calculated because sample is too small

Content analysis (critical thinking indicators and ratios)

The approach taken by Newman et al. (1998) in calculating the ratio reflects on the quality of the messages independent of the quantity of the participation. Adopting Newman et al.'s approach within this study, the critical thinking indicators (+-) were counted and the critical thinking ratio were calculated for each indicator with "x ratio = (x+ - x-)/(x+ + x-), converting the counts to a -1 (all uncritical, all surface) to +1 (all critical, all deep) scale" (Newman et al. 1998, p.10).

With the critical thinking indicators ratios obtained (See table 2), the ratios were then mapped into a spider diagram shown in Figure 5. Initial analysis of the diagram shows critical thinking incidences within all online forum of this particular group of participants. In fact, there was notable increase in most of the critical thinking indicators' ratios as the students' progress from Topic 1 – Topic 3 with the exception of Topic 4. As mentioned earlier, a possible explanation for the decline could be due to time constrain and ill-structured topic of discussion. The students were noticeably to have more in depth positive ratios for O+- (Bringing outside knowledge/experience to bear on problem). They were found to be able draw on their own personal experience with ease, using previous knowledge and relevant outside material. Results also reveal a constant exhibition of R+- (Relevance) and I+- (Importance) throughout all the topics of discussion. Initially, the messages posted were found to be weak in linking ideas and interpretation (L+-) but steadily progress in the later topics.

It is quite clear from the content analyses that the group members were comfortable interacting with each other in this format. A strong indicator would be that the members were referring each other by names and relate to each other as a family. A community of knowledge building is seen emerging from it. This form of synergistic interaction is said to lead to deeper learning (Schrire, 2006) and was reconfirmed in this study as well with multi-ethic Asian students. All in all, there is strong evidence of critical thinking among students interacting in the online forum, pointing to the benefits of exploring this form of interaction to support the development of critical thinking among Asian students. We could conclude that online forum does provide positive opportunities for Asian students to develop their critical thinking skills. For those who are conscious of their level of proficiency in English, online environments allows for more opportunities to express themselves and to take chances minus the embarrassment of making mistakes in class. This was very evident in their highly interactive online participation. The active

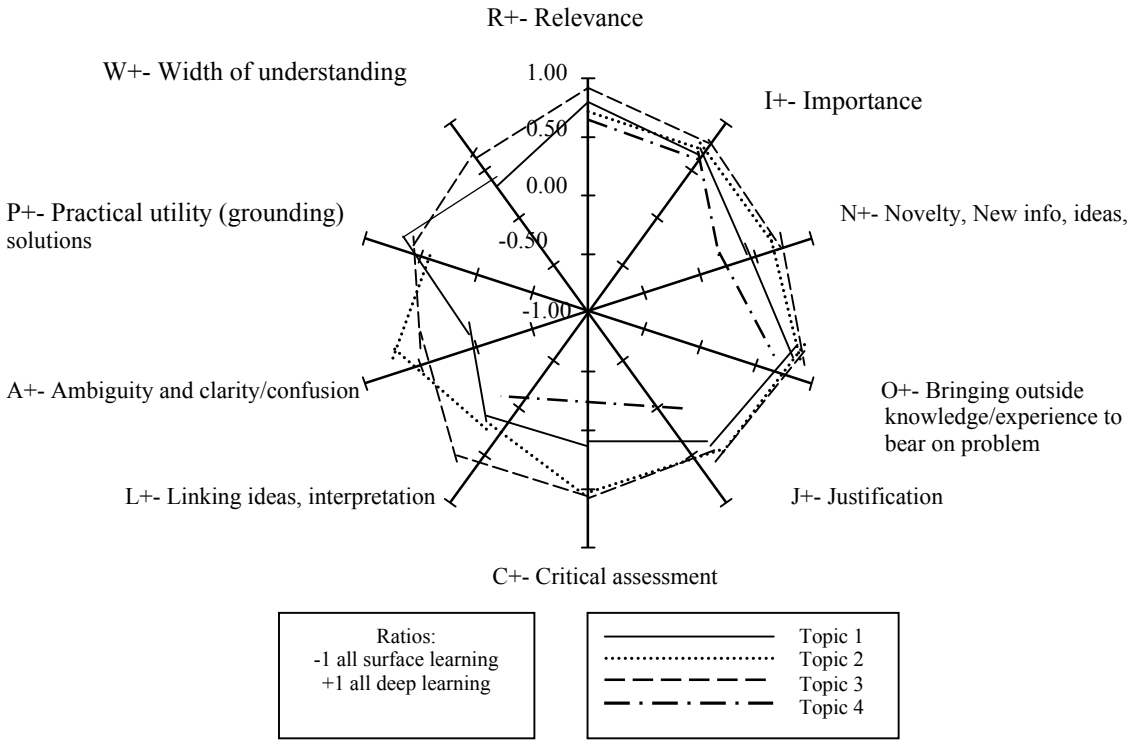

Figure 5: Critical thinking indicators ratios (deep vs. surface learning)

participation and highly interactive online forum of the sample group reveals that students were highly engaged in their task and are comfortable expressing themselves using this medium. This is an important pre-requisite in supporting critical thinking and deep learning.

However, it is important to note some limitations to these results. As stated earlier, the report shown here is of one sample group. The participants of this sample group might consist of highly motivated students with existing critical thinking skills, hence, the positive results. Further research would have to be carried out to do a comparison with other groups from the entire cohort to validate these findings.

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