

Examining the impact of object owners' anonymity on learners' participation rate and critical thinking in an asynchronous online discussion environment

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This paper reports a case study in Singapore that examined the impact of object owners' anonymity on learners' participation rate and quality of critical thinking in an AOD environment. Results suggested that when there was anonymity, more participants tended to post their comments and viewpoints in the online discussions, as well as showed more evidence of in-depth level of critical thinking. Suggestions for future research are provided.

Keywords: asynchronous online discussion, anonymity, participation, critical thinking

Introduction

Asynchronous online discussion (AOD) tools such as forums and bulletin boards are being increasingly used in many institutes of higher education. Many believe that AODs may benefit student learning because it provides the means for students to exchange ideas and perspectives, and inspire reflection and critical thinking (Dunlap, 2005; Newman *et al*, 1997). Although participation in an AOD in itself may not be a direct absolute measure of learning, low levels of participation and low evidence of critical thinking have been found to produce poor results for learning (Hammond, 2005; Rovai & Barnum, 2003). Past research has generally suggested that students seldom participate in online discussions (Cheung & Hew, 2004; Guzdial, 1997; Hewitt 2005; Hewitt & Teplov, 1999; Wan & Johnson, 1994). One possible way to mitigate this problem is by granting students anonymity in the discussion environment (Collins & Berge, 1995). However, prior studies that examined the role of anonymity in AODs have mostly represented experiences in western countries. Studies that involved participants from Asian countries (e.g., Singapore) were few in comparison. As a result, it may be unwise to generalize findings in western countries to other countries as online discussions may be culturally embedded. This paper reports a case study in Singapore that examines the impact of object owners' anonymity on learners' participation rate and quality of critical thinking in an AOD environment.

Literature Review

In this paper, we defined anonymity as the state or condition in which the author or owner of an object (e.g., message, project work) is not made known to the other people in the discussion (Scott, 2004). A number of previous studies have examined owner anonymity in AODs and their conclusions are mixed. The sense of security provided by anonymity can encourage people to share their thoughts more freely (Nissenbaum, 1999; Stein, 2003; VanSoest *et al*, 2000). A participant may be less likely to express an unpopular view if he has to do so in an identified forum. Other than encouraging the freedom of thoughts, Johnson (1997) also observed that with anonymity, participants are more likely to share their truthful opinions. Another important positive impact of anonymity is that it promotes homogeneity in an online discussion forum by reducing inequalities or differences that may arise from gender, or ethnicity. By providing learners with the protection of anonymity, they will be able to participate in the asynchronous online discussion forum without the concerns of being stereotyped by their fellow participants (Freeman & Capper, 1998). On the other hand, researchers also concluded that the negative impacts of anonymity in the online discussion environment may outweigh its positive impacts. Nissenbaum (1999) suggested that the very benefit of anonymity providing a safe way to interact might also result in lack of accountability. In a study to examine how social online behaviours are shaped, Stein (2003) cautioned that anonymity may provide individuals an opportunity to assume other people's identities and voice comments as if they were the words of other people, and yet face no consequences from speaking

carelessly. This may result in aggressive and malicious behaviours, which would otherwise not occur in the traditional discussion setup where participants are identified (Bertera & Littlefield, 2003).

Research Questions

Specifically, we have focused on the following research questions to guide our investigation:

- Does the anonymity and non-anonymity of the object owner affect the participation rate of participants in an AOD environment? Please see the following section for the definitions of “object owner” and participation rate.
- Does the anonymity and non-anonymity of the object owner affect the quality of critical thinking of participants in the discussion?

Method

This study involved 12 students, henceforth referred to as participants, who were enrolled in a “Multimedia Development” course in the Master of Arts (Instructional Design and Technology) program at the National Institute of Education, Singapore. Participants utilized the Knowledge Community web-based tool for their online discussions. One of the core components of the course required the participants to critique and discuss (e.g., identify design problems, give suggestions for improvements) a series of multimedia projects from two types of sources: (1) unknown sources, hence providing owners’ anonymity of the projects, henceforth known as objects, in this study and (2) known sources, projects in which the owners were made known to the participants. The titles of the threads and the anonymity of the owners of the objects are summarized in Table 1.

Table 1: Summary of Thread Titles

| <i>S/No</i> | <i>Thread Title</i> | <i>Anonymity of Owner of Thread</i> |
|-------------|-----------------------------------|-------------------------------------|
| 1 | Jap Culture | Object owner <i>anonymous</i> |
| 2 | Camping | Object owner <i>anonymous</i> |
| 3 | Kranji | Object owner <i>anonymous</i> |
| 4 | MAIDT Induction Program | Object owner <i>identified</i> |
| 5 | Design Guideline for Presentation | Object owner <i>identified</i> |
| 6 | The Water Cycle | Object owner <i>identified</i> |
| 7 | The Particulate Nature of Matter | Object owner <i>identified</i> |
| 8 | The Infant Diapering Procedure | Object owner <i>identified</i> |
| 9 | The Learning Support Program | Object owner <i>identified</i> |

The participation rate of the participants in the discussions was measured using two variables – notes read and notes posted. The ‘notes read’ variable measured the number of times the participants read one another’s posting; the ‘notes posted’ variable indicated the number of notes each participant posted in the forum. These data on participation rate were tabulated and analyzed across the nine threads in the two categories – the object owner identified and the object owner anonymous threads. To examine the participants’ quality of critical thinking, we used Cheung & Hew’s (2006) critical thinking skill framework. Specifically, we measured the quality of critical thinking using the indicators of surface and in-depth levels of information processing, as summarized in Table 2. The transcripts of all three object owners’ anonymous threads were coded using the framework, while three object owner identified threads were identified *randomly* for the coding purposes. The three object owners identified threads selected were: Water Cycle, MAIDT Induction Program, and Infant Diapering Procedure.

**Table 2: Framework for Evaluating the Level of Critical Thinking Skills Note
(Extracted from Cheung & Hew, 2006)**

| <u>Critical Thinking</u> | |
|---|---|
| <i>Surface Level</i> | <i>In-Depth Level</i> |
| <ul style="list-style-type: none"> - Does not justify conclusions or judgments made. - Stating that one shares the conclusions or judgments made by the others without developing the point further. - Does not state the advantages and disadvantages of conclusions, judgments and suggestions. - Sticking to one's assumptions and prejudices. | <ul style="list-style-type: none"> - Justifies conclusions and judgments made. - Stating that one shares others' conclusions or judgments and developing the views further by assimilating facts, personal knowledge and experience. - Identifying the advantages and disadvantages of conclusions, judgments and suggestions. - Making valid and informed assumptions based on available, observable indicators. |

The unit of analysis was the message idea – i.e., a single idea or meaning conveyed by the participants. The choice of a message unit being a single idea was consistent with the suggestion by Merriam (2001) that communication of meaning be the main focus of analysis. In this study, each online message was analyzed and if it dealt with one single idea, it was counted as one message unit. If, on the other hand, one message contained two ideas, it was counted as two separate message units. Once the message units had been identified, the data were coded according to the levels of their information processing. To determine the reliability of the coding, an independent coder coded 25 of the message units (randomly selected). The inter-rater reliability of the coding was 92%. Some representative examples from the coded data are shown in Table 3.

Table 3: Examples from the Data Coding Process

| <i>Level of Critical Thinking</i> | <i>Examples of Coding</i> |
|-----------------------------------|---|
| <i>Surface</i> | “I would like to suggest that for practicum to include the following: (i) Titles from the previous years; (ii) Supervisor's Comment and: (iii) Where to locate them in the library.” <i>(This contribution is classified at the surface level as the participant did not offer any justification to why his suggestions are valid.)</i> |
| <i>In-depth</i> | “I would like to suggest the use of some video clips of WW2 epics on Singapore to visualize the events. This will focus students' attention on the desired to-be-learned features (Peters & Daiker, 1982)” <i>(This contribution is classified at the in-depth level as the participant managed to justify his judgment)</i> |

Results and Discussion

When there was anonymity of the object owners, 69.4% of the participants in the 3 threads posted notes, while 30.6% of the participants contributed to the forum when the object owners were identified. This statistics confirms our observation that participants tend to take part in asynchronous online discussion forum when there is a certain level of anonymity. This result is consistent with that of Nissenbaum's (1999), Stein's (2003) and Johnson's (1997) findings where learners are more likely to participate in AOD forum when there is anonymity. The reading rate of the various threads provided another interesting

piece of information for us. When we compared the total number of participants who accessed and read the notes to the total number of possible access, we discovered that the reading rate for both the object owners' anonymity and object owners identified threads stood at 83.3% and 73.5% respectively. This statistics showed that the initial access and reading rate of the threads for both situations were almost equally high. However, we did not see the same high number of participants posting notes and actively participating in the forum. The dip in statistics was exceptionally pronounced in the case of object owners identified threads where we had 73.5% of participants accessing and reading the threads, but this figure plunged by more than half when we considered the percentage of the participants actually posting in the forum. Table 4 provides a summary of the access and participation rate under both the scenario.

Table 4: Access and Participation Rate under the Different Scenarios

| . Scenario | <u>Percentage</u> | | |
|-------------------------|----------------------------------|---------------------------|--------------------------|
| | <i>Access & Reading Rate</i> | <i>Participation Rate</i> | <i>Dip in Percentage</i> |
| Object Owner Anonymous | 83.3 | 69.4 | 13.9 |
| Object Owner Identified | 73.5 | 30.6 | 42.9 |

With regard to the quality of critical thinking, our results suggested that anonymity of object owners appeared to contribute positively to the quality of participants' thinking. It was observed that when there was anonymity, participants tended to post notes that fell into the in-depth level of critical thinking category. This proportion was higher than when the object owners were identified. Generally, participants functioned at the in-depth level of critical thinking approximately 80 % of the time when there was object owners anonymity as compared to 54 % when the object owners were identified (see Table 5).

Table 5: Percentage Frequency of Participants' Thinking at the Various Levels

| <i>Thread</i> | <i>Scenario</i> | <u>Percentage Frequency</u> | | | |
|----------------------------|--------------------------|-----------------------------|------|-----------------------|------|
| | | <i>Surface Level</i> | | <i>In-depth Level</i> | |
| Jap Culture | Object Owners | 29 % | 20 % | 71 % | 80 % |
| Camping | Anonymous | 25 % | | 75 % | |
| Kranji | | 6.7 % | | 93.3 % | |
| MAIDT Induction Program | Object Owners Identified | 54.6 % | 47 % | 45.4 % | 54 % |
| The Water Cycle | | 41.2 % | | 58.8 % | |
| Infant Diapering Procedure | | 41.7 % | | 58.3 % | |

A quick survey of the notes posted by participants reflected no incidence of negative impacts of anonymity in anonymous online discussion forum, such as flaming or online bullying as cautioned in the literature (Scott, 2004; Nissenbaum, 1999; Stein, 2003; Johnson, 1997; Bertera & Littlefield, 2003).

Conclusion

In this study, we examined the impact of the object owners' anonymity on the participation rate and level of participants' critical thinking. One of the limitations in this study is the small enrolment size of this Master class sample, which may not provide a good representation of population involved in such online learning activities. Another limitation is our inability to contact the participants after the study for interviews. As a result, we could not offer insights that might explain *why* non-anonymity may deter

participants from taking part in the asynchronous online discussion. Although we infer that participation rate is higher when there is object owner anonymity, we are uncertain if this can be solely attributed to anonymity alone.

For the purpose of a more conclusive research, we suggest that interviews with participants be carried out to tease out factors or reasons that could help explain how and why anonymity may foster higher participation rate and in-depth critical thinking. Analyses of the interview data could also help surface additional insights that may have motivated individuals to contribute in online discussions. Future research should also be conducted to verify our results with a larger sample of participants. Another possible future research area would be to examine if anonymity could contribute towards community building among the participants as suggested by Johnson (1997). Another area worth examining is the facilitation techniques in an anonymous AOD environment. It would be useful to investigate the possible impacts different techniques of facilitation might have on participants' participation rate and quality of critical thinking in an object owner anonymous AOD forum.

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