Patterns of Student Learning Behaviour within Technology-supported Socialised Learning Contexts

HanYuNing LIN[a*], Mathew R PRYOR[b]
[a]*The University of Hong Kong, Hong Kong*
[b]*The University of Hong Kong, Hong Kong*
*lynnlhyn@hku.hk

Abstract: With rapidly growing interest in the use of Information and Communication Technology (ICT) tools, student learning through interaction and collaboration becomes feasible and flexible in both online and offline learning environments. Cognitive development in high-density socialised contexts has been a distinct focus in educational research. In this study, we transformed a traditional lecture course at HKU into a communication-intense classroom with the aim of maximizing meaningful socialisation amongst learners. Semi-structured interviews with undergraduate students were conducted after the course and inductive content analysis was undertaken to identify patterns of student learning behaviours which influence the quality of their knowledge construction. Research findings indicated emerging patterns of group socialised learning behaviours were actively-involved, small-circle and passively-reacting; two types of peer pressure - positive and negative - had strong effect on an individual's learning behaviour within their group.

Keywords: Learning behavior pattern, socialised learning, technology support, peer pressure

1. Research Background and Research Questions

Researchers suggested that information technology affords innovation and diversity in learning and teaching compared to traditional classrooms (Lage, Platt, & Treglia, 2000). ICT tools give new opportunities for students to learn flexibly and interact closely; and for instructors to deliver courses more creatively in both online and offline environments. Prior research has confirmed students involve more intensely and distribute group work reasonably within technology-supported learning environments (Angeli, Valanides, & Bonk, 2003). Several studies have detected significant enhancement of students learning achievement, satisfaction and knowledge construction via online collaboration (Young, 2008; Zhu, 2012; Ku, Tseng, & Akarasriworn, 2013). However, further examination of how students behave within highly socialized groups is still needed.

In this study, we conducted an experiment to transform a traditional lecture-based common core course at HKU into a socialised-learning-design format based on Vygotsky's social constructivism theory (1978), in addition to Järvelä and Hadwin's Regulation of Collaboration Theory (2013). Within this socialized learning context we explored: 1) what patterns of student learning beahviours emerged; 2) what factor(s) influenced student learning behaviours; 3) how the factor(s) influenced such behaviours.

The course was conducted using online pre-class exercises and face-to-face in-class practices. Students were required to watch videos of the instructor teaching basic concepts on Open edX and perform group tasks to reinforce the knowledge they learnt from videos. As Lee (2000) stated, many students fail in online learning due to their loss of motivation or poor adaptation to new way of learning. Typically students work independently online, which requires them to have great control of their own study. We addressed this by assigning students to work on online pre-class tasks collaborative in groups, which encouraged them to regulate each other's learning by sharing the learning responsibility. Student groups were pre-chosen and with the intention of maximising background diversity. In class, the same groups sat together at tables and were undertook various interactive activities integrated with ICT tools (e.g. Mentimeter and Flipgrid) to share their ideas and apply the knowledge acquired pre-class to real-life situations. With Mentimeter, students shared their opinions simultaneously on a

projector screen in class and were thereby able to visualise others perspectives. On Flipgrid, students shared their group video projects, gain inspiration from other students' works and communicated with each other.

2. Methodology and Data Analysis

2.1 Participants and Semi-structured Interviews

14 out of 116 students voluntarily participated in post course semi-structured interviews. Guide questions were designed by colleagues with professional teaching and research backgrounds to avoid bias. To encourage students to reflect on group interaction, participants from the same course group were distributed into different interviews. To maximise the depth of conversation, each interview only included 1 to 2 participants and lasted for about 50 minutes. Interviews were audio recorded with participants consent.

2.2 Inductive Content Analysis

Content analysis is defined as a research method to make rational and sustainable inferences from data to their context, so as to offer understanding, new insights, and demonstration of facts (Krippendorff, 1980). Differentiating from deductive analysis, inductive content analysis generates categories from data rather than matching data with pre-set categories. It follows the procedure of open coding, creating categories and abstraction (Elo & Kyngäs, 2008). To avoid bias and pre-assumption of interview contents, cross-validations and discussions were carried out by the authors till agreement on the analysis results was reached.

3. Research Findings

3.1 Patterns of Group Socialised Learning Behaviours

Three patterns of students socialized learning behaviour in groups were identified from interviews. Actively-involved pattern refers to every group member making their own effort in group discussion, plan setting to achieve learning goals, checking project progress and evaluating work quality. Students who were less active at first also got progressively more involved. Small-circle pattern occurs where several students in a group form their own secure inner circle and interact only within that circle with other students in the group being left outside and not involved. Passively-reacting pattern happens where group members play solo roles within projects and have minor interaction with each other.

Table 1

An Example of Students Feedback on Patterns of Group Socialised Learning Behaviours

Actively-involved	"Every person in our group is willing to do things and we appreciate each other's work quite a lot. We voice out our thoughts and do concrete works to show each other."
Small-circle	"Sometimes we ended up submitting things that they just did within themselves and a point to me I wouldn't appreciate the quality overall. I feel if the same thing we would do in a more collaborative way we would be able to submit a better quality of work."
Passively-reacting	"Our group was not active in group activities and we didn't have much communication. We just did our own work and submitted before deadline."

3.2 Types of Peer Pressure

Two types of peer pressure were identified from data analysis. Positive peer pressure allowed students to feel self-driven and motivated under internal or external influences so that they made more contributions to their group project, provided assistance to group members in need, sought to improve the quality of group work, etc. Negative peer pressure diminished students self-efficacy and positive view of their capacity to contribute to group work due to certain worries or nervousness.

Table 2

An Example of Students Feedbacks on Typology of Peer Pressure

Positive pressure	"My group mates' desire of improving the work drives me to engage more in the assignments and makes me feel it's my responsibility to do so."
Negative pressure	"Because I'm the type of person that I would like to finish an assignment as soon as I can, but my group mates do it in the last minute. So you have to learn how to compromise or at least communicate with other people without sounding annoying, which is very stressful."

4. Discussion and Conclusion

Given the direct evidence from students' feedback and data analysis, students who actively performed in class activities and interacted with peers tended to report having more positive pressure, self-driven contributions, engaging learning experiences, appreciative attitude and notable learning achievements. Students who were far less engaged seemed to suffer from negative pressure and impassive attitude but still considered that they obtained the required academic knowledge and skills.

In this study, to examine students learning behaviours in a socialised learning design context, we firstly transferred a traditional lecture course into a communication-intense classroom entailing collaborative online pre-class and offline in-class exercises. Then we undertook semi-structured interviews with students from the course and applied inductive content analysis to draw patterns of students socialized learning behaviours and the factor that has effect on how students behave in groups. From this we are able to give other instructors clear and multi-faceted understanding of how students behave to construct knowledge within highly socialized educational settings.

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