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Consolidating pre-service teachers' metacognition of online dialogue through visual methods: A Hong Kong case study

Keywords

Pre-service teachers, metacognition, online dialogue, visual methods

Introduction

There is an increasing recognition of shared metacognition that is socially situated (Larkin, 2009). Metacognition is seen as facilitated through collaborative dialogues and tasks. In particular, metacognition is a critical aspect of the learning process in visual methods, which are effective in facilitating human learning. However, in conventional university-based teacher education programmes in Hong Kong, pre-service teachers may have few opportunities to express their views and reflections through online collaborative inquiry. Therefore, this study aims to explore how pre-service teachers in Hong Kong reflect on the topic of inclusive education through a series of visual methods following an online dialogue with their global peers.

Research context and rationale

There is evidence that applications of videoconferences and online discussions enhance the effectiveness of learning and teaching (He & Huang, 2017). There has been a growing interest in learning communities and the metacognitive processes associated with shared cognitive experiences (Chan, 2012). For example, when pre-service teachers systematically communicated with their peers during online discussions and post-discussion sessions, metacognition and regulation in a collaborative learning environment emerged as a result of the participants' interaction within their own group and with other groups (Cho & Kim, 2013).

Research design

Nine student teachers from Bachelor of Education programmes in a subsidised university in Hong Kong participated in this case study. In the online discussion session, there were four groups of student teachers (from Hong Kong, England, South Africa and Northern Ireland), who participated in one dialogue. Provided with a specific topic (inclusive education), the participants were invited to pose questions and respond to questions from the other participants. In the post-discussion session, the participants were invited to deliver a group reflection that consolidated what was achieved and share their personal views. Furthermore, they were invited to create a group concept map with keywords on what they had discussed concerning inclusive education. Finally, the participants were asked to draw an individual creative picture about their views on inclusive education and a collaborative picture describing their common thoughts.

The discussion dialogues were recorded, and transcript analysis was applied using the indicators developed from the three dimensions of the metacognitive construct described previously. The unit of analysis was each single message, and each message was coded for all three dimensions of metacognition. To ensure the codes were representative of the metacognitive indicators, the discussions were coded by one researcher and checked and verified by another researcher. The artefacts were collected, and a content analysis of the artefacts of the group projects was conducted to investigate how the artefacts were used and how they related to the discussion topic based on the metacognitive construct previously mentioned.

Findings and discussion

This study showed that the discussions through visual methods could be grouped into three categories of metacognition (Akyol & Garrison, 2011): knowledge of cognition, monitoring of cognition and regulation of cognition.

Knowledge of cognition. The participants engaged in a visual game in the post-

discussion session, which allowed them to enter a pre-task metacognitive state to recall knowledge of the inquiry process. They began to enter a metacognitive state by providing keywords bilingually to share their comments on the online discussion session. The participants chose Post-its of their favourite colour and wrote the keywords individually. They then collaboratively arranged their keywords in a grid pattern. They elaborated on their thoughts behind the keywords.

Monitoring of cognition. The participants showed their awareness of reflecting on their learning processes in the online dialogues. For example, one of the pre-service teachers criticised how they had not been able to go deeper into the discussions with others due to the time limit. This assessment of the learning experience relates to the monitoring dimension of metacognition. The participants were able to consolidate and reorganise the online discussion experience with each other using their visual artefacts by generating a concept map of inclusive education to connect all the ideas that had been discussed.

Regulation of cognition. Through the online platform, the study participants in Hong Kong focused the dialogues on their local setting until the pre-service teachers from Northern Ireland gave them some new insights about inclusive education. The participants asked each other to work together in applying a collaborative drawing as part of the regulation dimension of metacognition. They reflected on what they had learnt and how they felt through the online dialogues. They used a diagram to illustrate the differences in the meaning of inclusive education expressed by the participants in the different countries. They were engaged in offering help to others to enhance the intended learning outcomes in a reciprocal manner.

In summary, the use of visual methods for the purpose of pre-service teacher education through social networks has the potential to contribute to teachers' professional development. From a social perspective, the global dialogue platform is a dynamic and active social platform that provides fast and easy access to other students from all over the world. For the cognitive aspect, the pre-service teachers achieved deep learning when they internalised their knowledge

through visual pedagogies.

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Disclosure statement

This research was carried out in full compliance with ethical guidelines and received approval from the appropriate institutional ethics committee. Ethical consent forms were signed by each participant in this research. No potential conflict of interest was reported by the authors.

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