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Creating and Sharing Multimedia Cases for Authentic Learning

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Abstract: Case-based learning has been used to facilitate authentic learning because cases include real-world contexts and support solving complex and ill-structured problems. Although cases can be used in multiple ways for authentic learning, previous studies had limitations in exploring how students create and share their own cases. The purposes of this study were to investigate student perceptions of creating and sharing multimedia cases and to explore characteristics of student-constructed cases. A total of 18 graduate students participated in the study as part of their coursework in an educational technology course at a university in South Korea. Participants created video or photo-and-text cases through applying their knowledge, which was acquired from a lecture, to real-world contexts. The multimedia cases were shared in an online platform and then discussed in small groups at a classroom. Students perceived that the multimedia case activity was helpful in developing a deeper understanding, collaboratively building knowledge, facilitating intrinsic motivation, and improving their digital competencies. This study also found that student-constructed cases included diverse and real-world contexts and showed individual differences in understanding learning contents and using knowledge in situ. These findings imply that students should be encouraged to create and share their own multimedia cases for authentic learning and deeper understanding.

Keywords: Multimedia, case-based learning, authentic learning, learning by making

1. Introduction

Authentic learning in school frequently uses cases as problems and learning resources. Cases include stories about how people solved a problem in a real-world context, which can be reused in exploring and evaluating solutions to an authentic problem. When people meet a new problem, they are likely to retrieve old cases, which have similar structure or surface features with the problem, from memory (Jonassen, 2006; Kolodner, 1997). The cases are reused for a new problem, and then they are retained or modified according to problem-solving results. Experts in such fields as business, law, medicine, and engineering have more cases in their memory and use them more effectively for solving a new problem than novices. Thus, case-based learning can be helpful in developing the competencies to solve complex and ill-structured problems in real-world contexts.

2. Case-Based Learning

Cases can be used in multiple ways for authentic learning. Jonassen (2006) categorized case-based learning according to the functions of cases: (1) cases as exemplars/analogies, (2) cases as analogues (case-based reasoning), (3) case-study method, (4) cases as problems to solve, and (5) student-constructed cases. Although cases as exemplars are mainly used in learning to solve well-structured problems, other types of case-based learning are used for ill-structured problem solving like decision making, troubleshooting, design, and dilemmas. Particularly, the case-study method and the cases as problems to solve have been effectively used in education. In the case-study method, students apply their knowledge to analyzing problem situations, strategies, solutions, and results of cases that describe how others effectively or ineffectively solved a problem. By contrast, the cases as problems help students to construct new knowledge through generating and evaluating

multiple solutions to an authentic problem. In problem-based learning, for example, medical students should self-regulate their learning process and collaborate to solve a complex problem in authentic clinical contexts. The case-based learning has been applied in a variety of domains and showed positive effects in skill acquisition and knowledge retention (Dochy et al., 2003).

Despite the effectiveness of case-based learning, previous studies had limitations in exploring how student-constructed cases can be used for authentic learning. The instructional models of problem-based learning, anchored instruction, and goal-based scenarios provided students with cases as problems, but they do not encourage students to generate and share their own cases. Kolodner et al. (2005) argued that students would learn more by generating cases based on their problem-solving experience than just using cases presented in a case library. In addition, the development of information and communication technology like smart devices and Web 2.0 enables students to easily create and share their cases including videos and photos. The purposes of this study are to investigate how learners perceive the activities of creating and sharing multimedia cases for authentic learning and to explore the characteristics of student-constructed multimedia cases.

3. Methods

A total of 18 graduate students (female: 13, male: 5) participated in the study as part of their coursework in an educational technology course at a university in South Korea. For eight weeks, students created and shared four multimedia cases in an online platform (https://slack.com) as an assignment after taking a lecture about learning theories and instructional models. Students were guided to apply what they had learned from a lecture to their everyday lifes or educational contexts through creating a multimedia case in a video or photo-and-text format. Students gave comments to the multimedia cases in the online platform and presented them in a small group at class, which was followed by discussion with other students. This study collected student reflection papers and multimedia cases and analyzed them through conducting open coding and applying a constant comparison method.

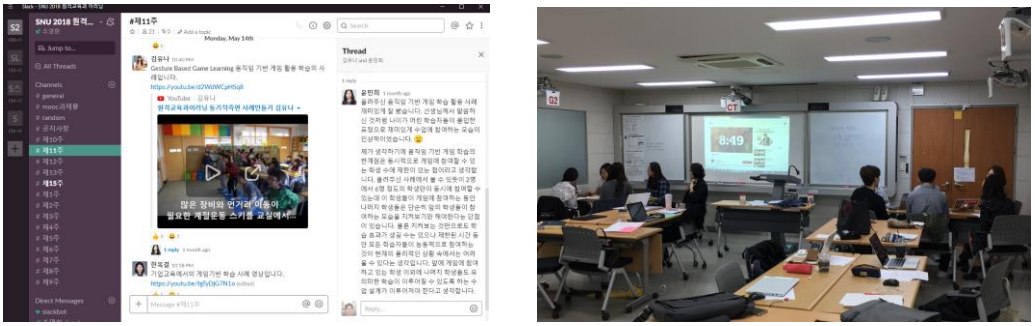

Figure 1. Online learning platform (left) and small group discussion (right)

4. Findings

Students perceived the strengths of the multimedia case activity in regards to deeper understanding, collaborative knowledge building, intrinsic motivation, and digital competencies. First, students developed a deeper understanding through creating multimedia cases which required them to find and analyze real-world contexts closely related to learning contents. Second, student-constructed cases helped students to share their different perspectives and experiences and to collaboratively build knowledge in online and offline learning environments. Third, the multimedia case activity facilitated students' intellectual curiosity and intrinsic motivation because they had substantial autonomy in selecting and explaining a phenomenon, applying their knowledge, asking a question, or solving a problem in multimedia cases. Last, students developed their digital competencies to create multimedia contents and to communicate through digital technologies. These findings show that student-constructed multimedia cases were effective in fostering student-centered authentic learning, although some students pointed out the lack of discussion time as a limitation of the activity.

Student-constructed cases included diverse and real-world contexts. Students applied their knowledge of learning theories and instructional models to their formal and informal learning experience, everyday lifes, new digital technologies, and other people's stories that were found in the Internet. For instance, Student A explained how his previous class supported collaborative learning and why the class was effective, applying the concept of socially shared regulation of learning (SSRL). Student B used the same concept to explain the functions of a massively multiplayer online role-playing game (MMORPG) to prevent free riders in the game. Student C explained how people interact with peers in a social networking service (SNS) and build a sense of community, using the concept of SSRL. These examples show that students made sense of knowledge acquired from a lecture in a variety of real-world contexts.

Figure 2. Contexts of multimedia cases: Class (left), MMORPG (middle), and SNS (right)

In addition, student-constructed cases showed individual differences in understanding learning contents and using knowledge in situ. Some students superficially explained a case, which was found in their previous experience or in the Internet. They paid more attention to describing a case rather than explaining it with a theory, and their explanation sometimes included misconceptions or errors. By contrast, others deeply analyzed and evaluated a case from multiple perspectives and theories. They were likely to integrate knowledge acquired from different lessons and to construct new knowledge, which was not presented in a lecture, in explaining a phenomenon or solving an authentic problem. The latter provided more insights of using knowledge in situ and received more positive feedback from peers than the former.

5. Conclusion

This study explored student perceptions of creating and sharing multimedia cases for authentic learning and the characteristics of student-constructed multimedia cases. The findings of this study implied that multimedia cases were beneficial for developing a deeper understanding as well as facilitating intrinsic motivation. The activity was also helpful in improving 21st century competencies like collaboration skills and digital competencies. Students not only created multimedia cases with digital technologies but also discussed them through asking questions, elaborating the cases with additional information, and giving critical comments in the online and offline environments. Future research is necessary to develop blended learning environments that help students to collaboratively build knowledge through creating and sharing multimedia cases in real-world contexts.

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