

Digital Literacy and Newly Created Activities with VR Contents

Makiko KISHI
Meiji University
m_kishi@meiji.ac.jp

Abstract: This paper clarifies how students newly create activities with new technology-it is Virtual Reality (VR) in this research practice- and how they develop digital literacy in its process. Virtual Reality(VR) has incredible potentials in the education field. Since VR presents information in a 3-dimensional form with a viewing of the world from first-person-viewpoint, the users are able to place themselves into the other's world. In addition, the process of producing VR contents is also beneficial for students to know more about the other's viewing of the world. Therefore, the author introduced the VR camera into the school-based learning practice to promote students to nurture their intercultural awareness as well as digital literacy in the process of producing VR contents. This practice was designed and researched based on activity-theoretical approach, that means, focused on "newly created activities by students". This paper shows the following three findings, (1) The tensions and breakdowns that students faced in the practice, (2) the scene where students and teachers realize a new knowledge are created in the practice, and (3) lessons that students created through the practice.

Keywords: Virtual Reality(VR), Digital literacy, an Activity-theoretical Framework, Technology-Mediated-Collaboration, New Technology

RESEARCH BACKGROUNDNS

Educational Technology has paid attention to the impact of ICT on education and social life in general and on our conception of learning. Whenever new digital technologies always brought to the classroom, teachers and students become very busy to get accustomed to using it. Although it was considered as a digital literacy to master these new technologies, there is also a discussion on digital literacy in such a rapidly changing society.

At university, ICT is necessary since they are supposed to adopt ways of thinking and to produce new knowledge anchored in scientific inquiry practice. Traditionally, learning was considered in an educational setting that students receive "already created knowledge" and cognitive skills that make students logical, analytical rational and civilized. Digital literacy is also considered as the purpose of learning as well as the knowledge and cognitive skills.

In this research, the authors employ an activity-theoretical approach (Engeström, 1987) and consider learning as a process that students are newly creating activities socially and culturally. Digital literacy is not being to use the technology at school-based learning but to develop activities which influence the broader context of learning. Activity theory expands the concept of learning. Since the activity is social and cultural, creating activities is said as social and

cultural development. Engeström (1987) defined it as "Expansive learning."

New technologies can be a potential to take place expansive learning. When computers were introduced in the classroom, students started to collaborate on one another and developed collaborative learning although it was expected that students use it a somewhat like a single style of engagement.

RESEARCH OBJECTIVE AND METHDOLOGY

This research highlights new technology as a learning environment. The authors clarify how students newly create activities with new technology-it is Virtual Reality (VR) in this research practice- and how they develop new knowledge collaboratively in its process. Thus, the purpose of this research is not to present how to use VR, but, instead, outline how students develop digital literacy in the process of use of new technologies in a school-based setting.

Outline of the practice

The practice was conducted in Meiji University from April to August 2018 in the course named "Practicum in Teaching Japanese" based on Project-based Learning. Students take this course without knowing what to do but decide for themselves what they want to work for/with. In the first day of the course, the author as an instructor of this course introduced VR cameras and asked if they were interested in using this new technology (for them).

Table 1: The Formed Working Group

Name of working groups	Topic	Purpose
Next Action	LGBT	To provide with first-person-view of LGBT.
Mei & Fuji	Diversity	To provide with viewpoints of those of physically challenged.
Into the Campus	Multicultural	To provide with university lives in multicultural experiences.
Connect	Connection	To provide with the connection with the unknown world.

Since all students were interested in the VR camera, they decided to do “something” using the VR camera. In the second day, students started to share ideas what to do with VR. Although they have heard about VR, 18 out of 20 students did not have experienced VR, and all have not produced VR contents so far.

In the third day, students formed working groups (see the table 1) according to the topics shared in the second days and had worked in the respective groups till the end including two mid-term reporting and dialogical reflection among working groups. Students continue activities after having discussion and feedback from other groups, and they kept the activity to the next mid-term reporting and dialogic reflection. All groups mostly completed the contents till 13th days of the course, but not completed. Therefore, they will keep developing the VR contents to present in public at the end of August. To provide with the connection with the unknown world.

Data Collection and Analysis

This research analyzes the practice based on an Activity-Theoretical Framework which core element is “activity.” As mentioned above, learning is considered as the process of creating activities, and digital technologies affect this new kind of learning.

The data was collected through observation, students’ writing reflections in every time of the course and final reports on the project after Dialogic reflection session conducted at the 14th (last) days of the course.

The authors discuss based on the result of data analysis at the following three levels suggested by Oilver & Pelletier (2006), (1) Activity, (2) Individual action that contributes to the activity, (3) Consisting of operation that contributes to each action.

DISCUSSION

From the above three levels, the author discusses based on the result of data analysis.

Activity

The activities have been changing in the process of developing the contents. In the first stage (From 3rd to 5th) students did not have a clear image of what they created with VR camera. They started to play with the VR camera and examined how to use it for educational purposes. In the mid-term reporting and discussion among working groups (6th days of the course), they got a much more clear image of VR contents and what they want to create with it. The

respective groups changed the activities after the mid-term reporting.

Individual action that contribute to the activity

After the mid-term reporting, students developed digital literacy. They got to pay more attention to the

Table 2: The Outline of the Course

Class	Process of the course
1 st	Introduction
2 nd	Sharing ideas on VR contents
3 rd	Working by groups
4 th	Working by groups
5 th	Working by groups
6 th	mid-term report among working groups
7 th	Dialogic reflection
8 th	Working by groups
9 th	Working by groups
10 th	Working by groups
11 th	Working by groups
12 th	Working by groups
13 th	mid-term report among working groups
14 th	Dialogic reflection

first person viewpoints (camera angle, the positioning of actors), to message creation that can be delivered especially because of VR, the context of using the VR contents such as prior parts, instruction, additional information, etc. They were not found at the beginning of the project.

Once the image of the product and the process of VR contents, students got to expect how to go forward the work and shared the roles. Some students said “ It got easier for me to go forward the work because I know what to do the next” but on the other hands, other students said, “ I felt more worried because I realized that there was very little that I can contribute.” Thus, some motivated with clear expectation, and the others got demotivated with anxiety and decreased self-efficacy.

Operation that contribute to each action

There are critical scenes where students and teachers realized a new knowledge was created in practice. That is mostly related to tension and conflicts students faced. The detail will be presented at the conference.

REFERENCES

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