Individual Learning Strategies and Choice in Student-Generated Multimedia

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ABSTRACT

There has been an increasing focus on student-generated multimedia assessment as a way of introducing the benefits of both visual literacy and peer-mediated learning into university courses. One such assessment was offered to first-year health science students but, contrary to expectations, led to poorer performance in their end-of-semester examinations. Following an analysis, the assignment was redesigned to offer students a choice of either a group-based animation task or an individual written task. Results showed improved performance on the assignment when students were offered a choice of assignments over when they were offered only the multimedia assignment. Student feedback indicated that students adopt deliberate individual learning strategies when offered choices in assessment. The study suggests that assumptions regarding the superiority of student-generated multimedia over more traditional assessments are not always correct, but that students’ agency and individual preferences need to be recognized.

KEYWORDS

Animation, Assessment Health Sciences, Learning Strategies, Peer-Mediated Learning, Student-Generated Multimedia, Visual Literacy

INTRODUCTION

In recent years there has been a growing interest in student-generated multimedia. This has its parallel in the phenomenal rise of user-generated content, fuelled largely by the near ubiquitous uptake of mobile devices and the inception of free file-hosting websites (Dyson, 2012). As the ultimate examples of convergence, the smartphone and tablet PC support student-generated multimedia by providing note-taking, photography, sound and video recording functionality. As networked devices they present opportunities for students to share the media they have created. This has resulted in a shift from students as consumers to students as creators of knowledge, as well as an ongoing integration of online, hybrid and collaborative learning tools into education (Johnson, Adams, Becker, Estrada & Freeman, 2014). Together these factors afford considerable potential for visual literacy as well as for peer-mediated learning to be incorporated into the learning process (Brandon & Hollingshead, 1999; McDonald & Hoban, 2009).

Visual literacy has been utilized in the university environment with documented success. The term refers to students’ proficiency in interpreting images, digital or otherwise, as well as producing material with a visual component to convey meaning (Averinou, 2009; Hattwig, Burgess & Medaille, 2011; Metros, 2008). The theory behind its use in a teaching environment is based on the idea that students undergo deeper learning of subject matter if they are encouraged to think and communicate about it in terms of images (Chanlin, 1998; Rossetto & Chiera-Macchia, 2011; Wakefield, Frawley,
Dyson, Tyler & Litchfield, 2011; Wilson, Niehaus, White, Rasmussen & Kuchel, 2009). Whitley (2013), for example, set tasks involving image selection, image post critiquing and personal meaning maps, and found this to improve student comprehension and alter interpretations of key topics. Rossetto and Chiera-Macchia (2011) also found that Italian language students undergo deeper learning when they construct images that accompany their written language.

Similarly, peer-mediated learning has been shown to facilitate heightened learning at tertiary level. Peer-mediated learning, in the context that we refer to it here, involves the process of students sharing their acquired knowledge and is thought to reinforce learning of a particular topic (Ernst, McGahan & Harrison, 2015). Trautman (2009) showed that undergraduate science students who reviewed each other’s toxicology reports were more attentive at critiquing their own work; and Hanson (2011) found that, when students collaborated with each other online over problems of community oral health, the depth of critical discussion improved.

As well as promoting visual literacy and peer-mediated learning in their distinct forms, there is also evidence to suggest an added benefit of combining the two into a single learning activity. Watson and Lom (2008), for example, had students use visual literacy to communicate the findings of select scientific literature from a developmental biology course. They found this improved students’ confidence in their own conclusions about the literature studied. Wilson, Niehaus, White, Rasmussen and Kuchel (2009) required students in a first-year ecology course to produce a short documentary on the subject matter to present to other students: sharing the documentary was found to prompt learning additional to making it. McDonald and Hoban (2009) report another such example where explicit emphasis on visual communication and peer sharing resulted in better learning outcomes for the students involved. They found students who actively engaged in the process of creating, viewing others’ and modifying their own animations about a scientific concept, had greater knowledge of the associated topic. Dyson (2012), building on the work of Hoban and Nielsen (2010), emphasized the affordance of student-generated multimedia for multiple meaning-making, but went further in proposing that it promoted learning conversations through the peer sharing of externalized representations of students’ knowledge.

While the above literature notes enhanced learning outcomes in response to production and sharing of student-generated multimedia, no studies, as yet, appear to have specifically evaluated a link between this and subsequent student performance in related summative course assessment. With this in mind, in 2013 the authors of this study developed a student-generated multimedia assignment for the course “Physiology of the Human Body” (BIOM1000) offered in the first year, second semester, of the Bachelor of Health Sciences (Ernst, McGahan & Harrison, 2014; Ernst et al., 2015). The course covers basic concepts in human physiology, delivered through lectures and laboratory classes. Typical enrolment numbers are between 100 and 140 students. In brief, students were required to create a voice-over animation explaining the pathogenesis (development) of a certain disease. All submitted animations were assessed by academic staff and, if deemed suitable, were made available for viewing by all students enrolled in this course (Ernst et al., 2015). The disease in question was chosen by the students, as was the type of animation and equipment used to produce it. The expectation was that students would undergo deeper learning of the physiology surrounding the disease by explaining it in terms of images. It was also thought they would grasp a better understanding of the course content as a whole by viewing and interpreting other students’ animations about other diseases.

Unexpectedly, the novel assignment task did not have the desired effect (Ernst et al., 2015). Students in 2013 did not display evidence of deeper learning of their chosen topic in the assignments they submitted. In fact, when taking into account performance in other courses to moderate for cohort variation, they actually performed worse in their end of semester examinations than students in the same course the previous year. In explaining these results, Ernst et al. (2015) speculated on multiple factors. Students spent what was regarded as an inordinate amount of time producing their animations – greater than 10 hours in the majority of cases, and more than 40 hours in at least 16 per cent of cases. In surveys run at the end of the semester, they also expressed a lack of confidence in their ability to
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