ANALYSING STUDENT-GENERATED DIGITAL MEDIA IN SCIENCE

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Background

Student-generated digital media is being increasingly incorporated into assessed components of tertiary science courses in an effort to enhance communication skills, encourage engagement and develop conceptual understanding (Hoban, Nielsen, & Shepherd, 2015). Such media products, for example, are developed as explanations of content material or scientific processes for a non-expert audience. Instructors, although slowly embracing new media forms and in agreement of their importance for developing key graduate attributes such as communication, still feel overwhelmingly more comfortable developing 'traditional' abilities in students, such as problem solving and written communication (de la Harpe et al., 2009). In the research-sphere, analysis of student-generated digital media products is still in its infancy and as such, we do not yet have access to the range of methods that could help us to understand or communicate the nature of the content, purpose, function and markers of success of student-generated digital media products.

Aims

This paper presents the development of a novel analytical method for examining multimodal student-generated products both for the purposes of research and for the informing of tertiary science practice. We ask the research question: *How can we describe the scientific knowledge presented in student-generated digital media and what are the implications for instruction?*

Design and methods

Two student-generated digital media products were collected as data as part of a wider program of research undertaken for an ARC project focused on student-generated digital media product (Nielsen & Jones, 2016). The two digital media products were selected on the basis of stated quality (by instructor) and superficial dissimilarity to act as illustrative examples for the application of the novel analysis. The products are four-minute long multimodal 'YouTube videos' and were created as part of a formal assessment task in a third year pharmacology course at an Australian university. These products were analysed using the construct of 'semantic density' from a conceptual framework being increasingly used in science education, Legitimation Code Theory (Maton, 2014). Semantic density refers to the 'condensation of meaning' and provides an indicator of how complexity is built across the text. Relative strengths of semantic density (condensation of meaning) were traced throughout the video and across the modes and represented 'semantic density profiles' (Maton & Doran, in press[a,b]) using qualitative analyses software.

Results

The two digital media products showed distinct semantic density profiles. The first example exhibited a 'waving' profile; representing the building and unpacking meaning through the use of narration and images, animations and videos. The second example exhibited a 'flatline' profile, representing the use of specialized and complex scientific knowledge only.

Conclusions

These findings offer a way to conceptualise the way scientific knowledge is presented in a multimodal presentation. Future research is needed to develop the framework and assess its use as an instructional or evaluative technique for instructors.

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