The opinion editorial – a novel assessment task in final year physiology

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Improving the public understanding of science is likely to remain an important challenge to future professional scientists who are our current undergraduates. In this paper, we present the findings from two phases of a study investigating teaching, learning and assessment strategies aimed to improve undergraduates' communication of science to non-professional audiences.

As the first phase in 2004, we developed a "Media Role" model to identify the function of mass media as community gatekeepers of new scientific findings. This conceptual model predicts the potential benefits for all undergraduate science students in adopting styles of writing used by journalists. We then detail a writing task with a novel application for third-year Physiology students – the Opinion Editorial (weighted as 10%) and accompanying Peer Review (weighted as 5%). Survey data from final year students (n = 230) enrolled in the course - Human Physiology and Pharmacology in Disease - were collected before and after the implementation of the Opinion Editorial / Peer review. The task requirements were explicitly taught to the students by a professional journalist. In the assessment task, students adopted the role of journalists to re-write a recent, technical paper (Mattick, 2004), as an Opinion Editorial. This was assessed both by staff and peers using a detailed criteria sheet. After minimal editing, the top-ranked student Opinion Editorial was published in the UQ News. Pre-writing Task and Post-writing Task surveys (5-point Likert scale) were administered to students. Research questions included: (i) How far did writing the Op-Ed give the students a deeper understanding of the role of media and the difficulty in communicating science to the public? (ii) Was writing the Op-Ed challenging and valuable? and (iii) Did the students perceived any changes in their own communication skills? Student surveys were analysed by non-parametric methodologies. Samples of student work (n = 177) were analysed using algorithms to describe surface and conceptual features.

As the second phase in 2005, we describe an intervention to determine the effectiveness of explicitly teaching students how to write an Opinion Editorial. As the pre-instructional assessment task (weighted as 8%), students read a technical article from the course and completed a written assignment intended for a non-professional audience. Work was marked using a criteria sheet. Subsequently, a professional journalist explicitly taught both the construct and features of an Opinion Editorial to the students. As the post-instructional assessment task, students read a different technical article from the course and then re-wrote this as an Opinion Editorial (weighted as 12%). The same criteria sheet was used. On a random basis, students in the course were presented with the first and second submissions of these two tasks. They were required to mark both against pre-specified criteria (weighted as 5%). In a similar manner, the two tasks from volunteering students were presented to members of the public who were asked to complete an associated survey to capture opinions about, and understanding of, the two texts. Analyses of surveys, student results and student work were undertaken. Major findings indicated that the students valued writing to non-professional audiences, and that their final submissions corresponded well to the surface and conceptual features of published Opinion Editorial pieces. However, difficulties in constructing writing because of issues around linguistic competence, were identified. It is evident that more explicit teaching of this type of writing is needed at undergraduate level.

Mattick, J. (2004) *Nature Genetics* ***5****, 316.*