



## Use of student audio recordings to develop communication skills in a first year physiology unit

Mark A. Schier, Julie Mulvany & Jillian Shaw

Faculty of Life & Social Sciences  
Swinburne University of Technology

Several academic reports have emphasised the importance of communication skills development within science programs. Despite employer concerns, there is little research in the academic science literature regarding how generic skills, including communication skills, can be embedded into the curriculum of science programs. Although there are instances in which dedicated communication skills units are offered, the practice of explicitly embedding these skills in disciplinary science units is rare. While science students typically receive practice in writing reports and essays, less emphasis has been placed on oral or spoken communication. We conducted a study where students made a two-minute audio recording on a topic in first-year physiology. The exercise has generally worked well (with some minor technology issues), and informal student feedback has been positive, particularly students' appreciation of not having to do their presentation in front of other students. More student feedback will be sought via an online survey. In the future, additional ways of embedding the assessment of oral communication skills in units offered in each year of the science program could be investigated.

Keywords: communication skills, physiology, audio recordings, oral assessment

### Background

The work reported in this paper is part of a wider project concerned with embedding communication skills in science programs at a Victorian University. Employers are increasingly demanding that graduates possess, in addition to discipline knowledge and skills, a portfolio of written and oral communication skills (AAGE, 2009; Bradley et al., 2008; Cleary et al., 2007; Commonwealth Department of Education Science & Training, 2002; Universities Australia, 2008). Several academic reports have also emphasised the importance of communication skills development within science programs (Barnard et al., 2008; Jagger et al., 2001; McInnis et al., 2000; Rice et al., 2009; Sharma et al., 2005).

Demonstration of these skills is desirable, but there is only a small amount of work dealing with embedded communication skills, particularly oral skills. There are instances in which dedicated communication skills are offered as stand alone units (e.g. Blume et al., 2009; Börstler & Johansson, 1998). There are also a smaller number of examples of explicitly embedding these skills in disciplinary science units (Havill & Ludwig, 2007; Rice et al., 2009). This gap in the literature may reflect a lack of interest by many academics in the teaching of generic skills compared to teaching discipline knowledge. Many academics may also feel that they are not equipped to teach a range of generic skills. An area of research that does focus on the embedding of communication skills within academic programs is the field of Academic Language and Learning (see, for example, Davies et al., 2006; Lea & Street, 2006). This literature emphasises that the embedding of communication skills requires careful planning by educators to ensure that their embedding is done explicitly within the curriculum and students are assessed and given structured feedback to assist them to develop these generic skills. While science students typically receive practice in writing reports and essays, less emphasis has been

placed on oral or spoken communication. When oral communication skills have been addressed this had tended to occur only in the later years of science programs at the authors' institution.

## Context

This paper argues that it is important to introduce oral communication skills assessment in the first year of the science program if students are to successfully obtain these skills by third year. Opportunities should be provided early in the students' program to allow them to develop skills incrementally throughout their degree. One issue with first year classes, however, is that the class size tends to be high. This can present problems for the lecturer in providing all the students with the opportunity to make oral presentations and to receive structured assessment and feedback. Additionally, standing up in front of a large number of students (more than 100) to give an oral presentation can be overwhelming.

We decided to trial a less threatening strategy, in which students were asked to prepare and record "private" oral presentations submitted only for the instructors. The students were instructed to use current technology for recording sound files (computers, phones, cameras) as the medium, with the content researched, rehearsed and delivered by each individual student. This structure gave each student a chance to develop, practice and rehearse their presentation privately before submitting, with as much or as little practice as they chose. The students would also receive online feedback on their communication as part of the assessment process, in line with good teaching and learning practice (Hattie & Timperley, 2007; Lea & Street, 2006; Krause, et al. 2007; Spurling 2006). We wanted to see how well students were able to research, process and deliver scientific material via a different communication medium. We also wanted to obtain feedback from the students on how they found the process.

## Method

Our sample consisted of approximately 250 students enrolled in a first year introductory physiology unit. The students came from various degree programs including Science (Biomedical Sciences, Psychophysiology, Psychology, General), Arts (Psychophysiology, Psychology), and Engineering (Biomedical, Product Design). To ensure that students participated in this activity and saw it as an important part of the unit the oral/audio presentation was made an assessable component, worth 5 per cent of the total mark for the unit. The unit was delivered in semester 1, 2010.

**Table 1: Assessment criteria summary**

	<b>Criterion &amp; weighting</b>	<b>HD</b>	<b>D</b>	<b>C</b>	<b>P</b>	<b>N</b>
Present	Speech & voice 15%	Consistent & clear	Consistent & clear >95%	Consistent & clear 85-90%	Distinct & clear 70-84%	Indistinct or unclear
	Rec & sound quality 5%	Flawless	Excellent	Accomplished	Pass	Needs improvement
	Duration 20%	1:50-2:10 well paced	1:50-2:10 hurried	>15 sec out well paced	<20 sec out very rushed	>20 sec out
	Ability to engage 10%	Exemplary use of voice	Excellent use of voice	Accomplished use of voice	Developing use of voice	Beginning use of voice
Content	Purpose/focus 10%	Excellent, cohesive	Excellent, coherent	Wanders or not totally coherence	Unclear or unrelated material	Difficult to determine purpose
	Information 25%	Exemplary scope, depth	Excellent scope, depth	Good scope, depth	Scope could improve	inaccurate
	Understanding 15%	Exemplary	Excellent	Good	Improvement possible	Insufficient

To permit marking and feedback within 2 weeks, the submission was staggered throughout the semester. Each week batches of ~50 students were informed about their topic allocation. They then had 2 weeks in which to prepare and submit their file, and their results were announced 2 weeks later.

Instructions about the assignment, including the assessment criteria, and the topic allocation were posted on the subject website (Blackboard). Each student was asked to deliver a two-minute audio recording of them speaking on a topic from the prescribed textbook. They were assigned a chapter and had free choice of topic within the bounds of that chapter. Marking was conducted within a set of clearly articulated guidelines, of which half was for presentation (speech, duration, recording quality, and engagement) and half for the content (purpose, information accuracy, and understanding).

Students were provided with these guidelines with the assignment instructions. They were also provided with A) an instructor exemplar audio file, B) the transcript of this file and C) an example of how this would be scored according to the guideline scheme. Marks for exploring and finding content (research) was weighted at 50%, and presenting the information (communication) the remaining 50%. The grading included sub-criteria within each component as shown in Table 1. Instructors were able to download files from Blackboard for marking at any time.

## Results

Most students (194 of the 210 submitted) were able to limit their presentation to the two minutes, and presented and communicated their ideas with a clear purpose and within a well-defined structure. The students handled the technology competently, despite a few glitches –some file types became truncated (possibly a Blackboard related issue), and some students submitted unsupported file structures or did not appreciate what the file structures entailed. Students are yet to be surveyed on their perception of the experience. Informal student feedback has been positive, particularly students' appreciation of not having to do their presentation in front of other students. Formally collected ethically approved data will be reported on and discussed at the Congress.

## Discussion

For a large cohort this approach offered advantages both for the students and the instructors. Student feedback will be sought. This will include their perceptions of what they believed they learnt from doing the piece of assessment and whether they regarded the feedback as helpful. They will be asked to identify the advantages and disadvantages they saw in presenting material in a spoken form compared to the usual written form. We will also examine the management and assessment process from the perspective of the instructors, to identify ways of improving this form of assessment in the future.

## Future directions

Self and peer assessment could potentially be used in this type of work, although for the purpose of this trial, we thought it better to have the work submitted privately and not available for scrutiny by other students. Ways of embedding the assessment of oral communication skills in units offered in each year of the science program could be trialled. Identifying ways of assisting other academic staff to embed formal oral assessment in their units could also be investigated, taking into account the practical pressures such academics are likely to face.

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**Author contact details:**

Mark A. Schier  
 Faculty of Life & Social Sciences  
 Swinburne University of Technology  
 Email: [mschier@swin.edu.au](mailto:mschier@swin.edu.au)

**Please cite as:** Schier M, Mulvany J & Shaw J (2010). Use of student audio recordings to develop communication skills in a first year physiology unit. In C.H. Steel, M.J. Keppell, P. Gerbic & S. Housego (Eds.), *Curriculum, technology & transformation for an unknown future. Proceedings ascilite Sydney 2010* (pp.872-875). <http://ascilite.org.au/conferences/sydney10/procs/crisp-symposium.pdf>

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