FYHE
INTERNATIONAL JOURNAL

The International Journal of the First Year in Higher Education
ISSN: 1838-2959
Volume 3, Issue 1, pp. 75-82
March 2012

First year communication and physiology classes collaborate for *iTunesU* content creation. A Practice Report

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Abstract

This practice report addresses the student experience of a communication-based learning task completed as both a cross-disciplinary and cross-campus collaboration. The project aimed to equip future health science professionals to use "new" media to communicate physiological science to non-professional audiences, and future communication professionals to interpret a technically complex brief, and render it accurately for non-scientific audiences. This approach seeks to embed an understanding of the significance of communicating science in the professional socialisation of both health science and communication graduates; and to begin that embedding process from the first year of higher education. We found that while physiology students were challenged by having to render science in terms understood by lay people, and the communication students experienced difficulty in comprehending the science and in rendering that science in visual language, both cohorts reported the experience enhanced their respective communication capacities, and they valued the inter-cohort collaboration.

Please cite this practice report as:

Harrison, J. & Ernst, H. (2012). First year communication and physiology classes collaborate for iTunesU content creation. A Practice Report. *The International Journal of the First Year in Higher Education, 3*(1). 75-82. doi: 10.5204/intjfyhe.v3i1.73

This practice report has been accepted for publication in Int J FYHE. Please see the Editorial Policies under the 'About' section of the Journal website for further information.

Introduction

Health professionals are being required to communicate clearly and unambiguously with patients and clients about the causes and prognoses of disease. Communication professionals are being required to communicate increasingly complex science and technology to lay audiences. One of the five generic attributes for undergraduates in our university is effective communication, and specifically, the ability to:

- collect, analyse and organise information and ideas and to convey those ideas clearly and fluently, in both written and spoken forms;
- interact effectively with others in order to work towards a common outcome;
- select and use the appropriate level, style and means of communication; [and]
- to engage effectively and appropriately with information and communication technologies. (University of Queensland, 2006, Section 3.10.05).

Apple's *ItunesU* is the final destination for a collaborative project between first year physiology students and communication students. The students in each cohort were teamed up to produce a short health literacy video which explains the underlying physiological basis of common medical conditions such as diabetes, emphysema, strokes, and hypertension.

Twenty nine separate videos were produced by the collaboration. Students in BIOM1000 Physiology of the Human Body, (enrolment 140), wrote a video production brief setting out the physiological science involved. This was assessed for scientific accuracy and rigour. Students in COMU1152 Public Relations Writing (enrolment 130), converted this to a script and storyboard. After assessment for veracity and creativity, the communication cohort then produced this as a video of no more than 4 minutes in length. The final cut was vetted by the physiology students for accuracy and scientific integrity, and the final cuts presented at a joint half day showcase in the final week of the semester. This practice report addresses the student experience of a communication-based learning task completed as both cross-disciplinary and cross-campus collaboration; other aspects of the project, such as the development of students' understanding of science, are the subject of future publications.

The learning context

The New Media Consortium's *2010 Horizon Report* for Australia and New Zealand forecasts that the adoption of mobile devices in higher education ranks alongside e-books on the "one year or less" time horizon, and that open content, along with augmented reality, ranks on the two to three year horizon (Johnson, Smith, Levine, & Haywood, 2010, pp. 5, 6). On mobiles, the Consortium reports:

> The portability and Internet-capability of mobile devices makes them ideal as a store of reference materials and learning experiences, as well as general-use tools for fieldwork, where they can be used to record observations via voice, text, or multimedia, and access reference sources in real time. (p. 11)

The ubiquity of mobile devices in daily life has encouraged technophiles to universalise the utilisation of such technologies into higher education learning.

It was in response to this imperative, expressed not only in the Horizon Reports (Johnson, Levine, Smith, Smythe & Stone, 2009; Johnson et al., 2010) but also in a growing body of literature such as Traxler (2007), Wali, Winters and Oliver (2008) and most recently Sharples and Roschelle (2010), that the project was developed.

The rationale

The process embedded in the project serves several purposes. Science has an emerging credibility crisis, evidenced by public scepticism about the science of global warming, and questioning of the veracity of peer review. In response, some have called for better public relations by scientists (Wilson, 2010). In February 2010, the Commonwealth launched a report *Inspiring Australia. A national strategy for engagement with the sciences* (Commonwealth of Australia, 2010). The project described in this paper is both timely and strategic because it engages both current national interest priorities, and the broader international agenda of science and health communication. It differs from traditional "science communication"—which seeks to make scientists into evangelists for their field by making younger scientists appear funky and older scientists articulate—by enhancing the respective capacities of both science and communication professionals.

The process

The cohorts were each in the second semester of their first year. Physiology students' university entrance scores (OP rank) ranged from 1-17; communication students from 1-12. The gender ratio in physiology was 32% male to 68% female; in communication 11% male to 89% female. Both cohorts fell predominantly (>80%) into the age range of 17-21 years. The collaboration was cross-campus. The communication students were at St Lucia campus while the physiology students were at Ipswich campus, a forty minute road trip to the west.

An online collaboration platform was constructed by the *University of Queensland Centre for Biological Information Technology*, which enabled student teams in both locations to upload their outputs into shared spaces, and to dialogue about those outputs. The platform was delivered on time, and on budget, and proved simple to use, extremely robust and the quality of technical support was outstanding. The range of topics covered is listed in Table 1.

These topics were arrived at by a combination of whole of group (n=25) and small groups of between four and six students in each, brainstorming in Week 2 with each physiology prac group whiteboarding a list of themes and topics, and then inviting students to express interest in signing up to a particular theme. We began each brainstorming session by showing an exemplar of the type of output we were seeking. The brainstorming was facilitated jointly by both the physiology lecturer and the communication lecturer, not only as a way of exemplifying cross-disciplinary collaboration, but also to ensure that good science and good communication outcomes were achievable in each output, and that students had ownership of their particular project.

Table 1 *List of physiology topics*

Blood doping	Hyperlipidemia & atherosclerosis
Cancer – leukaemia	Hypertension and salt intake
Cerebral infarction	Illicit drugs and thirst
Deep Vein Thrombosis (DVT)	Kidney function
Depo-Provera	Kidney stones
Diabetes and ATP (Adenosine TriPhosphate)	Lymph node biopsies in cancer treatments
Diabetes and vision	Metabolic syndrome & hyperlipidemia
Diabetes II: insulin resistance	Physiology of leukaemia
EPO (erythropoetin)	Physiology of migraine
Fish oil supplements	Secondary hypertension
HIV vaccine	Smoking and emphysema
Human papillomavirus	Stroke and aspirin
Human growth hormone in athletes	Vitamin B

After submission of the production brief by physiology students, each communication tutorial (n=20) was given a list of 4 or 5 of the topics and inviting to sign up for a particular topic. As with the physiology students, group numbers were then massaged by setting five as the optimum number for group membership, with a possible variance of plus or minus one.

In BIOM1000, the key assessment criteria were scientific rigour, an evidence-based brief, currency of findings, clarity, succinctness and logical reasoning. The assessment weighting was 25% of the overall grade, made up of 10% of assessment for the production brief, 5% for the written quality assurance feedback, 5% for the video itself, and 5% for participation as assessed by other members in the group.

For COMU1152, the key criteria were message clarity, narrative flow, audience focus, community participation and technical proficiency. The assessment weighting for the production of the video was 35%; in two parts: The storyboard was 15% and the final video 20%.

The student experience

From the physiology cohort, we received 69 responses to the open ended question: *What was the most enjoyable aspect of the project?* and 60 responses to the question: *What was the most challenging aspect of the project?* The physiology students reported as "enjoyable" both participation in teamwork (n=11) and the new learning involved (n=17). A significant number (n=17) also found the end product enjoyable. A few (n=4) reported that the

creativity and autonomy offered by the project made it enjoyable, while others reported the process of brainstorming and writing the production brief (n=7) as enjoyable. These outcomes were reflected in student comments such as: "end product and research the topic," "working in a group and learning about the topic," "brainstorming ideas," "creating the brief ... helped to learn the BIOM [i.e. physiology] content," and "good group dynamics."

The physiology cohort found challenges in the inter-disciplinary collaboration (n=22) and with teamwork in general (n=16) reporting "communicating with communication students," "little consultation on science for video," "not enough physiology input to the video," "quality assurance feedback," and "science efforts not shown in video" as challenges. A small number (n=7) found the end product challenging, reporting, "end product did not contain enough science," and "poor quality end product," while a similar number (n=10) reported that "writing the brief" and "communicating the science" were challenging.

In summary, the physiology students reported that the most challenging aspects of the project were working in teams and producing the science brief. The components that they named as most enjoyable were learning about the topics and the end product created as part of the collaboration.

From the communication cohort, there were 97 qualitative responses to the question of what were the most challenging aspects of the project. These were reported as "sourcing talent and footage," "dealing with the technical aspects of production," "collaboration and lack of response from the physiology students" who were located on a separate campus. A number of communication students reported struggling to understand and interpret the science (n=18), reporting challenges such as "understanding scientific terms and the science behind topic," "difficulty with unfamiliar science," "communicating science in such a short video," and "deciphering the science into simple terms." Fewer communication students reported issues of social loafing and group dynamics within their own team (n=8, compared with 26 in physiology), but an additional 10 reported difficulty in scheduling meeting times. Lack of interaction and response from physiology students were reported by 17 communication respondents. Some 17 students reported challenges with the use of equipment and software (despite the availability of extensive, free, off-curriculum training and support). Issues such as "technology, editing, equipment," "exporting video," "editing video," "filming, lighting, sound," were all reported as challenges.

Other communication students reported these challenges as positives. Nearly one quarter (n=23) reported unprompted that experience of working in a team was enjoyable, commenting positively on "good team dynamics," "working with peers," "making new friends" as the most enjoyable aspect of the project. They also reported enjoying learning new skills such as "producing the storyboard and communicating online," "filming and concept development," and "creative freedom and being provided with the technical information." "Freedom" (n=4) and "creativity" (n=11) were also cited as the most enjoyable aspects of the project. The intellectual challenge of new learning

(n= 13) was also positively reported. Student comments about "learning about scientific processes," "learning about new aspects of health science," "communicating the science," "becoming more educated in health science" and "new understanding on unexpected subject" were all expressions of this.

In summary, some communication students reported that the most challenging aspects of the project were technical aspects of production, and use of equipment and software. The components that students named as most enjoyable were learning new production skills, learning about science, and working in a collaborative environment.

Discussion

There were three key outcomes that will be addressed in future iterations of the project: *collaboration*, the notion of *health literacy* as distinct from *health promotion*, and *production values*.

Collaboration

First, collaboration between the cohorts tended to be linear rather than interactive. We propose to address this in subsequent iterations by requiring the physiology students to appear as talent on the video for the communication students, necessitating face-to-face interaction between the teams in each of the cohorts. This will have the additional benefits of enhancing the verbal communication skills of the physiology students, and will limit the difficulty some communication teams had in sourcing suitable talent. It will also address the issue identified by communication students of finding credible talent.

Information or Promotion?

The initial purpose of the video was to explain complex physiological phenomena in lay language. It was intended to be a "health literacy" not a "health promotion" video. As the US National Academy of Sciences' Institute of Medicine put it:

> Equally important are the *communication and assessment skills of the people individuals interact with* [emphasis added] regarding health, and *the ability of the media* [emphasis added], the marketplace, and government agencies to provide health information in a manner appropriate to the audience. (Nielsen-Bohlman et. al., 2004, p .5)

This is a half-way house between the technical forms of inter-professional communication in the health sciences, and the symptom-driven forms of much paid public communication (including advertising) about health and disease. The communication students, who do not require any high school science courses for admission to the communication program, struggled with the complexity of the physiological science. By default, they tended to opt for a health promotion approach based on symptoms and prophylactics rather than science. It may be that ultimately, the translation task is too complex for first year students in either cohort.

Production values

Ultimately the production values of the finished videos were generally below our expectations. Even though students were encouraged to use low-tech video editing applications such as *Microsoft Movie-maker*, and were supported by extensive out-of-class sessions on video production,

as well as weekly in-class feedback, and while there was summative assessment related to both the storyboard and first cut, more than half of the student teams lacked the technical proficiency to deliver a publishable product. Problems of structure apart—which were addressed by way of feedback on the storyboard and first cut—simple matters of lighting and sound marred a significant number of the finished products.

From this, we drew two possible conclusions: First, it challenges the notion that this generation are "digital natives," a conclusion supported by Bennett, Maton and Kervin (2008) who argue, "young people's relationships with technology is [sic] much more complex than the digital native characterisation suggests. While technology is embedded in their lives, young people's use and skills are not uniform" (p. 783).

Second, we considered that the communication cohort, who are required to develop industry standard technical proficiencies across the three years of their degree program, were insufficiently prepared after one semester in the program, for the levels of both interpretation and production with which we challenged them.

Interestingly, student attainment, based on grades, was much higher for the subsequent summative assessment task, which required the communication students to individually produce text and stills-based collateral in support of the video material. Arguably, even though they did not perform well on the video, they learned a great deal from it; or alternatively, they are more accustomed to text-based tasks than visual communication tasks.

Conclusion

As the student feedback reveals, the challenges of collaboration which is both cross-disciplinary and cross-campus (that is, essentially mediated, rather than face-to-face) are not to be underestimated. Yet for both groups, their professional experience after graduation will be of this order. Our argument is that it is better for students to come to terms with this reality in the first year of higher education, rather than the last.

Acknowledgements

This project was funded by the University of Queensland Strategic Teaching Grants initiative.

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