The benefits of a press release coursework for undergraduates

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ABSTRACT

Today’s academic staff and students are faced with increasing challenges including respective delivery and development of essential subject-specific content, research and diverse transferable skills for future employment. To meet these needs, we piloted an academic and Media Relations delivery partnership focussing on developing science communication skills to our undergraduate medical science students. This case study reports that the introduction of a science media workshop, combined with a short 250-word, low-stakes, summative press release coursework, proved to be an efficient and effective approach. The assessment required reading and understanding ‘unknown’ primary research findings and submission via the University Media Relations template for ‘real-world’ needs. Co-developed grading criteria allowed for rapid marking and feedback, and the academic-Media Relations marks correlated closely. Student feedback indicated that this authentic exercise was valued, being ‘different’ and ‘enjoyable’ for introducing key skills for research critique whilst also highlighting science media as a vocational route.

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Introduction

Higher education institutions are tasked with providing a range of employability skills to meet evolving employer needs and vocational opportunities (Confederation of British Industry/National Union of Students, 2011; Department for Business, Innovation & Skills, 2016; Science, Engineering, Manufacturing and Technologies Alliance (SEMTA), 2010). They must also equip and ensure that their graduates gain appropriate transferable skills and discipline-specific knowledge and understanding in their chosen field to meet expected needs for their respective disciplines (e.g. Biosciences Benchmark Statements (Quality Assurance Agency, 2015)). Many universities have responded to these challenges by delivering a structured and developmental pathway of academic and employability skills in programmes, in recognition that students prefer to attain these skills when integrated within their subject-based learning (O’Leary, 2017). As such, skill acquisition is progressively supported through each study stage so that every student is given ample opportunities for developing the necessary
criteria by graduation (Knight, 2001). Indeed, as in other universities, we have incorporated a stage-specific vertical and longitudinal backbone of credit-bearing ‘skills’ modules in our 3-year biosciences/medical sciences programme, BSc Medical Physiology and Therapeutics providing various assessment opportunities to hone abilities (Boud & Soler, 2016). These provide a diverse range of teaching, learning and assessment opportunities to ensure that students have opportunities to acquire generic written, oral and practical skills and the essential academic and professional competencies for future employment (Schwab, 2016). But in a time-pressured, content-dense curriculum, how could we fit in additional ‘essential needs’?

**Developing science communication skills – the context**

Of the necessary transferable and research skills, the art of reading and understanding primary research papers is of upmost importance for developing thinking skills related to the scientific process. Nevertheless, undergraduate students find this difficult despite the availability of numerous resources and support, and consequently, scientific reading ability develops slowly over a scientific career ( Hubbard & Dunbar, 2017). There is no doubt that it is important for science undergraduate students to immerse themselves in the primary research literature, and the intricacies of reading, interpretation and critical appraisal, as soon as is possible so they develop these competencies (Wenk & Tronsky, 2011).

The ability to engage, understand and assimilate information from scientific studies and literature is undoubtedly a generic skill within all scientific disciplines, whether for undergraduates, early career researchers or seasoned academics. However, it is increasingly essential to also develop the ability to disseminate complex scientific findings to non-scientific audiences to bridge the gap between science and the lay community (see Illingworth, 2017; Illingworth & Prokop, 2017). Substantial emphasis is now placed on pathways to impact and dissemination strategies when it comes to funding applications due to the importance for researchers to demonstrate the potential benefits of the work on society as a whole – so-called ‘accountability’ – when spending public or charitable money (UK Research and Innovation, 2018). Comprehending and discussing science with peers is therefore not enough. Nonetheless, despite having decades of research experience and academic writing experience, many academics struggle with this key skill, more than likely resulting from a lack of formalised ‘scientific’ communication training (see Mercer-Mapstone & Kuchel, 2015), and these necessary skills are often gained in an experiential manner through research training (Coil, Wenderoth, Cunningham, & Dirks, 2010). Communicating research to the public, and doing so in multiple ways, is, therefore, a recognised problem for academics (Chan, 2011; Mulder, Longnecker, & Davis, 2008). This was our dilemma: How could we as academics, and non-experts, effectively and authentically teach these skills to our students and do so within our existing skills curriculum?

Communication in novel and diverse ways is necessary to integrate and embed multiple key skills needed by all future scientists (Science and Technology Committee, 2017). Nevertheless, science communication is still a fairly new academic discipline in the UK classroom (Bauer, 2009; Bowater & Yeoman, 2012) and ‘how to’ is not yet fully established. Core skills guides are starting to emerge (e.g. Mercer-Mapstone & Kuchel, 2015), and some very useful practical advice and recommendations on how to deliver, promote and evaluate
research communications to the wider public have recently been published (e.g. Illingworth, 2017). In the classroom, a common approach to introduce science communication is to direct students to explore how scientific findings have been miscommunicated (Del Vicano et al., 2016) or how to investigate the different ways that high-impact research findings have been promoted (e.g. Kelly, Poteracki, Stuery, & Wehrwein, 2014). A range of different in-class strategies are used to embed these skills alongside science literacy and research training, e.g. using peer postgraduate student co-instructors to intensively train undergraduates to bolster their confidence in their oral communicative abilities (Cirino et al., 2017). Within our division, however, postgraduate students are not employed for teaching, learning and assessment purposes so we could not seek their support. Recognising our limitations to teach skills for science communication, we were challenged to find a way to deliver science communication, provide our students with an opportunity to experience and acquire authentic ‘different’ skills and simultaneously instil skills for reading and understanding primary research literature in our already time-pressured, subject-dense curriculum. Based on this, we sought expert help.

**Expert input**

Universities provide facilities such as dedicated press offices or specific Media and Public Relation centres with the sole purpose to support and train scientists in communicating their work more effectively (Nelkin, 1995). They are largely important university departments in their own right, responsible for crafting accurate outputs such as press releases to disseminate and promote cutting-edge peer-reviewed research findings to the public to maximise their impact in a time of growing academic competition (Autzen, 2014). As scientific writers, media staff competencies include the ability to convey an understanding of a scientific study, including results, simply and succinctly without using jargon, whilst highlighting the factual relevance and placing them in the wider perspective and context. These are essential valued attributes for evolving careers, not only in the rapidly developing realm of public engagement but also for scientists in general (see Illingworth, 2017). More skilled ‘critical’ scientific writers in the profession would be welcome and could go some way to address the increasingly common and easily accessible output of inaccurate research findings and misinformation (Del Vicano et al., 2016). Science journalism and communication, therefore, provide a possible science graduate vocational option (Autzen, 2014). Work-integrated learning and connections with industry are well known for highlighting career awareness, skill acquisition and development and provide students with authentic preparation for today’s workplace and are essential for curriculum relevance (Bennett, Roberts, & Ananthram, 2017; Dyer, Walkington, Williams, Morton, & Wyse, 2016). Consequently, we approached the University Media Relations team to support our delivery not in their workplace, but in class.

This case study reports a successful pilot study where working in conjunction with the experts, the University’s Media Relations Department, science communication awareness and authentic scientific written communication skills were economically and effectively incorporated into a skills module of our medical sciences undergraduate programme. The findings report that the approach proved effective for bolstering student’s interest in local academic’s research studies, highlighted the importance of good scientific reading and appraisal and also piqued their interest in science media as a potential future career opportunity.
**Methods**

**The approach**

Upon entry to studies in our BSc (Hons) Medical Physiology and Therapeutic programme, as in many other undergraduate courses, a broad range of graduate skills (e.g. research and enquiry skills, how to read research papers, oral communication teamwork) are introduced and incrementally developed through each study stage. Employability and academic skills, including succinct writing in abstract form, critical analysis and ethical debate, are delivered in year 2 of the programme within a year-long 20 credit skills module (Contemporary Issues and Academic Skills), paving the way for final research studies. It was evident to us that incorporating the new content on science communication into this module would effectively complement and enhance already planned transferable and research skills delivery and reinforce our students’ need to read and comprehend primary research findings.

Two academics and two Media Relations staff agreed to support the co-delivery and design of a 2-hour workshop entitled ‘The Role of Media in Science’ in the Autumn term 2016–2017. A low-stakes (5% of module grade) 250-word summative press release assessment was planned as a suitable alternative mode to assess students’ ability to read and understand journal research findings and to provide an opportunity for them to convey factual information in a different written (non-academic) style. Given resource pressures, it was important that the coursework was as economical as possible in terms of marking given workload demands. To maintain and instil the culture for research engagement early at the start of Honours studies, the workshop delivery was scheduled into the Contemporary Skills module in week 2 of the Autumn term with a 250-word ‘press release’ coursework, based on cutting-edge University research, as the students’ first assessment.

All aims, criteria and instructions for the coursework were designed in conjunction with Media Relations staff following a full explanation of academic aims, objectives and the rationale for the authentic delivery (Boud et al., 2018). Their requirements were planned to be ‘real-world’ and manageable and were simply (a) to explain the scientific content correctly and accurately, (b) to pitch this at a level for a non-scientific/lay audience and (c) to provide a clear and unambiguous scientific message that grabbed attention, i.e. simultaneously interested and enthused the reader to want to know more. Considering the needs and timing in conjunction with other programme assessment deadlines, following submission on Turnitin, marking was planned for a relatively quick grade turnaround of 10 days with online feedback (GradeMark”), within the 15 day University requirements. This was prior to the next coursework submission to allow for feedforward opportunities.

**The workshop content**

‘The Role of Media in Science’ communication workshop was co-delivered using PowerPoints and interactive instruction by the two academics and two Media Relations staff and was held in a large computer room which facilitated staff circulation amongst the students to offer help and support and also for students to access resources online. The session was compulsory to maximise the importance of the learning opportunity for skill mastery and to ensure that any student concerns relating to the associated coursework were addressed in a timely fashion. Table 1 shows a summary
overview of the workshop structure and content. All resources with the exception of the coursework instructions and explicit needs were uploaded prior to the delivered session on Moodle, the University’s virtual learning environment (VLE).

Following an introduction to Media Relations, students were directed to read examples of various press releases within the broad topic of bioscience/biomedical sciences that the Media Relations team had sourced and regarded as interest-generating (see Table 1). They were required to read and discuss the ‘standard’ structure of the press release in pairs and then compare the manner, style and language used to convey the information with the more formalised academic approach seen in primary research publications. Furthermore, an opportunity was provided for them to search online for press releases in areas that took their personal interest so as to further consolidate their understanding of the different formats used. Media Relations input reinforced the format and structure requirements of a press release and the beneficial skills and qualities to do this (e.g. clarity and good time management). On the other hand, the academics provided direction on how to read the associated primary research papers on which the press release examples had been based and aided the students’ understanding regarding the factual basis, findings and scientific context. The need to develop and optimise literature processing skills for future research studies within the undergraduate course (i.e. the final year project) and future employment opportunities was also emphasised. Prior to receiving coursework instructions, the session concluded with a formative opportunity allowing the students to attempt writing a press release with guidance, advice and feedback from staff and a reminder of the importance to avoid overstating or misrepresenting the scientific findings.

**The press release coursework**

The research article on which the 250-word press release was based was released to the students at a predetermined time and several hours after the workshop to mimic the vocational ‘embargo’ challenges faced by Media Relations and science journalism.

To increase their interest in the challenge, primary research by Hind, England, and O’Sullivan (2015) reporting the influence of a cannabis extract, cannabidiol, a topic of high current media interest, was selected as suitably appealing for the assessment. In addition, with the research being carried out in the student’s immediate learning environment, the publication heightened awareness of high-impact research within the division. No prior

| Table 1. Content of the ‘The Role of Media in Science’ workshop. |
|---------------------------------------------------------------|
| **Content of the ‘The Role of Media in Science’ workshop:** |
| **Importance of science communication: conveying the message (i.e. providing accessible information without overstating or dumbing down the research outcomes)** |
| Information about science in the media – what makes an interesting scientific news story? |
| What Media Relations staff do and how they promote the University and its research (key employability information) |
| What a press release is and their purposes for promoting science to a wider community |
| Authentic examples of effective press releases used by University of Nottingham Media Relations Team: |
| *Lonely ‘Lefty’ snail seeks mate for love – and genetic study*  |
| [https://www.nottingham.ac.uk/news/pressreleases/2016/october/lonely-snail.aspx](https://www.nottingham.ac.uk/news/pressreleases/2016/october/lonely-snail.aspx) |
| *Cell protein offers new hope in fighting the effects of ageing:*  |
| [https://www.nottingham.ac.uk/news/pressreleases/2016/october/cell-protein-offers-new-hope-in-fighting-the-effects-of-aging.aspx](https://www.nottingham.ac.uk/news/pressreleases/2016/october/cell-protein-offers-new-hope-in-fighting-the-effects-of-aging.aspx) |
introduction to this subject had been given during their course of studies and the subject area, the nature of the research undertaken, or findings had not been previously explored. Consequently, the need to read, dissect and comprehend the scientific content and findings (i.e. generic transferable research skills) was an essential aspect of this coursework in addition to skill development for a different ‘non-academic’ writing style. Furthermore, to reflect real-world media requirements and to mimic the need to work to manage time and work to short deadlines, students were tasked with following standard University of Nottingham Media Relations conventions and to use a Media template for submitting their coursework via the online Turnitin platform within two weeks, the shortest summative deadline for written components on their course.

The grading criteria and marking

Literature searching revealed that existing grading schemes or rubrics for marking either the content or structure/format of the press releases were either unsuitable (e.g. tailored exclusively for journalism) or from unreliable sources (e.g. non-academic) and largely did not meet our educational needs. Consequently, taking into account the coursework aims, a basic and bespoke marking criteria/rubric was co-constructed by the academic and non-academic staff (Table 2). The majority of marks related to the needs to convey the factual content correctly, succinctly and in a manner that would not be fallacious. As an example for the academics, the Media Relations staff crafted an ‘ideal’ press release for the cannabinoids paper against which submissions could be compared for primary marking.

Sixty-eight press releases were submitted by the deadline for primary marking against the advertised criteria. These were equally allocated between the two academics for primary marking before cross-moderation for consistency, finalisation of marks and plagiarism checking according to University regulations. Seventeen of the 68 submissions covering all of the overall grade bands awarded by the two markers were selected for cross-moderation; there was less than a 5% difference in opinion of marks awarded. Following finalisation of academic marks, individual grades, feedback and feedforward commentary and generic cohort feedback with descriptive statistics were released on the

| Criteria                        | Marks/100 | Specifics                                                                 |
|---------------------------------|-----------|--------------------------------------------------------------------------|
| Press release embargo instruction | 5         | Correct embargo time, time zone, date, clearly marked at top of release   |
| Headline                        | 20        | Assessment of the headline quality, salesmanship and length               |
| Top line of release             | 15        | Best news angle most likely to catch journalists’ attention (without overselling story) |
| University of Nottingham mention | 5         | Getting early mention of the university to highlight ownership of the story |
| Top three paragraphs            | 20        | The text sells and explains the story succinctly                          |
| Full text readability, length and accuracy | 25        | The 250-word release should be condensed, readable, understandable to the lay reader |
| Access to full paper            | 5         | Include a hyperlink to the paper if available or offer a pdf by email request if unavailable online before embargo lifts |
| Contact details                 | 5         | Accurate contact details for journalists of the lead researcher and press officer |
VLE and within the 10-day grade turnaround. A sample of press releases (9 of the 68, approximately 13%) which spanned all of the overall grade bands awarded through primary marking was subsequently blind marked by one of the Media Relations team to confirm whether they too shared the academic opinion regarding standards and abilities against the marking criteria.

**Results**

Direct comparison of the academic marks with the Media Relations marks (Figure 1a) revealed a positive correlation between the overall marks awarded for the same press release between the academic and Media Relations staff (Pearson’s correlation, $R^2 = 0.728$, $P = 0.003$, $n = 9$). These marks were more closely aligned for the ‘better’ press releases, i.e. those having grades in the 2.1 category or above (>60%). This suggests that the academics and experts have different opinions as to what constitutes a less effective press release overall. Nonetheless, academic and Media Relations team marks for the overall grade were not significantly different (Wilcoxon matched-pairs signed-rank tests, $P = 0.930$, $n = 9$).

Similarly, marks awarded for each of the individual grading criteria categories (Table 2) between academic and Media Relations showed no significant differences (Figure 1b) (Wilcoxon matched-pairs signed-rank tests, all $P$-values >0.05, $n = 9$). The highest levels of discrepancy, although still not significant, were between the embargo marks ($P = 0.063$) where academic staff had been more lenient on minor error, awarding 3 out of the 5 marks, while the Media Relations team marked this as either right or wrong, awarding either 0 or 5 marks. This is the main component which attributed to the less closely aligned overall marks for the same press release between academics and Media Relations observed for marks below the 2.1 category (<60%) (Figure 1a).

In essence, this coursework and simple grading criteria proved beneficial for staff to rapidly mark this coursework. Academics and Media Relations shared similar opinions regarding the overall quality of the press releases suggesting the pilot had successfully met its objectives to be time efficient, reliable and authentic.

**Student feedback**

Generic class feedback was given in a tutorial scheduled following grade release. Academic staff provided both quantitative and qualitative analyses of results including cohort strengths, weaknesses and advice for further individual feedback and feedforward opportunities for improvement. As an indication whether students perceived the exercise as useful and whether the approach could be adopted for the future, this opportunity was also used for students to use post-it notes to give anonymous feedback on their learning experience. Common themes emerged from the student feedback in relation to the delivery, content and benefits of the workshop and the press release exercise, in addition to the identification of useful improvement measures (Table 3).

Overall, the comments suggested that the means used to integrate science communication into the curriculum were valued. Benefits of the exercise for developing and enhancing generic research literature engagement and transferable skills did not go unrecognised with some students identifying scientific writing as a possible future career opportunity. The
commentary suggested that expanding and honing the advice, instructions and grading criteria provided would be useful for future delivery. Acknowledging that a lack of prescriptive advice impacts on educational development and also confidence for learning (Broadbent, Panadero, & Boud, 2018), it is not unreasonable to improve both the online

Figure 1. Comparison of marks awarded by the academic and Media Relations staff for the same coursework submissions. (a) Shows there was a significant positive correlation between the overall mark awarded by the two markers for the same submission (Pearson’s correlation; $R^2 = 0.728; P = 0.003; n = 9$). (b) Shows the variation within the marks awarded for specific marking criteria (with marks available shown in brackets) where each point represents the mean ± SD. Between the two markers, no significant differences were observed for any of specific marking criteria (Wilcoxon matched-pairs signed-rank tests; embargo, $P = 0.063$; headline, $P = 0.999$; top line of release, $P = 0.313$; University of Nottingham mention, $P = 1.000$; top three paragraphs, $P = 0.999$; readability/length, $P = 0.438$; access to full paper, $P = 0.999$; contact details, $P = 0.344$; $n = 9$).
and in-class advice (e.g. worked examples of ‘embargo’ releases or further formative feedback opportunities) and hone the grading criteria for needs are explicit.

**Discussion**

**Evaluation, implementation problems and limitations**

Introducing discipline-specific needs and embedding diverse transferable skills, employability and evolving skill sets into subject-dense curricula is challenging for academics. This pilot study has shown that setting a summative 250-word press release coursework contributing to 5% weighting in an already existing module, and involving Media Relations staff in teaching and learning activities associated with delivery for its needs, was an impactful, time-efficient way to introduce ‘ authentic’ writing skills for science communication into our undergraduate course. Not only did the approach provide opportunities for the students to encounter different writing styles for conveying science to others, but it also resourcefully ingrained the need to read and understand primary research findings from early on in their degree-level studies.

Despite this coursework being only worth 5% of the module grade, it was evident from the student feedback that they viewed this as a valuable element of their learning. Marking the succinct 250-word assessment against co-developed grading criteria enabled swift grading, plagiarism checking and feedback return within 10 days, with targeted feedback and feedforward before further high-stakes assessment submissions. Indeed, the students positively noted this within their feedback highlighting ‘detailed, quick and timely feedback’ and ‘helped with later research critique’. This latter quotation suggests the approach used had a positive impact in reinforcing the skills platform for later research and enquiry skill development in the programme.

While the exercise successfully supported needs to hone and improve generic skill attainment for success (Boud & Soler, 2016), expert input from the Media Relations staff into this pilot was essential. The need for employer engagement in graduate studies is essential (Connor & Shaw, 2008), and in this study, Media Relations involvement ensured expert science communication input that the academics could not provide. Additionally, their involvement ensured students were aware of an alternative vocational avenue that required developing scientific skills, and one that may be of particular interest to students not wishing to pursue research careers and medical studies.

Undoubtedly, prior provision of a professional, pre-prepared (and unreleased) press release for the cannabinoids paper helped avoid any delay in the marking process, and it is recommended that a similar pre-prepared resource is available if the exercise is to be repeated by other academics. The practical success of delivery and assessment relied solidly on a good

| Table 3. Examples of student feedback on workshop and assessment. |
|---------------------------------------------------------------|
| ‘nice to do something a bit different – taught us new communication skills relating to science’ |
| ‘gave us very useful and transferrable skills e.g. appraising and summarising and compiling complicated skills in a simple way’ |
| ‘helped with research critique coursework knowing how to identify and understand the key points’ |
| ‘expanded awareness of career possibilities – helped us understand the role of media relations’ |
| ‘workshop content and assessment needs were clear’ |
| ‘more time needed in the session to practice’ and ‘more detailed explanation for the ‘text-readability’ and ‘difficulty understanding embargo’’ |

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partnership. Nonetheless, good working rapport with Media Relations, agreeing with the content and needs for delivery and the academic focus, in addition to explaining teaching, learning and assessment needs (e.g. learning outcomes, stage descriptors and grading criteria) was time consuming. It is worthwhile and strongly recommended that ample time for preparation is taken should this activity be attempted by others. As a cautionary word of advice, it is also worth recognising though that the expert availability for contributing in class may not be wholly secure despite best intentions. Media Relations teams must prioritise University service demands, and despite prior scheduling and organisation, they may not be available to support ventures in person at last minute. Thankfully, this was not an issue during this initial pilot study. Based on the high correlation in marks regarding the legitimacy of the students’ work in this study, if the Media Relations staff are unavailable in future it may still be possible that the academics could successfully replicate the exercise. This would, nonetheless, be at the expense of the learning gains and authenticity that the experts provided.

In conclusion, partnership with academic and Media Relations to deliver a 2-hour workshop and an associated summative press release coursework in year 2 of our medical sciences course proved helpful in meeting the aims of introducing new and ‘authentic’ writing skills for science communication, developing generic academic research skills and making links to alternative future employment options for scientists. Benefits were evident in terms of practicality and implementation, and it is hoped that, despite needing some refinement, the approach could be beneficial for other academics wishing to also efficiently deliver this topic and the associated skill sets in their undergraduate courses.

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