

The role of the anatomist in communicating Anatomy to a lay audience

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SUMMARY

The ability to communicate with the public is one of the essential tools by which an anatomist can enhance knowledge and understanding within the general population. Unfortunately, up until recently few scientists or health-care professionals have received much training in communicating science to a non-specialist audience, a surprising situation given the increasing demand from the public for more knowledge about health and science. The co-ordinators of undergraduate curricula have responded somewhat by increasing the time devoted to developing oral communication skills, however the ability to communicate by written means has not been widely explored. At a new medical school in the UK, we have introduced an assessment component directed at using the creation of lay statements as a strategy for providing accessible anatomically related information for a particular audience. Students were asked to respond to a letter from a member of the public regarding one of a number of clinical conditions by composing a short piece for a fictitious newspaper. When marked against a set of criteria, results showed that students had produced effective articles very much directed at the particular chosen audience. Students found the experi-

ence challenging yet one that enhanced their written communication skills and gave them the chance to think about what information to communicate. Overall this study demonstrates that such an assessment format is an effective way for students to start to develop professional competence through critical thinking and self-reflection and provides an opportunity for appreciating the skills necessary for adapting the written-word for a non-specialist audience.

Key words: Anatomy – Medical education – Communication – Layperson

INTRODUCTION

Communication is of central importance in creating understanding and relevance of science and medicine within the general population. For many centuries, the anatomist has been at the forefront of enlightening the public with the fascinations of the human body. Many famous artists, such as Michelangelo and Rembrandt studied anatomy in order to inform their work, whilst non-medical scholars in many European cities in the seventeenth and eighteenth centuries attended dissections. Such events were often also open to the gener-

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al public, although this was probably more designed as a 'thrill' factor rather than for educational value. In recent years, however, anatomists have been depicted in some quarters as being out-of-date and rather irrelevant when it comes to communicating with the public. This is curious given the reams of medical, health and sports-related information that is available via the print and television media and in more recent years the internet and other digital technology. This increase in material has demonstrated the ever-increasing demand from the public for more knowledge about their health and their own bodies. The substantial attendances at recent exhibitions of human cadavers in many countries should have alerted anatomists to the public's fascination with the human body but should have also demonstrated that a display of bodies or body parts is not enough to demonstrate the richness and relevance of modern anatomy to the lay person and an educational approach is essential (Korf and Wicht, 2004). Advances in medical technology such as MRI machines or CT scanners, for example, have shown the public aspects of living anatomy they have never encountered before and they are beginning to see such developments as important and relevant to everyday modern life. Anatomists and the students of anatomy are best qualified to highlight and promote the relevance of anatomy to the public and should be seen as an approachable source of clear and appropriate information.

Unfortunately few scientists including students of anatomy have received training in communicating science, especially to a non-specialist audience. The co-ordinators of many medical and health-related curricula (and to a lesser extent the designers of science curricula) have, however, been encouraged in recent years to develop and enhance the communication skills base of students as it has been recognised that communication with the public is of fundamental importance (Teutsch, 2003). In the UK, for example, The General Medical Council requires that medical students be given the opportunities to practise communicating in different ways and that graduates must be able to communicate clearly, sensitively and effectively (GMC, 2003). In response, medical schools have placed a focus within the curricula on a variety of oral communication skills and in science degree programmes students are often given opportunities for developing oral presenta-

tional skills. In contrast the ability to communicate with the general public through written means does not appear to be a feature of many medical or science programmes. Students are often asked to write essays or compose reports and may also be given a chance to engage in some reflective or creative writing using portfolios or other techniques (Ashbury et al., 1993; Hatem and Ferrara, 2001; Pitkälä and Mäntyranta, 2004; Poirier et al., 1998), however opportunities for writing for a non-specialist audience are often absent (Nestel and Kidd, 2004; Shapiro and Lie, 2004). This omission is worrying given the fact that many people gain information and understanding of medical and scientific topics thorough written media such as newspapers, magazines, leaflets, correspondence and of course the growing array of available internet sites.

This paper investigates one way in which the communication of anatomy to a lay audience using written means has been integrated as a core module assessment component into the medical curriculum of a new medical school in the UK. Using such an approach we demonstrate an effective way for students to develop written communication techniques, and provide an opportunity for appreciating the skills necessary for adapting the written-word for a non-specialist audience.

MATERIALS AND METHODS

Within the 'Reproduction and Locomotion module', a core component undertaken by all second year medical students at Brighton and Sussex Medical School, we have incorporated, as the main coursework element, a written communication project that is directed at writing for a lay audience. For this summative assessment, all students are 'commissioned' by the editor of a fictitious newspaper or popular magazine to write a short lay statement of no more than 500 words in response to a letter from a member of the public regarding a defined clinical condition associated with reproductive or locomotor anatomy (see Table 1 for a generic scenario). Students are able to choose from a number of clinically related conditions (see Table 2 for example conditions) and are required to direct their article at a lay audience. The key objective for the student is to develop an effective strategy whereby they can respond in lay terms to the reader's letter by characterising the particular

Table 1. Scenario example.

The Editor of the local newspaper has received a letter from a member of the public asking information about the condition known as 'X'. The Editor believes that this is an important issue for the readers and has commissioned you, as a member of the medical profession, to write a short article of no more than 500 words explaining in lay terms what this condition is, how it arises and the consequence of this condition to the well being of the patient.

Table 2. Example clinical conditions.

- Rupture of the Achilles tendon
- Rotator cuff tear
- Osteoarthritis
- Carpel tunnel syndrome
- Endometriosis
- Enlargement of the prostate in the over 50s
- Polycystic ovary syndrome
- Male infertility

Table 3. Defined marking criteria.

- Clarity of message
- Suitability of information to a lay audience
- Readability of statement to a lay audience
- Student understanding and analysis of topic
- Overall layout and presentation

clinical condition; explaining how the condition arises; and describing the consequence of the condition to the well being of the sufferer. Students are given full latitude over the style of their statement and which type of newspaper / magazine audience to aim at.

Although students may well be very familiar with reading articles in newspapers and magazines, most will not have really thought about what issues might need to be addressed when compiling a piece of work to be read by the general public. Therefore we use a preparatory tutorial session where faculty outline to groups of students the purpose of the assessment and introduce students to the concept of writing a lay statement. Students are reminded that appreciating the needs, experience and level of understanding of the audience is essential. We encourage students to use the active voice, to keep sentences short and to try out the readability of their statement with friends and family members who do not have a scientific background.

RESULTS

Statements were assessed against a defined set of marking criteria, which focus on aspects such as interest, readability and presentation (see Table 3). We classified each component against an A-E grading scale and in all cases

used double marking to ensure consistency. Our experience showed that student engagement was high for this assessment mode and resulted in very eye-catching and effective articles being produced, which when assessed against the marking criteria were predominantly of an extremely high standard and very much directed at the particular chosen audience. All students managed to gain an overall grade of C or above, with 78% of the cohorts achieving either an A or B grade, indicating the learning outcomes had been accomplished. Conversational language appeared to be a popular approach and students often took advantage of using visual techniques and images to illustrate or clarify particular aspects of their statement. We have found that students remained objective in their approach in characterising the particular clinical condition and explaining how the condition arises yet in most cases tried very hard not to 'alarm' the reader as to the consequences of a particular clinical problem. Students were provided with individual feedback on their statements. In addition to receiving a full breakdown of their summative performance as judged against the marking criteria, students were also given formative written feedback that was aimed at improving future student performance and guiding them in their training and practice.

Evaluative feedback on the assessment was obtained from students through the end-of-module questionnaire and informal discussion groups. So far this largely qualitative feedback has demonstrated that students found the experience of writing a lay statement to be challenging, but one which they enjoyed and felt enhanced their written communication skills better than other assessment methods such as essay writing. The focus group found that students appeared to appreciate the opportunity to use their anatomical knowledge and understanding in explaining a clinical scenario to patients using a means other than oral communication. Furthermore by taking time to think about what information to communicate and how this should be articulated to a lay audience, students believed this would also help them in the future when communicating orally with patients and relatives. Within the module questionnaire, several students cited the lay statement as the best part of the module, whilst no students thought it was one of the worst aspects. No suggestions for improvement for this aspect of the module were made by the students.

DISCUSSION

It is generally agreed by all those interested in healthcare, be it as a provider or recipient that it is vitally important for doctors and scientists to be able to communicate effectively with a non-specialist audience. The ability to relay knowledge and understanding of scientific or medically related topics using lay language is crucial to establishing and maintaining the confidence of the public. This study was carried out to examine the effectiveness of students using lay statements as a strategy for providing accessible anatomically related information for a particular audience. Student feedback and the overall results achieved demonstrate that the students viewed this modular component in a positive way and extremely important in developing written communication skills. Articles were of a high standard, were often produced using professional desk-top publishing computer programmes and were deemed to be very readable by a lay audience. We chose not to use formal readability tests as part of the assessment process, as these tests are generally based on the number and length of sentences or numbers of long words and do not take into account the reader's prior experience or motivation. We are incorporating, however, members of the target audience in the readability aspect of the assessment for the next session. In addition we are also currently developing other ways of enhancing communication skills through written means including the creation of public-focussed information leaflets and the design of informative web-sites.

The co-ordinators of medically and scientifically-related undergraduate curricula have a growing responsibility to produce well-educated graduates, competent in their subject area and able to demonstrate a professional approach to sharing and advancing knowledge and understanding within the general population. Professionalism is undoubtedly acquired over a period of years (Hilton, 2004), but is a core skill that must be initiated and developed early within a course of study (Epstein and Hundert, 2002; Lachman and Pawlina, 2006). In medicine and other health-related subjects, it is anatomy which often forms the foundation for the early years of the course and therefore offers an excellent conduit for fostering professionalism. One way in which professionalism can be approached is through the use of reflective practice. Reflection is viewed as a

core skill in professional competence (Epstein and Hundert, 2002) and reflective practice has been shown to be a strategy which allows students to engage in critical thinking and self-reflection with the ultimate goal of improving their future performance (Lachman and Pawlina, 2006). The inclusion of writing a lay statement as an assessment strategy provides an effective approach for initiating independent learning and encouraging reflective thinking, thereby enabling the concept of professionalism to be both promoted and evaluated. Using anatomy as part of this process allows one way in which students can appreciate some of the skills necessary for their professional as well as their academic development.

The future challenge is to maintain a continuity of communication skills training for all students, including those focussing on or using anatomy and to instil a consistent view as to the value and importance of communication. Students and scholars of anatomy have an obligation, for example, to ensure the public is not misinformed by challenging or correcting mistakes whenever they are made. This may be as simple as correcting a television sports pundit when they describe the fourth metatarsal as the "big toe" or challenging a newspaper columnist when they misrepresent the process of body donation. These recent and real examples may seem trivial, but such errors are easily perpetuated and quickly become established within the mind of the public. To engage in these types of forum, may be viewed by some as depreciating the discipline of anatomy or labelling anatomists as 'light' or 'fluffy' scientists. Surely, however, it would be better for the media to feel able to call upon anatomists when they know they have the ability to put over interesting and relevant material in a way that the audience can fully understand and be educated by. The outcome of this exercise has been to demonstrate that science and medical students are a huge future resource in raising the profile of science and technology within the general population and we should encourage and develop this potential through devoted training time.

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