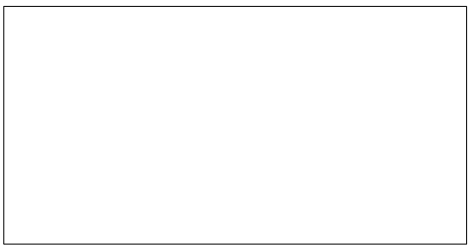

Introduction

As health information professionals, we are all aware of the age old conundrum of how best to deliver information skills training that is effective and remains with the learners long after they have departed the classroom or virtual learning environment. Often, we are acutely aware that the health information skills training we deliver can be highly meaningful, insightful and make perfect sense to our trainees at the time of delivery, but that this can fade quickly if the skills learned are not regularly practiced. This phenomenon is described by Perkins (2006) as 'troublesome knowledge' and is theorised within four distinct types – inert, ritual, conceptually difficult and foreign. Collectively, these knowledge types represent concepts which are essentially abstract, that is, they do not appear to have obvious significance or meaning to everyday life, or may use unfamiliar or complex sounding terminology and are therefore difficult to learn. Indeed, students have to be able to make the connections between the training they receive and the relevance it has to them both within their studies and as future health professionals (Eyre, 2012). So when information skills training is delivered too early or is wrapped up in abstract concepts it may seem useful at the time, but is all too soon forgotten. If for instance, students are not at a point in their studies where the learning will be meaningful, a classic example of this being during induction week when students are experiencing information overload, don't know what they don't know, and in particular, don't know what they will need to know, learning is unlikely to happen. When a clear point of need arises at some later date in the future, for instance during academic study, on clinical practice placements, or within the workplace once qualified, it is at this point when the student is likely to need those forgotten skills. Context and timing are therefore key to the effective delivery of information skills training.

Eyre (2012) discusses the value and limits of library-based information literacy teaching for social work students in a university setting and the inherent limits when it comes to its transferability beyond the academy and into a workplace setting. He outlines the encultured nature of information use in a social work setting and how this environment differs considerably from that of the University setting. Similarly, Stevenson (2012) considers the impact of learning from an evaluative perspective and cites the Kirkpatrick model of evaluation which takes into account environmental factors in training. Stevenson advises that 'to truly understand the impact of an educational intervention we need to widen our measures beyond 'the learner' and begin to include 'environmental' aspects'. Whilst this paper is not focussed on the evaluation of impact of information skills training, the 'environment' is a useful factor to take into account when considering

information skills teaching. In the context of this article, those 'environmental' aspects are facets of the BHSc (Hons) Occupational Therapy degree programme at York St John University. The paper will present a short case study on how this 'environment' is used to deliver meaningful health information skills training to occupational therapy students.

The 'Environment'

The BHSc (Hons) Occupational Therapy programme at York St John University is a professional healthcare degree characterised by a combination of taught modules of both a practical and academic nature, alongside a range of clinical practice placements. The course trains students to enter a career as an occupational therapy practitioner with full HCPC (Health and Care Professions Council) registration. It is a minimum requirement that all healthcare practitioners understand the principles of evidence-based practice (Health Care Professions Council, 2013), and the College of Occupational Therapists (2009) outline it as a core competency in the occupational therapy curricula. Over time, the teaching of evidence-based practice in the occupational therapy programme at York St John University has evolved, with the most recently validated programme having a number of built-in 'strands' running through it that focus on particular aspects of practice, of which one is an evidence-based practice (EBP) strand. The EBP strand takes students through a logical progression of learning to become evidence-based healthcare practitioners. At level 1, in the module *Understanding and Reviewing the Evidence* students explore concepts, principles and definitions of evidence-based practice and the different shapes and formats in which 'evidence' is packaged in healthcare. Students develop skills in sourcing and reviewing evidence, gaining a basic understanding of research methods, and developing critical thinking skills, and these skills help them develop a foundation for level 2. At level 2 the module *Analysing and Applying the Evidence* aims to support students in considering how the evidence underpins practice in relation to contemporary occupational therapy practice. Students are encouraged to analyse the application of evidence-based practice in a range of contexts, with emphasis being placed on the critical appraisal of different types of evidence ranging from government policy, clinical guidelines, evidence briefings, research papers, and legislation. At level 3, the module *Contributing to the Evidence-Base* is the equivalent of a dissertation module and enables students to consider, investigate and conduct a research project related to a specific area of practice or theory. Students can conduct independent studies, or be part of SCoRe (Students as Co-Researchers) projects with experienced members of the academic team who are leading on real world research initiatives. The assessment at level three is to

write up the outcomes of the research in the form of an original research article for the British Journal of Occupational Therapy, thereby 'contributing to the evidence-base'.

Within the context of evaluation, Lewin's seminal theory (1951) suggests both the educational environment and the workplace environment should be considered. In doing this we are led away from the narrow activity of focussing only on the educational intervention but instead expand into a more systems based approach (Stevenson, 2012). This too is applicable to the contexts in which information skills are delivered as well as evaluated. Parallels can for instance, be made between Lewin's 'systems based approach' and the occupational therapy programme, and particularly the evidence-based practice strand of the curriculum as the specific 'environment'. Given that many aspects of evidence-based practice are closely aligned with the sourcing and application of information, this evidence-based practice strand of the curriculum creates a perfect framework or 'environment' for deep integration of health information skills within the curriculum delivery. This 'environment' is what makes the training relevant to occupational therapy practice, and therefore more meaningful. These aspects are explained further within the following sections.

Models of learning, information skills and evidence-based practice

Stevenson (2012) comments that whilst academic training and education is primarily concerned with giving learners new knowledge and schemas on which they can build future skills, educational activities related to information skills in the workplace need to focus more specifically on the learners job performance and the environment in which the skills will be used. To make information skills meaningful, they need to be perceived as relevant by the learners. Programmes of study in medicine and health care are often highly vocation based, and governed by relevant professional and regulatory bodies. In the case of the occupational therapy programme at York St John University, both the Health Care Professions Council and the Royal College of Occupational Therapists have regulatory input. The occupational therapy programme is heavily aligned to the vocation of occupational therapy and therefore the translation of information skills within the curriculum need to be too (eg. within concepts of evidence-based practice in occupational therapy practice).

Models of information literacy such as the SCONUL Seven Pillars framework (2011) span the full spectrum of skills needed for complete information literacy, from being able to recognise an

information need through to being able to synthesise and create new information. However, information skills training sessions often tend to focus on the earlier stages of the model, for instance identifying an information need, understanding different information types, planning search strategies and accessing appropriate information. This limitation can often be due to time constraints on length or number of teaching sessions available to us. However we should aim to think more broadly about healthcare related information skills and the extent to which clinical practice spans all stages of the model. Being able to evaluate, manage, present and synthesise health information (the latter stages of the SCONUL seven pillars model) are of key importance to being an effective evidence-based healthcare practitioner and such skills should therefore be a vital consideration in the planning of information skills training.

In terms of planning information skills related teaching activities, Hill (2010) advises engaging learners actively and getting them to work with the knowledge using a variety of teaching methods. Learners need to experience variation in the concept/s being examined and see its application within a number of different examples and contexts that are meaningful to them. Within the structure of the BHSc (Hons) Occupational Therapy programme, the incorporation of information skills teaching takes into account the key stages of the SCONUL model (particularly the advanced stages) in the context of the vocational environment, and applies variety in delivery of teaching and learning activities. Indeed a greater emphasis is placed on the vocational environment of occupational therapy, than the pure academic environment. At level 1 (Understanding and Reviewing the Evidence) students receive workshops on finding the evidence which address the first four stages of the SCONUL seven pillars model of identifying, scoping, planning and gathering information. The workshops aim to set in context literature searching with the evidence-based practice process. During the workshops students develop their understanding of and skills in formulating a practice focussed question to support evidence based practice, gain an awareness of evidence-based information sources, and develop skills in searching for evidence. In subsequent weeks, students then build on these skills through a variety of other activities. These include seminars in which they critique and debate traditional medical hierarchies of evidence and consider contemporary models of evidence-based practice, and what information sources relate to the 'evidence' identified by such models and how to find it. Other sessions involve the students being given an ambiguous research question and then being assigned to qualitative or quantitative approach teams to develop it into a focussed question and design a research methodology to answer the question. They then present their ideas and debate the differences, and pros and cons of the different research approaches to answering the question as a whole group. Activities such as these help students to develop their

understanding of research based evidence and prepare them for appraisal focused work at level 2. Particularly with research, it helps them to become more selective in their information use. Activities such as these move the students further round the SCONUL seven pillars model in their development of information literacy skills.

At level 2 (Analysing and Applying the Evidence) students engage in a number of critical appraisal exercises, not just of research, but of other forms of evidence (which they are expected to source themselves). These include clinical practice guidelines, NICE guidelines, government policy, and evidence briefings. They consider what information has informed the development of these evidence sources and this helps them to see how the different information sources they have been shown and taught how to search for at level 1 are applied and used in practice. During this module students also complete another team based activity in which they are given a scenario relevant to clinical practice and two hours in which to develop a practice based question and complete a rapid review of the evidence. Using their critical appraisal skills, they are asked to select the best quality evidence and use this to inform their decision on the answer to their question. The students then present their review to the whole group, talking through the process they applied, where they searched, the quality of evidence found, and what answer they arrived at. Activities such as these help to move students away from the 'abstract concepts' identified earlier of literature searching sessions and more towards helping them to see why being able to find and use information is such an important skill for evidence based-practice. It also helps them understand how the evidence sources that underpin their occupational therapy practice are created and developed, and how their information skills will be applied once they become clinical practitioners. Such activities also address skills required for all seven pillars of the SCONUL information literacy model.

At level 3 (Contributing to the Evidence Base) students are prepared for completing a piece of research either individually or within a SCoRe (Students as Co-Researchers) project group and writing this up in the format of either a service evaluation or an original research paper for the British Journal of Occupational Therapy. Whether doing primary or secondary research, students are required to apply their information skills at all stages of the process, so identifying, scoping, planning, gathering, evaluating, managing and presenting information are all integral to completing the module. As well as primary research methods, students are taught systematic reviewing methodologies and how to conduct a service evaluation. The 'Present' pillar of the SCONUL model identifies the communication of research work through conferences and writing papers, and many students go on to publish and disseminate their work through such mediums. The course

acknowledges that students are not being prepared to be researchers, but rather occupational therapy practitioners however being able to engage with and understand research as a form of evidence that underpins their practice is an important information skill, and going through this process helps them to become more effective in this as evidence-based practitioners. Furthermore, most students, whilst unlikely to become researchers, are likely to complete service evaluations at various points in their occupational therapy careers and research skills underpin this process.

Within other strands of the occupational therapy programme, information literacy teaching is also applied, for instance in the delivery of a lecture on health literacy. Using a model of health literacy (Sen and Spring, 2013) and related case studies, this lecture covers how students can apply their information skills in clinical practice to develop the health literacy of their patients and also to improve communication between patient and healthcare professional.

On an ongoing basis throughout the programme, students are also encouraged to continually complete CPD activities. These activities are part of CPD portfolio development and maintenance which is necessary for membership of the HCPC. The Health and Care Professions Council (HCPC, 2016) states that all registrants must keep their knowledge and skills regularly updated through appropriate continuing professional development, and must also maintain knowledge of changes in practice related law and ethics. The HCPC (2016b, 2016c) identifies an extensive list of activities considered to be appropriate in supporting registrants meet the relevant standards year-on-year. Many of these activities involve the use and processing of information for which information skills aligned with the advanced levels of the SCONUL seven pillars model are needed, for instance participating in or organising journal clubs, reading journals, critiquing research papers and other forms of evidence, writing articles, conducting research, conducting service evaluations, and involvement in peer review. Students are encouraged to gather evidence from both academic study and clinical practice placements upon which they can complete CPD related reflections. They are also encouraged to support these activities with appropriate information sources. These activities align closely with the managing and presenting information stages of the SCONUL seven pillars model, which identifies skills such as developing a personal profile in the community and using appropriate information sources.

Summary

The effective delivery of information literacy training has always been a challenging process and health library and information professionals are constantly innovating in this area. This paper has presented a case study that demonstrates ways in which deep integration of information skills into the curriculum can be achieved, and which take into account relevant professional and clinical environments, not just the academic one. In the delivery of information skills, we should look more broadly at where information skills learning can happen within the context of the healthcare environment rather than the narrow scope of the classroom. Health information professionals can make a difference by seeking out opportunities to get involved for instance, with discussions on the revalidation of professional health and social care programmes. From such involvement, advice can be offered on how and where information skills can be built into the curriculum in a more sustainable and relevant way. Information professionals are also advised to consider the requirements of continuing professional development in health and social care students and professionals. Consider offering or getting involved in the delivery of sessions supporting the development of information skills relevant to CPD activity. It is through the exploration of alternative approaches such as these that we can enhance the teaching we do in order to truly make information skills meaningful.

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