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Information Literacy: The impact of a hands-on workshop for international postgraduate students

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ABSTRACT

This study examined the usefulness of integrating information literacy as an auxiliary workshop into a postgraduate Food Processing course, with the focus on course and subject related information. Given the diverse background of the students enrolled in this programme (86% are international students) and the importance of the skills to be acquired, it is crucial that these students are supported to be successful. Food Processing is a complex cross-disciplinary postgraduate programme and supporting the international students who take up this course is challenging. The workshop introduced the students to the special nature of food science and food engineering information to make them familiar with key resources in the subject area. Quantitative and qualitative data on the usefulness of the workshop were collected in the form of pre- and post-workshop surveys and interviews, respectively, and a comparison was made between the two course assignments for further evidence. The results indicated the workshop improved the students' ability to identify discipline relevant databases, keywords and search terms, and their ability to evaluate information and cite the correct resources according to the standards and guidelines substantially improved. Another unexpected feature, but not necessarily surprising, was the students' level of confidence significantly increased as a result of participating in the workshop.

1. Introduction

Technology and the amount of online information are experiencing phenomenal growth. Accordingly, the need for students to learn information literacy skills is greater than ever, in order for them to be successful during their study and after graduation (Head and Wihbey, 2014). As students are required to know and be able to apply analytical and evaluative skills, information literacy education is essential: it enables students to become aware of what they have learnt and provides a means for reflection on their knowledge and learning process. In other words, information literacy education can transform the learning process into one that enables learners to engage in self-directed lifelong learning, beyond the formal educational process (Bruce, 2003). The skills that are learnt are then transferable into any other course of study or professional situation (Saleh, 2013).

The methodologies surrounding information literacy can be categorised into three key groups: behaviourist, constructivist and relational approaches. In the behaviourist approach the emphasis is on the learners' behaviour and outcomes in terms of skills (Eisenberg and Berkowitz, 1990). The constructivist approach is based on the ideas and theories developed by the educational philosophers Bruner (1986), Vygostky (1962) and Kelly (1955). In this approach learning is characterised as a process of construction in which each learner develops a new understanding on the basis of what she or he has already learnt (Kuhlthau, 1993). The relational approach,

proposed by Bruce (1997), is a phenomenographic approach and is extensively employed by higher education sectors. It interprets learning as a process which brings individuals to understand the world differently, rather than a means aimed to retain information about the object of study (Bruce, 1997).

In all of the three approaches, having a learning plan is a crucial factor when considering adapting a methodology. The plan should include information literacy as integral to the learning process (Martin, 2003; Simons et al., 2000), and should be learner centred and reflective (Brown et al., 2003; McDowell, 2002). Several studies have shown that information literacy education can be provided more effectively by integrating it into the teaching and learning process (Callison et al., 2005; Feldmann and Feldmann, 2000a; Walton and Hepworth, 2011; Wang, 2013a). The Australian and New Zealand Institute for Information Literacy (ANZIIL) and the Association of College and Research Libraries (ACRL) in the United States both advocate and endorse the integration of information literacy education into the curriculum (Bundy, 2004). In New Zealand, this view is also recommended by the Institution of Professional Engineers (IPENZ) and the Institution of Chemical Engineers (IChemE) through their professional accreditations, which require the integrated development of key contextual skills and knowledge that underpin professional practice (IChemE, 2011; IPENZ, 2009).

At University of Auckland, New Zealand's leading university, and one of the top eight universities in Australasia (2012), information literacy has been subject to much research, investigation and development over the past decade (Cullen et al., 2011; Honey et al., 2006; Moselen and Wang, 2014; Tooman and Sibthorpe, 2012; Wang, 2013b). Students, according to University of Auckland Graduate Profile (2009), are expected to obtain the following general attributes and values by the time they graduate: (i) a mastery of a body of knowledge, including an understanding of conceptual and theoretical elements, in the field of study, (ii) an understanding and appreciation of current issues and debates in the field of study, and (iii) an ability to analyse information, where appropriate, using appropriate tools, technologies, and methods. Since 2006 an institutional guideline at The University of Auckland (2011) has been provided about the expectation of information literacy. Two key objectives of this guideline are: (i) to ensure that information literacy is integrated into the academic curriculum, and (ii) to ensure that information is used and managed as effectively as possible in teaching, learning and research activities. This guideline also highlights that academic staff, librarians and learning support providers are partners in providing opportunities for students to achieve the capabilities in the context of their disciplines (2011).

Food Science is a well-established and fast growing study and research area at the University of Auckland. The Faculties of Science, Engineering, and Medical and Health Sciences all make contributions to the teaching of this programme at both undergraduate and postgraduate levels. Strong links have also been developed with the food industry and Crown Research Institutes involved with food, through joint research. The postgraduate qualification in Food Science provides in-depth knowledge in this area and can help students further their career. Food Processing is one of the postgraduate courses for the qualification. This course covers standard processing methods and unit operations used in food industries and discusses chemical, physical and biological alterations that food undergoes during storage and processing procedures. Fig. 1 shows the demographic information of the students taking this course in 2015. As can be seen, the majority of students were female (62%) and a high proportion had diverse backgrounds, with qualifications ranging from degrees in animal health, nutrition, dialectics and biology, to engineering coming mainly from overseas institutes. Fig. 1a and b highlights the large number of international students where English is not their first language. Nearly half of the students (52%) were from China, 24% from India and only 14% are New Zealand domestic students. International students experience different challenges from local students, in particular Hughes (2012) describes with unfamiliar information sources and practices, and with academic language. Therefore, it is critical that as international postgraduate students' transition, they receive support for their learning and practice through well-developed information literacy training.

In the past decades, information literacy and its integration into disciplines, programmes and courses have been studied by different educators and researchers (Bruce, 1997, 2003; Craig and Corrall, 2007; Curl, 2001; Feldmann and Feldmann, 2000b; Moselen and Wang, 2014; Saleh, 2013; Walton and Hepworth, 2011; Wang, 2013a,b). There are several publications focused on integrating information literacy in Engineering and Science undergraduate programmes. However, there is a very limited number of published research works exploring the applicability and usefulness of integrating information literacy into postgraduate programmes and particularly for international students.

In this paper, the central hypothesis is that an integrated approach to information literacy provides postgraduate students with the technical information available outside the classroom, the skills required to find this information, and the knowledge to work at a deeper level in the subject matter. The paper addresses the question: how useful are information literacy workshops within the Food Processing postgraduate course?

2.   Methodology

2.1.   Human research ethics

Approval for the study was obtained from the University of Auckland Human Participants Ethics Committee (UAHPEC).

2.2.   Information literacy workshop

Given the diverse background demographics of the students enrolled in the postgraduate programme ($n = 30$) and the importance of the skills to be acquired, a workshop on information literacy was designed and integrated into the Food Processing course. The workshop offered both a subject and course-focused approach to teach the skills, knowledge and applications that Food Science students require with information search and management. The students received a practical hands-on lesson introducing them to the special nature of food science and food engineering information to make them familiar with key resources in the subject area.

The workshop session was 2 h in length and included a demonstration and interactive session covering the following topics: development of a concept map; defining what information is needed and what information is available; information search; databases; using the university library webpage; evaluation of sources; examples of the national and international food science/engineering databases; and citation management tools. The workshop content was carefully designed