

Technological Means to Support Safety Education & Legislative Changes

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1.0 ABSTRACT

Globalisation, industrial and technological changes and the alarming increase of occupational injuries and diseases worldwide, demands a timely response in health and safety education, training and legislative measures. Managing the changes in information and legislation to keep students abreast of the current situation is a challenge for educators in all fields. Technology, used appropriately, can assist in both reaching students worldwide and keeping them informed of changes to legislation. Thus, technology has the potential to enhance the learning environment and impact positively on occupational health and safety education.

“Managing Workplace Health & Safety”, a newly developed subject at Griffith University, is currently being trialled in Queensland in Flexible Delivery mode. It utilises the latest technology in order to provide innovative, effective learning and teaching strategies, including cutting edge, web-based multimedia flexible learning resources. The subject provides students with an overview of and up to date information on the Legislation and requirements of Workplace Health & Safety Professionals under the Workplace Health & Safety Act in Queensland (1995). Upon completion, the students can obtain Workplace Health & Safety Officer (WHSO) Stage 1 & 2 certificates, thus meeting the requirements of the State Body, the Division of Workplace Health & Safety, Department of Employment, Training and Industrial Relations (DETIR). The subject has the potential to meet international certification for similar competency accreditation.

This paper will provide an overview of the rationale and structure of the subject and will then explain its content and design features. Finally the paper will evaluate the trial results, identifying the strengths and barriers to be overcome by adopting such a model in safety education.

2.0 INTRODUCTION

Globalisation, industrial and technological changes and the alarming increase of occupational injuries and diseases worldwide, demand a timely response in terms of health and safety education, training and legislative measures (Takala 1995). Technological change in the context of globalisation, has generally been perceived as a grave concern to employment and the health and safety of the working population. Rapid technological change has led to de-humanisation of the working world, an increase in unemployment, changes to the workload and the creation of a division of labour. These factors have resulted in negative impacts on the health and safety of workers through increasing stress, strains & sprains and inequities that exist (Aungles & Parker 1992; Labonte 1999; Simpson 1994; Wenzel 1994; Zuboff 1988). Figures

for occupational injury and disease reflect this growing pressure on workplaces. Annually, there are 250 million accidents in the workplace resulting in 300,000 fatalities (WHO31, 8 June, 1999).

However, there is no inherent evil in technology, and if used appropriately there are many benefits to be gained from its use. It is an opportunistic time to use technology to advantage the area of occupational health and safety. Education is one specific example of where technology has the potential to enhance the learning environment and impact positively on managing workplace health and safety. Technology provides a valuable resource to fight the global trends occurring in the work and health area. As information changes rapidly, technology and the use of the World Wide Web (WWW) can be an important tool in responding and communicating quickly to global changes. In addition, technology can be used to address increasing inequities, access, program reach and communication as it has the potential to enable students from all over the world to enroll in a subject taught from one location, for example, Brisbane, Australia. Finally, the internationalisation of workplace health and safety requires an international response, which can be achieved through the means of technology. Information technology provides a quick and easy tool to access research, information and to communicate globally in meeting the training and educational needs of workplace health and safety. Managing the constant changes in information to keep students abreast of the current situation is a challenge facing educators in all fields.

Griffith University (GU), Australia, has developed a learning centre that is situated at the new Logan campus which fully utilises technology for flexible learning. One such subject, *Managing Workplace Health & Safety (MWHS)*, has been recently developed as part of the Work & Health, Bachelor of Behavioural Science program, to meet student and industry needs. Through utilisation of the latest technology, the subject provides up to date information on workplace health & safety issues and Legislation in Queensland, with links to national and international sites that can be updated regularly with ease. The subject was designed to meet the Legislative requirements of the Queensland Workplace Health & Safety Act (1995) by training and accrediting Workplace Health & Safety Officers. The following will describe the factors that led to the development of this subject and the features of flexible delivery that guided its development. It will also provide a brief overview of the content covered in the subject, along with a description of the subject's structure and design features. Finally, the strengths and barriers of the use of technology for such a subject will be examined.

3.0 DEVELOPMENT OF MANAGING WORKPLACE HEALTH & SAFETY

Developed in 1999, MWHS was trialled for the first time with students undertaking undergraduate education at GU, although the subject has the potential to reach students located statewide, interstate, and internationally. Several opportunities presented the School of Public Health, which led to the development of the subject including the School's move to the Logan Campus of Griffith University that is committed to flexible delivery of subjects utilising the world wide web. The School also recognised the need to develop strategies to manage changes in the work and health area, particularly legislation, as changes in this area can be difficult to manage. The School was also aware of the demand from industry to meet training requirements for Workplace Health & Safety Officers (WHSO). In addition, with the School operating courses across three campuses, consistency, access and maintaining current information was important. The subject is designed to meet the needs of both the school and students through its adoption of flexible delivery design which ensured the subject is accessible to students who are off campus or on a different campus. Furthermore, through the adoption of flexible delivery, students can be kept abreast of latest developments in the area.

3.1 Flexible Delivery Utilising Technology

The subject was developed under the Flexible Learning Program instigated as part of GU's ongoing commitment to teaching and learning (GU 1999). GU was established in 1975 with the aim to provide innovatory, student-centred teaching. Griffith's mission continues to commit it to innovation by bringing disciplines together, to lifelong learning, to equity and social justice, and to developing international perspectives. These guiding ideas have advanced GU's development of flexible learning methods (Taylor & Joughin 1997).

Flexible Learning describes an approach to education that increases the learner's control over learning and enables him or her to develop increased responsibility and independence. The purpose of Flexible Learning is to provide a learning environment where staff are encouraged to utilise innovative, effective learning and teaching strategies which integrate a range of independent peer-based and individual learning activities in conjunction with traditional teaching methods (Taylor & Joughin 1997).

3.2 Content

Managing Workplace Health & Safety enables students from a broad cross-section of disciplines to familiarise themselves with workplace health and safety practices and procedures. In addition, the subject complies with Queensland legislation and responds to the needs of Queensland workplaces through accrediting successful students as Workplace Health & Safety Officers (WHSO). Students must meet the requirements of the Division of Workplace Health & Safety, Department of Employment, Training and Industrial Relations (DETIR) in order to obtain their WHSO accreditation. Under WHSO accreditation, candidates must successfully complete both their Stage 1 and Stage 2 certification.

The subject includes five units that must be completed under each certificate. Students must complete an exam for each of the stages required under WHSO accreditation. The students work through the lecture materials for the 10 Units and also meet with teaching staff over a 5-day block to cover the material. The students cover the following units in Stage 1:

- Unit 1. Workplace Health and Safety Legislation
- Unit 2. Incident Investigation
- Unit 3. Workplace Health and Safety Consultative arrangements
- Unit 4. Workplace Ergonomics and Industrial Hygiene
- Unit 5. Risk Management

In completing their Stage 2, the following units are included:

- Unit 6. Hazardous Substances in the Workplace
- Unit 7. Workplace Plant
- Unit 8. Work Organisation, Amenities and First Aid
- Unit 9. Health and Safety Management
- Unit 10. Divisional Requirements and Administrative Controls

Students are introduced to a range of key principles that build professional competency in the areas of industrial hygiene and ergonomics, routine incident investigation and risk management procedures, and organisational/behavioural contingencies in the workplace. In addition, students are able to understand, interpret and apply workplace health and safety legislation as prescribed under the *Workplace Health & Safety Act Qld (1995)*.

3.3 Structure & Delivery

The *Managing Workplace Health & Safety* subject, using the latest technology through web-based multimedia tools, is run in flexible delivery mode. This means that a number of approaches to learning, including self-directed, web-based and face-to-face, are undertaken in order to provide students with choice and independence. Students access the subject through the University website that provides an overview of the requirements of the subject, the units that will be covered and assessment. Each Subject Unit links them to websites covering other State and National Occupational Health & Safety Issues that they are expected to explore.

The design of the subject ensures the achievement of high quality learning outcomes as it is flexible to the unique needs of the student. Students are able to work autonomously in a manner that suits their learning styles, and external students living outside of Brisbane are able to enroll. The subject material is easily updated and changes can be made instantly, which is particularly important when teaching Legislation. Students are able to maintain regular contact with teaching staff as they are available through access to email, phone and face to face contact during residential school.

An intensive residential school is held over 5 days to provide students with extra assistance and face to face content delivered by professionals in the field. Students conduct their first exam during this time, providing them with their Stage 1 Certification. Students are then required to sit for their Stage II exam and hand in their Workplace Audit at the end of Semester. The course was designed and taught by members of the School of Public Health and guest lecturers from Government and industry bodies.

A number of materials are used to assist students in their learning and facilitate effective delivery. These include both print-based and web-based materials. Print-based materials are produced for each of the Units and cover the key points of the literature and a number of questions and case studies that students should work through as they progress. The website for the subject provides an overview of subject design and self-assessment questions that students should complete as they progress through each Unit. Links to other relevant sites are also provided for students and video materials that students can watch from the website. In addition, the students undertake a field trip to a worksite in order to apply their leanings through conducting a worksite health and safety audit.

3.4 Features of Flexible Delivery Website

As previously mentioned, each subject offered at the Logan Campus under the flexible delivery banner has a web-site to assist with student learning. Leading edge, web-based multimedia flexible learning resources have been used to deliver media rich, interactive learning activities designed to support student learning. The website for Managing Workplace Health and Safety, along with the its features is provided in Figure 1. The standard features of subject web-sites include a navigation bar linking students to GU home page and student support, subject specific information identifying subject objectives and teaching methods, assessment schedule and criteria, study chart and subject resources. In addition, there are a number of other features included on the web-sites to enhance the learning capacity. These features include:

A search engine for the subject site;

A “Frequently Asked Questions” (FAQ) facility, based on actual or anticipated student questions;

A “Forum” for student-student interaction, student-teacher, and student-industry contact communication. It enables both students and teachers to raise concerns, queries or questions that students can respond to and learn from;

A “Glossary” for the subject;

Interactive components to enhance student exploration of concepts;

Audio and video clips to enrich content and provide information in non-print modes;

Alternative support for learning activities, including concept maps, graphics, self-assessment, items and case-studies;

A list of prescribed and extra sources of information;

A design plan for the remainder of the course; and

On-line assessment items.

Figure 1. Managing Workplace Health & Safety Website



3.5 Trial Results

The subject was trialled in 1999, identifying a number of strengths and barriers that resulted from using technology as a means to provide education. A number of methods were used to obtain this feedback including student evaluation and assessment results, and ongoing observation. Consultation was also conducted with the staff involved in the development, implementation and management of the subject.

Twenty-one students completed the subject successfully however there were two students that did not satisfy their requirements for Stage 1 certification and were not eligible for Stage 2. These particular students were not well prepared and did not take advantage of the residential school. Most of the students found the technology easy to use, however there were a few students who required additional support as they did not perform well in autonomous learning. The following comment was obtained from one of the students that responded well to Flexible Delivery “I like the fact that we don't have to come in every week and we can work at our own pace. That's important for me with my busy life trying to do everything else.” However, when the teaching staff arranged additional times to meet with the students as a group or posted regular comments on the website, the students were grateful as they felt “these reminders encourage us to keep on top of the workload”.

Student and staff evaluations indicated the strengths and barriers to student learning. A summary is provided below:

Strengths:

Students liked the flexibility offered by the design of the subject. They could organise their study in a manner to suit their learning style and their schedule.

Students valued the ongoing contact through email, web-site and face to face meetings, as well as the block residential school.

Students were able to obtain quick, easy access to state, national and international information through links.

Student links to industry bodies and professional network.

Subject material can be updated quickly as changes can be instantaneous.

Regular contact was maintained with students through the website.

School commitment to delivering subject in flexible delivery mode and in using technology.

Support from information technology and educational designers.

The subject can be offered to a broader range of students as they did not have to live in Brisbane in order to enroll in the subject.

Barriers

Development of and convening subject is time consuming and resource intensive.

There are differences in experiences and expectations of students in completing the subject and some would need additional support to maintain interest and motivation.

Many students desire face to face contact in addition to web based learning and residential school.

Convenor needs to maintain regular interaction with website links and teaching team to keep informed of changes.

To ensure this subject does not become a 'white elephant', and to facilitate student learning, it is important to build in strategies to facilitate human contact, and ensure that there is the commitment and support from the teaching staff, information technology staff and the University. The subject, however, has proved to enhance student access, respond promptly to changes in legislation and increase understanding and research capacity about global issues. The trial indicated that the subject can be modified to suit industry training, thereby increasing access to the general public. As a result of the trial, the teaching team is planning to develop the subject further for the wider community including the introduction of international health & safety certification.

4.0 CONCLUSION

This paper deals with the use of technology in training in order to respond to health & safety and legislative changes. The subject presented, by means of flexible delivery, enables educators to respond to changes in legislation and industry needs promptly, to increase access and equity, and address issues relating to internationalisation of workplace health and safety. Flexible delivery encourages teaching staff to utilise innovative, effective learning and teaching strategies, including leading edge, web based multimedia tools. The teaching strategies, through the utilisation of the World Wide Web, provide easy access to students statewide, interstate and internationally.

An overview of the flexible learning subject “Managing Workplace Health & Safety” demonstrated the effectiveness of design features in assisting educators to facilitate student learning. Finally, the paper identified a number of strengths and barriers of flexible delivery obtained through an evaluation of the trial and concluded that technology has proved to be a meaningful medium in providing training in health and safety and legislative changes.

5.0 REFERENCES

Aungles, S.B. & Parker, S.R. 1992, *Work, Organisations & Change: Themes & Perspectives in Australia*, Allen & Unwin, Sydney

Griffith University 1999, *About Us*, Griffith University, Brisbane, <http://www.gu.edu.au/home/aus/home.html>.

Labonte, R. 1999, 'Globalism and health: threats and opportunities', *Health Promotion Journal of Australia*, vol.9, no.2, pp.26-132.

Simpson, R. 1994, 'Urbanization: A major environmental challenge to health', in Chu, C., Simpson, R (ed) *Ecological Public Health: From Vision to Practice*. Brisbane: a joint publication of Centre for Health Promotion, University of Toronto and Institute of Applied Environmental Research, Griffith University.

Takala, J. 1995, 'Worldwide view of occupational health and safety', in Pantry, S. (ed). *Occupational Health*, Chapman & Hall, Sheffield.

Taylor, P. & Joughin, G. 1997, *Teaching Through Flexible Learning Resources: What is Flexible Learning?*, Griffith Institute for Higher Education, Griffith University.

Wenzel, E. 1994, 'Conceptual issues in worksite health promotion', in Chu, C., Simpson, R (ed) *Ecological Public Health: From Vision to Practice*. Brisbane: a joint publication of Centre for Health Promotion, University of Toronto and Institute of Applied Environmental Research, Griffith University.

Workplace Health and Safety Act 1995, Qld.

World Health Organisation 1999, *The burden of occupational illness*, Press Release WHO/31 8 June, Geneva.

Zuboff, S. 1988, *In the age of the smart machine - The future of work and Power*, Basic Books, New York.