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EDUCATION AND TRAINING IN OCCUPATIONAL HEALTH PSYCHOLOGY: THE CASE FOR E-LEARNING

INTRODUCTION

For the discipline of occupational health psychology (OHP) to continue to evolve and to serve workers effectively it is imperative that education and training provision is available that enables students to acquire knowledge and skills, free of geographical and temporal constraints. This chapter begins with a brief introduction to the historical development of education and training in OHP in Europe. The review culminates with the assertion that higher education institutions are now required to act innovatively in regard to the expansion of provision. One such initiative involves the introduction of e-learning. A case study concerning the implementation of a Masters degree in OHP by e-learning is presented. On the outcomes of the case study, recommendations are offered for the design and implementation of such courses. The chapter concludes by raising some further questions that need to be addressed for education and training provision in OHP to continue to expand.

THE DEVELOPMENT OF EDUCATION AND TRAINING IN OCCUPATIONAL HEALTH PSYCHOLOGY IN EUROPE

OHP is a new and rapidly evolving discipline that has its focus on the prevention of ill health and promotion of well-being and performance within the context of the work environment. Coined by Raymond, Wood & Patrick (1990), OHP is defined by the European Academy of Occupational Health Psychology as 'the application of the principles and practices of applied psychology to occupational health issues…[it is]…the study of psychological, social and organisational aspects of the dynamic relationship between work and health' (Cox, Baldursson & Rial-Gonzalez, 2000; Griffiths, 1998). The roots of the discipline lie in the study of work-related stress (Adkins, 1999), but this remit has expanded considerably as the field has matured to encompass a wide range of organisational health and safety issues (Barling & Griffiths, 2003; Cox, Griffiths & Houdmont, 2003).

The definition of OHP is of importance for it determines the content and methods of related educational programmes (Cox, Baldursson & Rial-Gonzalez, 2000). Owing to the organisation-based nature of professional activity in the discipline, education and training is targeted at the postgraduate level to prepare candidates with the theoretical understanding and practical skills to work as effective practitioners.

Much educational activity has historically been channelled through the activities of the European Academy of Occupational Health Psychology. The Academy's 2001 Education Forum agreed a definition of OHP for the purposes of education and training in Europe based on that of Cox et al., 2000). The agreement served to locate OHP as a separate and distinct discipline (Leka, 2004) that ought to be reflected in educational provision.

The recent emergence of the field is reflected in the limited number of higher education institutions able to offer postgraduate education in the discipline (Leka & Houdmont, 2004). The face-to-face taught Masters degree in OHP at the Institute of Work, Health and Organisations, University of Nottingham, was established in 1996 and exists as the sole postgraduate taught course in Europe. Meanwhile, the number of prospective students has mushroomed in recent years. Two factors may largely account for this; first, the recent emergence of the discipline in North America, and second, a growing recognition of work-related psychosocial issues in legislation that has led to employer demand for the skills of the occupational health psychologist.

THE POTENTIAL FOR E-LEARNING IN OCCUPATIONAL HEALTH PSYCHOLOGY

European Heads of State hold a vision for Europe that by 2010 the Union will be 'the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion' (European Commission, 2001). The development of e-learning initiatives that offer change 'through providing an opening for increased effectiveness, convenience, diversity and quality' (McCaffery, 2003) is seen as key to the achievement of this goal (eEurope, 2000).

E-learning has been identified as a potentially effective means by which to meet the demand for educational opportunities in OHP (Thomson, 2001). The strongly applied nature of the discipline has meant that often many prospective students have had work experience in the occupational health and safety field and have pursued a Masters degree to advance professional knowledge and skills while engaged in full or part-time employment. Considering that employers of occupational health practitioners appear more willing to finance study when costs are mitigated through innovative features in course design that reduce travel costs and time off work (Thornbory, 2003), e-learning might be attractive to this student constituency. E-learning may be particularly appropriate in OHP for pedagogical as well as pragmatic reasons. Indeed, hailed an 'occupational health revolution' (Thornbory, 2003) for its potential to support training and continuing professional development through an emphasis upon collaborative learning, e-learning has also proven effective in facilitating the development of key skills (Fox & Mac Keogh, 2001) that constitute indispensable features of professional OHP practice.

To enhance geographical and temporal flexibility in course provision as well as to meet the growing demand of employers for occupational health psychologists, a limited number of institutions of higher education have launched e-learning OHP programmes in recent times. Among these are Kansas State University (USA) that offers a certificate in OHP and the Institute of Work, Health & Organisations at the University of Nottingham (UK). The latter introduced an e-learning variant of its established and successful face-to-face Masters degree. The e-learning programme, outlined below, was expected to be an efficacious innovation in the education and training of occupational health psychologists.

E-LEARNING IN OCCUPATIONAL HEALTH PSYCHOLOGY: A CASE STUDY

The e-learning variant of the established face-to-face Masters degree in OHP provided by Institute of Work, Health & Organisations was introduced in January 2005. The course structure is described below as is a restricted study concerning implementation of the programme based on feedback from students. The section concludes with a series of recommendations, arising from the case study, for the effective design and implementation of e-learning in OHP.

Course structure and learning environment

Figure 1 illustrates the twenty-four month part-time pathway to the award of Masters degree in OHP by e-learning. The twenty-four month route is the most commonly pursued, although a thirty-six month variant is also offered. A twenty-four month part-time route to a diploma in OHP is also available.

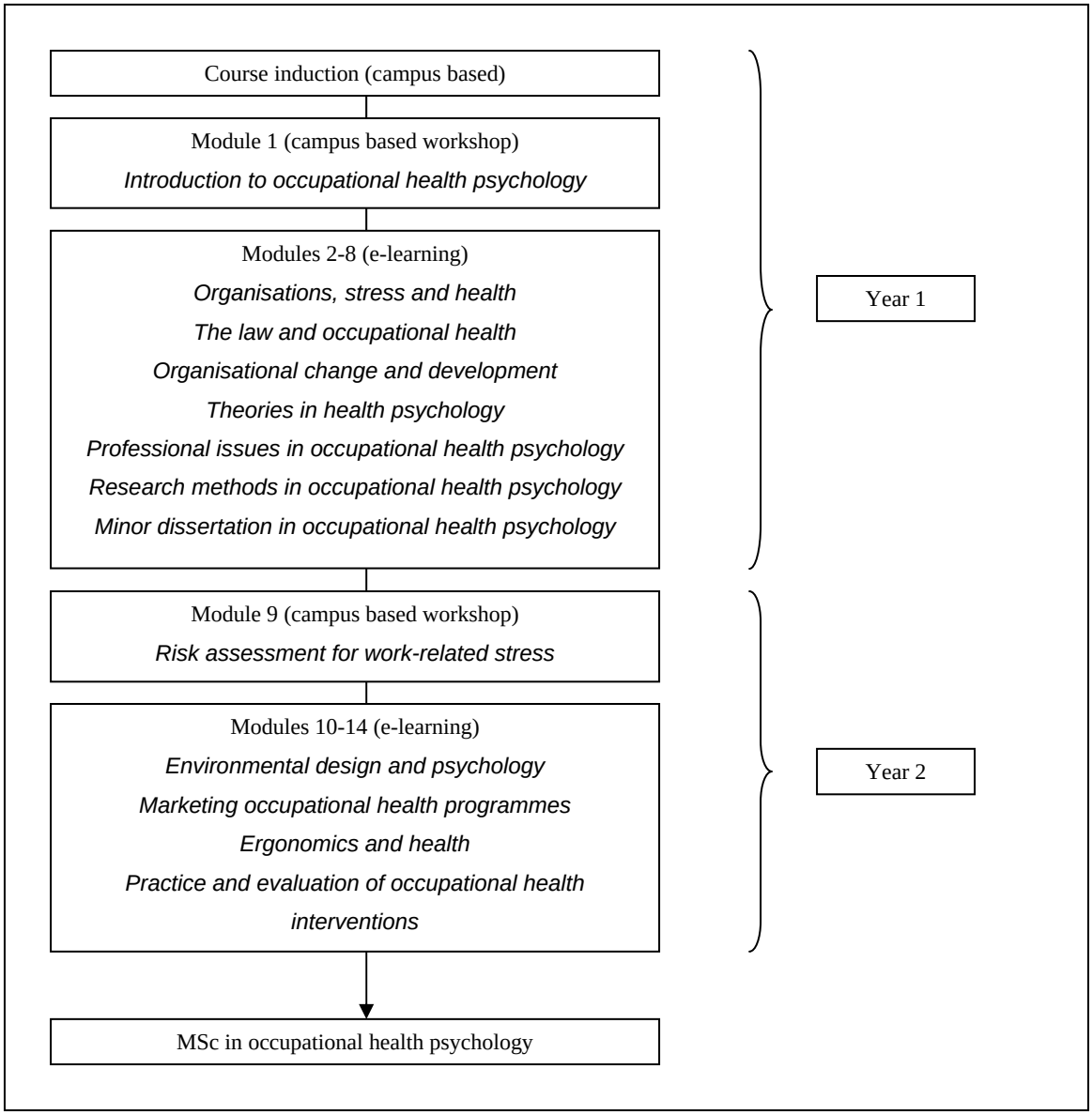

Figure 1 MSc in occupational health psychology (e-learning) course structure (24 month route)

The course is operated on a blended learning format that involves a mixture of traditional campus-based and e-learning modules, the ratio biased towards the latter. The course commences with a two-day campus-based registration and induction programme. Two subject modules are

delivered on-campus through intensive two-day workshops; the first immediately following the induction programme and the second in the final year of study. All remaining modules are studied in a virtual learning environment (VLE) based on the WebCT learning management system that was adopted for its ease of use by non-technical course tutors and on the findings of previous research that demonstrated its efficacy in supporting undergraduate psychology provision (Coogan, Dancey & Attree, 2005).

Subject modules are assessed by means of extended essay with two exceptions; candidates sit two examinations in the second year of study while visiting Nottingham for the face-to-face workshop-based module.

The course is operated by a core team of academic staff with shared responsibility for student related pastoral and academic support and course development. A rota system ensures that at least one member of staff is available to students during office hours. Each subject module is convened by a member of academic staff with a research specialty in the particular area. Module convenors are responsible for provision of basic learning materials including handouts, PowerPoint presentations and readings that are formatted by the e-learning course team for uploading to the VLE.

The VLE is comprised of two elements: an instructional dimension that includes learning materials such as handouts, presentations, videos, self-assessment and group tasks and a collaborative dimension encompassing email, discussion board, calendar and chat room communication tools. Password protected access is gained through the University of Nottingham website.

E-learning implementation

E-learning initiatives are developing across the globe at a rapid rate on a wave of enthusiasm for novel pedagogical approaches (Evans, Gibbons, Shah & Griffin, 2004). The enthusiasm is such that there is a risk courses may be introduced in haste and the finer details necessary for smooth implementation overlooked. The risk is particularly acute in postgraduate education in OHP, identified by a number of institutions as a potentially profitable growth area. Poor implementation may have disastrous effects on students' confidence in their own academic ability, their belief in the efficacy of e-learning and ultimately the reputation of provider institutions. Mindful of the risks and pitfalls associated with e-learning implementation, and in response to the need for innovation in postgraduate education in OHP, an evaluation of the implementation of the Masters degree in occupational health psychology at the University of Nottingham is reported here. The evaluation is based on feedback received from students. Three core e-learning implementation evaluation criteria were applied (Engelbrecht, 2005). These included:

- the use of technology;
    - do students have access to the chosen technology?
    - are students familiar with the chosen technology?

- the learning design;
    - is the learning student centred?
    - how interactive is the learning environment?

- flexibility of the programme.

In addition, pre-course motivation, commitment, expectations and anticipated learning barrier criteria were investigated through a questionnaire and semi-structured interviews.

Access to and familiarity with information and communication technology (ICT) was hypothesized to inform student feedback on the implementation of the e-learning course. Specifically, it was predicted that low levels of ICT access, experience and competence would be associated with reporting of VLE usage difficulties.

Technology can facilitate learning and increase motivation to learn, but only when used in a novel and dynamic fashion is it perceived by students as valuable (Shuell & Farber, 2001). Student perceptions of the learning design were hypothesized to relate to satisfaction with the course. Perceived inadequate learning design was expected to relate to frustration and discontentment whereas good learning design was expected to associate with positive course feedback to tutors and engagement with the VLE. The need for learning design research into postgraduate e-learning psychology provision has been noted elsewhere (Hara et al, 2000).

Flexibility in course provision is acknowledged to determine, in part, the success of e-learning in psychology when allied with pedagogically sound learning design. It was hypothesized that student perceptions of course flexibility would be associated with satisfaction.

Methodology

Student profile

The sample for the current study comprised of thirteen registered students on the Masters degree in OHP. The mean age was thirty four and all but three were female. Admittance to the course was gained upon possession of a bachelor degree in psychology or a closely related discipline and demonstration of competence in written and spoken English to the standard required for postgraduate study as stipulated by the University of Nottingham. Three students pursued the Masters course immediately upon completion of a bachelor degree; the remainder had varying spans of professional work experience in occupational health and related fields. All but two students were resident in the European Union.

Instrumentation

Data concerning evaluation of the implementation of e-learning was harvested from a variety of sources at different points in time. These included:

- pre-course semi-structured interviews
- pre-course questionnaire
- student discussion board postings, email messages and telephone conversations
- mid-course focus group

Pre-course semi-structured interviews

Semi-structured interviews were conducted to gain in-depth information on demographics, motivations to study, expectations, anticipated barriers and career aspirations. Interviews took place in private rooms at the University of Nottingham over a two-day period during a campus-based registration and induction programme. Interviews were tape recorded and lasted approximately one hour. Interviewees were told the purpose of the research project at the

beginning of the interview, asked to sign a form stating their consent to participate and were assured of total confidentiality. In the semi-structured interview format, the same key questions were asked of each participant, but individuals were free to discuss in more detail those issues that they considered particularly important. Data analysis was carried out using the technique of template analysis. The template consisted of a number of categories relevant to the research questions that could be modified and developed in light of the data. Text was thematically coded into these categories direct from the tapes, using the technique suggested by Jones (1985). Coding was phrasal, not based on individual words.

Pre-course questionnaire

The first evaluation criterion, the use of technology, was investigated by means of a structured questionnaire adapted from Mac Keogh (2003) that had its focus on students' access to and familiarity with ICT. The questionnaire also included items that addressed ICT competence adapted from Albirini (2005). Questionnaires were administered during the campus-based induction programme.

Mid-course focus group

A focus group was held at the course mid-point to review the implementation process. Principles of good practice in the management of focus groups in scientific research were adhered to as summarized by Tolhurst & Dean (2004). Particular consideration was given to issues of question format structure, duration, group structure and size and the ethical rights of participants. A focus group was appropriate for its capacity to capture the dynamics of group interaction and to use that to fully understand emergent issues. It was felt important to capture group dynamics in order that the data elicitation exercise was reflective of the interactive nature of the learning activities within the course. Thus, rather than simply responding to the tutor's questions, the focus group allowed the researchers to experience, albeit in an artificial setting, the natural dynamic of the students as a learning group. One course tutor facilitated the session while two others took responsibility for audio-recording and note taking. The focus group lasted two hours and was conducted at the University of Nottingham campus.

Discussion board postings, email messages and telephone conversations

The on-campus induction provided opportunity to develop a shared understanding between students and tutors that teething problems were likely to arise in the course implementation owing to the novelty of the e-learning concept within the discipline and the department offering the course. Students were asked to be forthcoming when facing technical or pedagogical problems and a number of online and telephone-based communication channels were created for this purpose. Data pertaining to learning design and flexibility criteria were collected through student postings to the online 'technical help' discussion board within WebCT, the 'general' discussion board, online group tutorials, email messages and telephone conversations between students and tutors. Additional data was gathered through student usage statistics generated by WebCT.

Results

Three core criteria were applied to evaluate the implementation of the Masters degree in OHP by e-learning: use of technology, learning design and programme flexibility. In addition, pre-course interviews and questionnaires allowed for the collection of data pertaining to motivation and commitment to study by e-learning at the postgraduate level as well as expectations and anticipated challenges to learning.

1. Pre-course motivation, commitment, expectations and challenges to learning

Motivation

Pre-course interview and questionnaire data demonstrated that students' reasons for pursuing the course clustered into two primary categories: career development and personal development. Career development motivations centred on four factors:

- currently working in occupational health and wish to improve knowledge and skills
- enhancement of professional credentials
- change of career
- desire to improve employee well-being

In interview, a number of students spoke at length of disheartening experiences of work life, both their own and that of others. For students who wished to re-orientate their career trajectory, the desire to help organisations change and develop with a view to the enhancement of worker well-being was a major motivational force.

The second motivation for study concerned issues of personal development. The primary factor within this subset was the desire to pursue further academic study. The opportunity to study with internationally recognised researchers was a motivational factor for some.

Expectations

Expectations of the course expressed in interview divided into two family groups: issues of course structure and professional development. In terms of course structure, students were keen that tutors actively stimulated, challenged and facilitated learning. It was evident that students expected and desired structured guidance from tutors rather than didactic teaching. There was recognition that at the postgraduate level the tutor may best operate as a challenger of ideas with a view to the stimulation of personal learning. Students strongly expressed their expectations concerning communication; a number reported previous negative experiences of study involving poor tutor feedback and responsiveness and emphasised that effective communication would be vital for successful completion of, and satisfaction with, the course.

From a professional development angle, those students who had pursued the course with a view to career change or enhancement were keen that it met their needs in terms of providing access to research materials and equipping them with a qualification that would hold credence with potential employers.

Challenges to learning

A number of challenges to learning were identified. Key among these was the lack of time available for study, particularly for students concurrently engaged in full time work while studying. Related to this issue were fears about the motivation required to take responsibility for independent learning. Some students with long-established careers in various aspects of occupational health expressed anxiety at being required to examine issues from novel perspectives, outside of their established comfort zone.

Few problems were anticipated in respect of the e-learning technology. A small number of students reported finding it difficult to absorb information directly on a computer monitor and requested that, where possible, learning materials are designed so as to be suitable for printing. E-learning was considered advantageous in that it does not lend itself easily to examination based assessment. However, the blended learning format adopted for the Masters degree in occupational health psychology involves two sat exams at the University of Nottingham campus. This proved a cause of anxiety for students who had been out of education for some time.

Commitment

High levels of commitment to complete the course were reported. Pre-course questionnaire data showed that 62% were 'extremely committed' and the remaining 38% 'committed' (responses given on a five point scale ranging from 'extremely committed' to 'not at all committed'). Interview data revealed that a number of students had lodged an interest in pursuing the course up to three years previous to its introduction (in *response* to early market research advertising). The fact that after three years these students remained keen was taken as indicative of high commitment. A number of students stated that the course content was precisely what they had been looking to study for some time. The focus on well-being at work underpinned by empirical scientific knowledge was attractive and appeared to act as a major contributor to commitment.

2. The use of technology

Access to information and communication technology (ICT)

A range of questionnaire items investigated access to ICT. Table 1 shows the distribution of access to a computer and forms of internet connection. Internet connection type was implicated in student satisfaction with e-learning; faster connections (broadband, ISDN) were associated with less frustration with download times. This finding accords with previous research that slower download speeds typically associated with domestic internet services, as compared to those available on the campuses of higher education providers, can impinge on the quality of the learning experience (Kirkwood & Price, 2005).

ICT feature	Home only (%)	Work only (%)	Home and work (%)
Computer	15		85
Internet connection	15		85
Broadband	31		54
ISDN		8	15
Dial-up connection	23	8	15

Table 1. Access to ICT

Students in receipt of study funding from their employers reported being permitted to use workplace computer facilities for educational purposes both during and after work hours. These students also consistently reported high satisfaction with the course overall. As found elsewhere (Kirkwood & Price, 2005), some students experienced difficulties using workplace-based computers when the downloading of software necessary to view the VLE was prohibited.

Experience and competence with ICT

Usage patterns for a host of ICT features common to the VLE in the three months prior to course commencement are illustrated in Table 2. All students used email on a daily basis and possessed some experience of accessing educational material from online sources. None had experience of e-learning utilizing a fully integrated VLE. Few had experience of conferencing. An item regarding online shopping provided indication of the extent to which students were familiar and comfortable with using the internet; almost all reported shopping on the internet at least monthly.

	Never (%)	Daily (%)	Weekly (%)	Monthly (%)
Email		100		
Accessing educational material		23	54	23
Educational course with an interactive website	54			46
Educational course with fully integrated VLE	100			
Conferencing	85	7		7
Shopping	7		38	55

Table 2. Experience with ICT in the three months preceding course

Competence was assessed via a set of questions concerning perceived ability to perform a range of computer-based activities. Importantly, low levels of competence were reported in relation to presentation software such as Microsoft PowerPoint and computer conferencing applications – key features of the VLE. The competence profile compared favourably to that found in a recent pan-European study of students in higher education (Mac Keogh, 2003).

Low levels of prior ICT experience were inversely correlated to the reporting of difficulties concerning VLE usage. Problems centred on logging into the system, sending emails, attaching documents to emails, viewing PowerPoint presentations, posting discussion board messages and use of the chat room facility. Peer and tutor support provided some assistance in developing the ICT skills of those students with the least prior experience, but several months into the course this group persisted in reporting more difficulties. The exert below indicates a typical message posted by a student with very low pre-course ICT experience and competence when seeking assistance.

“I am not sure what is happening as have not had any emails since early September? I have had some difficulty accessing the lecture notes and Powerpoint presentations, especially on my laptop at home, I cannot access anything…and my laptop is only 2 months old, still a baby! I wonder if the others are having any problems?”

Providing ICT support proved difficult for course tutors as the problems tended to arise out of student error for which only limited advice could be given via telephone or email communications. Further evidence of the overall low levels of ICT skill was suggested by the small number of students who managed to successfully create a personal homepage in the VLE. Students were requested to follow online instructions for the creation of a homepage comprising of a short paragraph and photograph with a view to encouraging investigation of the VLE and to enable each to create an online presence. Only three students successfully completed the task. This might be indicative of the general level of ICT skill in the cohort or alternatively could be attributable to students having perceived the activity as peripheral and non-essential to their studies.

Computer network registration

Candidates were permitted to register for the course up to and including commencement of the induction programme. Following registration, a period of forty eight hours would elapse before a computer account could be activated. In consequence, those students who registered immediately prior to or during the induction were unable to access computer facilities during their time on campus - the very occasion during which face-to-face technical instruction and support could be provided. Thus, some students departed the campus having had little or no opportunity to familiarise themselves with the VLE. Where this was the case it was necessary for tutors to talk students step-by-step through the process over the telephone upon return to their place of residence. Computer network registration problems prevented some students from accessing the VLE for up to two weeks following the course induction, thus missing important online learning activities and the opportunity to integrate into the online community of learners while in its early stages of formation.

Virtual learning environment upgrade

Initially, the VLE was based on the WebCT Version 4 learning management system that was subsequently upgraded to Version 6 nine months into the course. The upgrade presented a number of challenges, particularly to students with low pre-course ICT competence and confidence who struggled to adapt to new features and procedures. During the transition period it was necessary to operate some learning activities in WebCT4 and others in WebCT6; the separate URLs and access procedures inevitably caused confusion with email and discussion board problems being particularly acute. The first discussion board posting in WebCT 6 appeared three weeks after its launch – previous to the upgrade peer-peer messages were exchanged on an almost daily basis. Its succinct message revealed the problems, and perhaps resistance to the new system, that students were experiencing:

“Feeling all alone in this new place, anyone out there?”

3. Learning Design

Collaborative learning activities

Professional practice in occupational health psychology involves multi-disciplinary team work; it is rare for a practitioner to work in isolation (Schneider et al, 1999). Thus, constructivist learning principles that place an emphasis on interaction in the construction of knowledge might be appropriately employed in education in the discipline. Constructivist learning activities were welcomed by students at the conceptual level but not at the practical. For example, students regularly failed to attend mandatory online group tutorials; it was not unusual for tutorials to be populated by as few as two students. The mid-course focus group confirmed that students wished to engage in learning activities individually and disliked the use of tutorials for purposes other than to touch-base the wider group.

Similarly, non-assessed group work, designed to foster a community of practice, was resisted. The deliverables emanating from group tasks integrated into the initial two subject modules, that required students to work collaboratively to produce a piece of work, were generally of a low standard. Furthermore, the tasks themselves generated a number of complaints from students reluctant to spend time on non-assessed tasks. The focus group found that students perceived tutorials to provide sufficient opportunity to engage with peers. In response to requests, and

contrary to constructivist pedagogy, the course tutors chose not to include group tasks, other than group tutorials, in any subsequent modules in order to avert further discontent. Implications are raised for the role of group work in professional postgraduate courses by e-learning.

Although, as noted above, synchronous interaction proved difficult, asynchronous interaction via a virtual discussion board worked effectively. Peer-peer messages were exchanged on an almost daily basis throughout the course. One of the purported benefits of e-learning is that it allows reflection; as Jonassen (1996) put it, because of its asynchronous nature "time can be allocated to reflecting on a message before responding, in order to develop one's arguments or position." The way in which the discussion board was used appeared consistent with Jonassen's assertion; students who were quiet when visiting the Nottingham campus, in many cases, demonstrated less reticence to contribute to an asynchronous discussion board. Furthermore, within weeks of course commencement, students engaged in frequent displays of social presence (Garrison, Anderson & Archer, 2000) through exchanges that included the uploading of family photographs and the sending of e-cards. It was also notable to messages posted to discussion boards invariably began or ended with a lighthearted social presence; the injection of personal characteristics can be taken as indicative of the fostering of a community of practice (ibid).

Technical problems

In relation to ongoing technical problems, discussion board postings in the weeks following departure from the induction programme revealed high levels of social presence. Rather than approach course tutors for solutions, in most cases students presented problems to fellow students in the 'technical self-help' discussion forum. Many postings expressed a degree of good humour, perhaps attributable to a cohesive group structure established during the induction. A typical injection of good humour is demonstrated in the following posting made in the early weeks of the course:

> *"Am I being thick, or what!? (Don't answer that unless the answer is so obvious that it also answers that question!). I can't seem to download the powerpoint presentations, as handouts…any help gratefully received."*

Considering the extent of the technical difficulties experienced in the early weeks of the course and the barriers to learning these presented, the humour with which problems were met was encouraging. It was also taken to suggest that the time spent on campus at the beginning of the course had facilitated the development of a cohesive and supportive work-group. The tone of messages indicated that problems shared peer to peer were manageable (Yakimovicz & Murphy, 1995) and knowing that others were experiencing the same problems seemed to offer some relief, as is evident in the following discussion thread:

"I don't know if anybody else has had any difficulties accessing areas in the VLE from home, but I'm unable to view anything in the modules section…"

> *"Yep same here."*
>
> *"Thank you! I was getting worried that I was doing something wrong!"*
>
> *"Thanks for trying to sort things out. We'll get there eventually!"*
>
> *"Sounds like a refund to me!!"*

WebCT reliability shortcomings persisted and at times student frustration was visible through the general good humour, as exemplified in the following discussion board posting:

> *"I'm at screaming point again! sorry!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! am having difficulty with my login. When I try to login I get told my username and password are not correct. This has happened for the last few nights. Any suggestions?"*

Blended learning

A blended learning paradigm was adopted that required students to attend in person at the Nottingham campus on two separate occasions (see Figure 1). Students reported the induction programme as critical to the fostering of self-efficacy to e-learn as well as to the nurturing of supportive working relationships. Discussion board messages posted after the induction, such as that below, confirmed this:

"Thanks, I'm sorting myself out, i.e. connections, etc. It's been a particularly bad week here, but it shows how important induction week is. I know I've got a great group of people to work with and that makes all the difference when things get tough."

Usage frequency statistics generated by WebCT as well as email and telephone requests for tutor assistance suggested that failure to attend the induction programme was associated with a higher likelihood of difficulty with integration into the community of practice and use of the technology. The benefits afforded by the campus-based induction programme accorded with previous findings that when students are denied the opportunity to meet their tutors and fellow students in a face-to-face context prior to embarking on distance learning, engagement within the virtual learning environment may be inhibited (Jonassen 1996, Fox & Mac Keogh, 2001).

Following induction, candidates were not required to attend in person on campus until part way through the second year of study. However, some months in, it became evident from a sudden decline in student-student online interaction further opportunity was necessary to meet on campus in order to re-galvanise the community of practice. Discussion board postings suggested that the fall in interactions was attributable to a mixture of technological problems and lone-study fatigue, as indicated by the following student posting:

"Hi…the volume of all communications (noticeboard and email) has really plummeted since the move to webct6. Maybe people are nervous about the different platform, maybe its a dip in motivation now that we're 10 months in."

Recent research has been critical of the sole use of e-learning and pure virtual communities (Dillenbourg, 2000; Lazar & Preece, 2003), emphasizing instead the benefits of a blended, 'brick and click' approach that involves opportunities to learn in a face-to-face environment in addition to those available through a VLE (Pöysä , Mäkitalo, & Häkkinen, 2003). In light of the evident need for more 'brick' in the MSc in occupational health psychology by e-learning, a series of one-day research and course review workshops were convened at regular intervals across the course.

Accessing electronic resources

At the postgraduate level it is essential that students 'read' for their qualification and do not merely rely on lecture handouts. Thus, it was imperative that only readings available online were indicated as key texts due to the risk of copyright violation that would have arisen from uploading

into the VLE books or complete articles drawn from academic journals. The convenor of each subject module was responsible for providing reading recommendations and, unfortunately, some failed to provide sufficient recommendations or listed book chapters as key texts, the scanning of which contravened copyright. Unsurprisingly, the frustration of students unable to obtain recommended readings online was conveyed to tutors:

“The vast majority of resources for this module appear not to be available from e-sources at all. I'm not convinced this is either in the spirit of international e-learning or indeed something that was implied during our induction”.

A presentation was subsequently made by the course tutors to all module convenors at a meeting of the Institute’s Teaching and Learning Committee, at which the requirements for online recommended readings were explained. Henceforth all modules made reference only to readings available online.

4. Flexibility

All students reported choosing the e-learning course variant owing to the geographical and temporal flexibility afforded. Not a single student reported choosing e-learning out of an enthusiasm for using ICT in learning per se and only three expressed a preference for e-learning over and above traditional face-to-face methods. It was evident that the flexibility afforded was central to decisions to e-learn.

Learning activities

Students reported flexibility in when study could take place to be a key strength of the programme. At the outset of the course it had been judged pedagogically preferable to release one set of thematically linked learning materials per week to students in order to prevent the downloading of all learning materials in one sitting. Tutors were cognizant of the likelihood that once materials were downloaded, students might have little incentive to enter the VLE to interact with peers. However, a number of students requested that all materials were released on the first day of a module’s launch, rather than in a series of bite-size chunks over a period of weeks on the basis that for those living in rural areas with limited access to broadband internet connections it was difficulty to effectively use the VLE. Henceforth, learning materials were compressed into Adobe pdf documents that could be downloaded expediently and released in one wave at the outset of each module which, as predicted, resulted in a fall in online student-student interaction.

Tutorial arrangements

E-learning facilitates study unbounded by geographical constraints but wide student dispersal – from Ireland to Japan - presented a challenge for the conduct of group tutorials. Time zone differences required that some students were required to logon extremely early in the day or late at night, an inconvenience which affected tutors likewise. Tutorial times were rotated frequently to minimise the inconvenience to participants living within any one time zone.

Geographical flexibility

Although the majority of the course was delivered via the VLE, students were required to attend at campus on two occasions, each for one week. Students reported that although the blended format was socially and pedagogically beneficial, it caused some to question whether it was an appropriate route by which to pursue the course. Furthermore, course tutors noted that a

consistent stream of prospective student enquiries from the USA failed to materialize into registrations due to the requirement of attendance on campus.

Discussion and recommendations

Student perceptions of the implementation of a Masters degree by e-learning might fruitfully inform future developments in course design and implementation. One of the most striking findings emanating from the current case study was the contrast between students' advocacy of collaborative learning in principle and the preference for individual learning in practice; peer-peer contact was desired primarily for social and technical problem solving purposes. Questions arise for the nature of learning activities in courses that comprise largely of experienced professionals who wish to continue in full time employment while studying. In light of the study findings, recommendations are offered below for the implementation of postgraduate e-learning provision in OHP that might also usefully resonate across the postgraduate e-learning domain.

1. Use of technology

Many of the problems associated with e-learning tend to be technological in nature (Evans et al, 2004). However, it has been suggested that rapid technological advances should eradicate many problems (Jolliffe, Ritter & Stevens, 2001) and permit e-learning to evolve unhindered by the limitations of information and communication technologies. This case study highlighted the frustration that can emanate from students, and tutors, when technology fails to meet expectation or requirement. A fully integrated VLE is a potentially effective learning tool, but only when matched by platform reliability.

Recommendation 1

This case study found extreme student frustration directed towards the technology where a dial-up internet connection was used. It is recommended that course designers inform prospective e-learning students of the benefits of high speed internet connections in pursuit of a course that involves a fully integrated VLE and, indeed, stipulate regular access to such a facility as a prerequisite to registration. Linked to this, students should be made aware that institutional prohibitions on the downloading of software necessary to view the VLE might prevent the use of workplace computers for study.

Recommendation 2

Low levels of pre-course ICT experience, competence and confidence were associated with difficulties in effective use of the VLE. It is recommended that course designers issue pre-course questionnaires to students that can be used to inform the design of tailored ICT tutoring during a course induction programme.

Recommendation 3

In this case study, computer network registration and access problems prevented some students from obtaining access to the VLE for up to two weeks following their departure from the on-campus induction programme. Such problems would have been mitigated by a deadline for applications of no less than two weeks prior to commencement. In the competitive higher education market such a proposition would not be feasible. One reasonable solution could involve the introduction of a buffer period between the end of an on-campus induction and the

commencement of online learning activities that would allow for the resolution of technical problems.

2. Learning design

This limited case study highlighted the importance of a willingness on the part of course designers to demonstrate flexibility in the design of learning activities and a preparedness to sacrifice pedagogical preference to meet student need.

Recommendation 4

The ICT problems described in this case study were generally met with good humour attributable to students having bonded as a community of practice during the on-campus induction programme. It was notable that the two students unable to attend the induction subsequently relied heavily on tutors rather than peers for the resolution of technical problems. A face-to-face induction period is recommended.

Recommendation 5

This study demonstrated the importance of providing opportunities for students to meet in person periodically. The 'click and brick' mixed paradigm is advocated.

Recommendation 6

Non-assessed group tasks were strongly resisted and ultimately abandoned in this case study. It is recommended that the time commitment required for the completion of group tasks is considered carefully so that tasks are not perceived as burdensome additions to core study elements. In addition, course designers may wish to consider the formal assessment of group work and integration of marks into final course grades as a method of enhancing peer-peer collaboration.

Recommendation 7

In this case study, the failure of some module convenors to provide recommended readings that were available online, and the resulting student feedback, highlighted the importance of ensuring that high quality online resources are available. Where they are not, students should be informed in good time so as to enable the purchase of appropriate textbooks.

Recommendation 8

The learning management system proved less than 100% reliable. The temperamental nature of technological failures made it difficult to predict and rectify problems. It is recommended that course designers carefully consider the attributes of the various learning management systems available to them in terms of suitability for purpose and dedicated technical support that the Higher Education Institution can offer.

3. Flexibility

Flexibility has been shown to relate to motivation to excel (St. Clair, 1999) and indeed, in this case study, where flexibility was compromised owing to technological failures, discontentment arose and engagement with the VLE slumped. As flexibility is one of the major attractions of e-learning it is imperative that course tutors design to maximize flexibility.

Recommendation 9

Only three students in this case study expressed a preference for e-learning over and above traditional face-to-face methods. It cannot be assumed that students will enjoy or be particularly competent e-learners; course designers must be prepared to invest time and patience in nurturing the skills necessary for successful e-learning.

Recommendation 10

It became necessary in the current case study to adapt learning activities that permitted a greater degree of individual learning free of the obligation to interact with peers. There are obvious pedagogical implications to abandoning group learning; inter alia, this approach strips the learning materials of their interactivity that has been shown to be related to learning outcomes (Evans, Gibbons, Shah & Griffin, 2004). Nevertheless, such provision may be necessary to prevent student attrition.

Comment

The research methodology applied in this case study was open and exploratory in nature based on a restricted sample. The external validity of the findings may be limited and warrant verification through quantitative research with larger samples. Nevertheless, the study represents a contribution to the building of knowledge and understanding concerning the unique challenges and opportunities associated with the implementation of postgraduate degree courses by e-leaning. It also provides recommendations that can be explored empirically.

In the case study, generally the VLE proved effective in supporting learning. However, the design of learning activities, whereby group-work was minimized, was largely informed by student feedback rather than pedagogical theory. On the basis of this limited case study it may be tentatively held that postgraduate students in OHP demonstrate a preference for blended learning that involves frequent subject-focused and social opportunities to meet in person and that uses an e-learning platform as a receptacle for learning materials rather than a learning environment per se. In an increasingly competitive postgraduate market, course designers might have little option but to adapt pedagogy to suit the needs and wants of students.

With careful consideration at the implementation stage, it appears that e-learning technology can support education-at-a-distance in OHP producing at least a similar level of educational outcome to traditional face-to-face methods. The authors have found no significant differences in grades achieved by e-learning students as compared to face-to-face students.

RESIDUAL CHALLENGES

Should e-learning initiatives prove to be the platform of choice upon which to expand education and training in OHP there is little doubt that some barriers to access would be raised purely through the removal of geographical and temporal constraints. Nevertheless, other barriers remain that need to be addressed for provision to be open to all suitably qualified prospective students. Among these barriers are issues of tuition fees, career opportunities, professional recognition for occupational health psychologists and curriculum matters.

Financial barriers to entry

Upon accession to the European Union, Member States are required to conform to huge rafts of European law that have implications for workers' well-being. One of the earliest Directives of the European Commission is also, arguably, its most important to date in terms of the management of psychosocial issues at work. The Directive on the Introduction of Measures to Encourage Improvements in the Safety and Health of Workers at Work (European Commission, 1989) required Member States to transpose into national law the obligation upon employers to adapt 'the work to the individual, especially as regards the design of workplaces, the choice of work equipment and the choice of working and production methods, with a view in particular, to alleviating monotonous work and work at a predetermined work-rate and to reducing their effect on health'.

Directives such as this have virtually overnight created scope for the occupational health psychologist to apply the knowledge and skills of the discipline in new Member States where previously perhaps psychosocial issues were not located at the top of the health and safety agenda. It is, however, an unavoidable fact that the central and eastern Member States of the European Union do not, on average, benefit from wage parity with their counterparts in Western and North-Western Europe, where OHP is well established. This financial divide manifests in access to e-learning and creates an inevitable barrier to education in the discipline. Indeed, ownership of the essential tool for engagement with an e-learning course, a personal computer, varies considerably across Europe, with Ireland, Italy, Spain, Portugal and Greece lagging behind (McCaffery, 2003). McCaffery (2003) has noted the implications of this computer access divide for e-learning:

'the development of e-learning and distance education throughout the EU will be greatly affected by [these] divisions...Unequal access to the internet and multimedia equipment will result in varying levels in the uptake of e-learning and distance education regardless of the demand for them. Further to this, even if there are increased connections and hardware/software, the quality of these is of importance. This is because, even though it might be seen as not being as serious, a new division is appearing - a division between states with high-speed connections and cutting edge multimedia equipment and those without.'

It is widely held that the potential exists to use e-learning in higher education to extend access to those in remote regions and to disadvantaged students (Mac Keogh, 2003), but to do so, course designers must be innovative. Such initiatives might include a sliding fee scale whereby tuition fees are determined by a student's country of residence. It might also be incumbent upon course providers to apply for funds from the European Commission and other such bodies that make available grants to support students across Europe and beyond. Cross-border initiatives between programme providers might further widen access. The authors are aware of at least two such examples currently in development.

Professional structures

A culture prevails in Europe whereby workplace health promotion interventions tend to be prompted by legislation and a need to improve employee relations rather than a concern for employee well-being (Cartwright & Cooper, 1996). It is therefore likely that employer requirements for the skills of the occupational health psychologist will emerge across Europe at a gradual rate, and the profession establish itself accordingly. Although progress might appear frustratingly slow, particularly for those in possession of postgraduate qualifications in the discipline who desire to put into practice their acquired knowledge and skills, there can be little

doubt that European legislative requirements will carve out an indispensable role for the occupational health psychologist.

The situation outlined above forces a consideration of the professional structures that are in place for occupational health psychologists. For the profession to flourish there needs to be overarching bodies that take responsibility for defining the identity of the discipline, establishing some form of formal recognition or accreditation setting and governing standards in professional practice. Through its three fora, The European Academy of Occupational Health Psychology has made considerable progress in relation to the first of these responsibilities, defining the discipline and, in doing so, setting the agenda for research, practice and education (Cox, 2000). Further work is necessary on the latter two aspects, in particular and as a first step, on the issue of recognition. The current absence of formal recognition from a pan-European body that would facilitate mobility of labour across EU Member States is known to act as a disincentive to prospective students. Prospective students may also be disinclined to study OHP in the absence of a clear professional career structure; likewise programme providers might shy away from introducing new OHP programmes for fear that potential students may prefer to pursue a qualification that contributes towards certification of professional status, as is the case with the MSc in occupational psychology in the UK.

Recognition at the national level in a wider spread of Member States would constitute a valuable move towards European recognition. A number of models exist that offer a suitable template. For example, Schaufeli & Kompier (2001) describe the initiative of the Ministry of Social Affairs and Employment in the Netherlands to train candidates in the recently defined role of 'Work and Organisational Expert' whose role consists of the provision of organisational advice and recommendation of measures, conduct of psychosocial risk assessment, implementation of organisational-based measures to reduce job stress and sickness absenteeism and the co-ordination and integration of measures.

Employment opportunities

Allied to the requirement to create professional structures is the need for suitable and sufficient employment opportunities. It is only in very recent times that employment vacancy advertisements have begun to appear that explicitly request the services of occupational health psychologists. Moreover, those job opportunities have tended to be clustered in a small number of countries with a strong research heritage in the discipline. Prospective students will be attracted to study in a discipline for which job opportunities are visibly advertised and available across Europe.

Job opportunities are becoming more prevalent and will continue to do so as a result of a variety of initiatives. In the USA, evaluation of training programmes suggests that graduates have successfully carved out their own niche in the job market and that demand for their professional services is growing (APA Science Directorate, 1997). In Europe, psychosocial working conditions, work organisation and stress have been identified as priority areas for national occupational health research agendas in a number of Member States (Iavicoli, Rondinone, Marinaccio & Fingerhut, 2005) - areas where the occupational health psychologist can make a difference. In the UK, common mental health problems do not feature strongly in occupational health professional training programmes (Greenberg, Henderson, Karim & Holland-Elliott, 2005). This creates a gap in the market for the occupational health psychologist who possesses grounding in the types of mental disorder typically associated with psychosocial hazard exposure and the management of such disorders. Business is increasingly aware of the financial benefits

afforded by employment of occupational health practitioners, whose interventions may, among other things, reduce sickness absence.

Curriculum issues

Variation in working conditions and regulations may have prevented the development of a unified approach to professional OHP practice in Europe (Geissler, 2001) and concomitantly the establishment of a core educational curriculum. The definition of a core curriculum might constitute an important first step towards the establishment of professional recognition for occupational health psychologists. It would however be difficult, and perhaps inappropriate, to define a single OHP curriculum. Few educational institutions would have the in-house expertise to teach all aspects of a unified curriculum and should be empowered to teach areas of institutional specialization. Moreover, a top-down curriculum would fail to recognize regional diversity in the nature and type of organizational problems facing occupational health psychologists in professional practice. Rather, 'training in OHP should expose individuals to all…fields and sensitize them to the need for drawing in other professional when their particular level of expertise is deficient' (Schneider et al., 1999).

OHP represents an attempt to move beyond the medical/technical approach to occupational safety and health issues. Rather than focusing exclusively on the individual worker, the discipline has its focus on the design, management and organisation of work as it relates to the well-being of workers. This organisational-level focus will take prominence in an educational curriculum. At the same time, there is a strong body of evidence to support the notion of augmenting primary, organisation-level interventions with those at the secondary and primary levels. A comprehensive curriculum should perhaps equip the graduate practitioner 'toolkit' with the necessary skills to conduct interventions at all three levels.

Organisations have in recent times benefited from a close relationship between occupational health research and organisational research. This has arisen, in part, out of an increased understanding of psychosocial issues and how they relate to employee health and well-being (Cooper & Cartwright, 1994). One of the primary roles of the professional occupational health psychologist is thus likely to be the management of organisational-based research projects that require well developed applied research and professional consultancy skills that should be reflected in the core curriculum.

Ultimately, the curriculum should reflect the needs of employers and allow sufficient flexibility so as to be adapted to local needs. This can only be achieved if the views of employers are known to course designers who, equipped with such knowledge are empowered to 'cross over the demarcation between the realities of academic and applied psychology' (Pedersen et al, 2003). The European curriculum for the education and training of occupational health psychologists was developed initially by the Institute of Work, Health & Organisations (University of Nottingham, UK) and latterly through the Education Forum of the EA-OHP. The requirement to take into account the needs of the customer when planning education and training is well accepted (Adkins, 1999) but this has not been formally evaluated in defining competencies. Research would be warranted to harvest the opinion of employers and employees from public and private organisations of varying sizes, and health and safety specialists as well as trade union representatives and other stakeholder groups regarding the required competencies of the occupational health psychologist, as has been performed for related disciplines (Reetoo, Harrington & Macdonald, 2005).

CONCLUSIONS

The case study described in this chapter suggests that e-learning has the potential to be central to developments in OHP education and professional training. However, to maximise the learning experience, course designers would be well advised to consider aspects of technology, learning design and flexibility.

OHP has come a long way in a short time. In less than two decades a professional discipline has evolved, the importance and value of which has captured the imagination of academics, occupational health professionals or various orientation, policy makers, employers, employees and their representative groups. Although an upwards trajectory has been unrelentingly pursued, longevity cannot be taken for granted. Only with the emergence of successive generations of OHP graduates will the discipline self-perpetuate. Advances in education and training are thus central to propagation of the profession. OHP risks getting left behind and failing to fulfill its potential if it neglects to incorporate e-learning technology that is pervading every subject domain in higher education. Course providers are advised to adopt e-learning, not for technology's sake, but as a vehicle for increasing access to education and professional training. The e-learning 'revolution in occupational health' (Thornbory, 2003) may provide the key to the sustainable expansion of OHP education and training and as such research in pedagogy and its promotion as an effective learning medium is vital. Concomitantly, it is incumbent upon the discipline's representative bodies to pursue the removal of barriers to education and training – no matter how attractive e-learning might be, while access is restricted and career opportunities limited, students will fail to take advantage of e-learning opportunities.

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