

DEVELOPING AN ON-LINE INTERACTIVE HEALTH PSYCHOLOGY MODULE.

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SUMMARY

On-line teaching material in health psychology was developed which ensured a range of students could access appropriate material for their course and level of study. This material has been developed around the concept of smaller “content chunks” which can be combined into whole units of learning (topics), and ultimately, a module. On the basis of the underlying philosophy that the medium is part of the message, we considered interactivity to be a key element in engaging the student with the material. Consequently, one of the key aims of this development was to stimulate and engage students, promoting better involvement with the academic material, and hence better learning. This was achieved through the development of material including linked programmes and supporting material, small Java Scripts and basic e-mail, forms and HTML additions. This material is outlined as are some of the interactive activities introduced, and the preliminary student and tutor experience described.

INTRODUCTION

Degree level education is provided for speech therapists, dieticians and podiatrists along with both non-vocational undergraduate (e.g. BSc (hons) Psychology) and post-graduate courses for practicing health care professionals (e.g. nurses, physiotherapists, occupational therapists) at many specialized higher education institutions throughout the UK. Defined as “*an interdisciplinary field concerned with the application of psychological knowledge and techniques in health, illness and health care*” (Marks et al, 2000, p.8) health psychology often forms part of the undergraduate psychology course, along with being an essential element of courses for health care professionals and, in addition, having specific post-graduate provision. Much of the material presented in these modules concerns the same underlying principles but may differ in its application dependent upon the nature and level of its delivery. Stress, for example, is one strand of any core health psychology module. The material presented may differ however, dependent upon the student cohort. Following a general overview of the nature of stress for dietetic students for example, there may be an examination of how stress affects eating behaviours; for psychology students there may be a more theoretical analysis of the concept; and for post-graduate nurses and dentists there may be an examination of the consequence of stress before and following medical, surgical or dental intervention.

This pattern of presentation of the same theoretical principles followed by specific details relevant to individual courses and professions is common across a number of topics in health psychology (for example, pain and pain management, communication and compliance, social class and health and so on). Furthermore, this presentation of material may come at different academic levels. For podiatry students, for example, the material may be presented at Level 2- compared to Level 1 for Speech and Language Therapists, Level 3 for those completing a straight BSc (hons) Psychology programme, and M-Level for

those undertaking a post-graduate qualification. In response to this duplication we aimed to develop an on-line health psychology teaching resource that students from a range of courses and levels could access.

Furthermore, by increasing the degree of flexible learning, access to these courses is extended to those geographically isolated, those whose disability prevents them accessing HE and those whose particular social and personal circumstances are not conducive to on campus learning (Wade, 1994). Many of the health professional courses are loaded heavily in terms of hours for the students. Level 2 podiatry students for example, can spend 30 hours per week in a formal learning setting. Not only can this prevent consolidation and development of learning but can also limit access to learning for particular groups; parents and those with specific disabilities are key examples. Any attempt at introducing flexible learning into the curriculum can only benefit the student community, no matter how modest this level may currently be. This is especially important with podiatry students for example, since the majority, (some 60% in our institution) are returning to learning and many have the attendant family and other life commitments.

Material for on-line health psychology modules for a variety of student groups has been developed. These modules have utilized a Virtual Learning Environment (VLE) Blackboard to provide a student interface, with information being presented through bespoke web pages. The first attempt with on-line teaching with one of these cohorts has been reported elsewhere (Upton and Cooper, in press). In brief, this report suggested that students liked on-line learning, had few problems with the technology and the environment and felt that it had positive benefits on their learning. Despite this, they reported that they preferred and wanted the traditional lecture. Hence, developments were required in order to address this paradox. As participation is elicited by interactivity (WBEC, 2000 p21) we considered this to be a key element in engaging the student with the material. Consequently, one of the key aims of the material's revision was to better stimulate and engage students, promoting better involvement with the academic material, and hence better learning.

In this paper, we report on the development of interactive on-line health psychology teaching and learning materials that are applicable across a range of courses and academic levels.

THE DEVELOPMENT

The modules

The material was developed for the following cohorts of students:

- BSc Psychology: Health Psychology (Level 3)
- BSc Psychology: Organizational Psychology (Level 3)
- MSc Interprofessional Studies: Psychology and Health (M-Level)
- BSc Speech and Language Therapy: Health Psychology (Level 1)
- BSc Podiatry: Health Psychology (Level 2)

As can be noted, there are a range of specialist courses, and a range of levels - from Level 1 (typically the first year of an undergraduate, three year programme) up to M (or Masters) level. The Masters programme is a part-time course specifically designed for health care professionals in full-time employment; all other programmes are three-year, full-time undergraduate programmes.

Each of these courses has their own areas of student and professional need and focus. Previously, vocational students have expressed concern over the relevance of some of the psychological material presented. Hence it was important to demonstrate that health psychology was of relevance to their studies, and for those completing such vocational courses, their future professional careers. Furthermore, learning was individualized both at a course level and at an individual student level so, for example, individual "gates" were introduced that ensured the mastery of one topic before progression on to another (Patrick et al, 1986) or to develop the specialization of individual courses and students.

The material

The first task was to analyze each of the courses and examine the similarities and, just as importantly, the differences between the respective modules (the "mapping exercise"). On the basis of this, a series of elements were highlighted which could form the basis of "content chunks" that would be moulded into a unit of learning (topic) that could then be combined into the module. Table 1 provides an example of how

the smaller content chunks are made up into a unit of learning (with these units being differently assembled into modules).

	Psychology: Health	Psychology: Occupational	Podiatry	Dietetics	Interprofessional Studies
Introduction to stress	✓	✓	✓	✓	✓
Recent advances in stress	✓	✗	✗	✗	✓
Stress and health	✓	✗	✓	✓	✓
Stress at work	✓	✓	✗	✗	✓
Stress management	✓	✗	✓	✓	✓
Relevance to podiatrist	✗	✗	✓	✗	✓
Relevance to dietician	✗	✗	✗	✓	✓
Critical health psychology	✓	✗	✗	✗	✓

Table 1: Individual content chunks for one unit of learning (“stress”) for variety of courses

For each of these smaller “content chunks” a series of material was developed:

- Bespoke web-pages;
- Handouts of key points;
- PowerPoint slides;
- Exercises and games;
- Self-assessment quizzes;
- Opportunities to e-mail the tutor.

These are facilitated through the Blackboard VLE (<http://www.blackboard.com>), which also has a discussion forum, an announcement page, and background information on module and tutor.

Introducing interactivity into the module

We defined interactivity in terms of both content-learner, and learner-teacher interaction in an asynchronous environment. Hence, the material responding to the learner’s input and, hopefully, the learner responding to the computer produced output. Specifically, we attempted to develop the computer’s role to: provide an opportunity for the user to manipulate and control input; provide continuous feedback; and ensure the interaction was flexible enough to ensure that a variety of learning needs and styles were covered. In addition, there was learner-teacher interaction such that through a number of exercises and discussion boards the learner interacted with the tutor who responded with a series of prompts, guides and answers to specific exercises.

However, this description of interactivity is rather parsimonious. Although there is a recognised need for interactivity in learning since it is “a necessary and fundamental mechanism for knowledge acquisition and the development of both cognitive and physical skills” (Barker, 1994, p.1) the definition of interactivity in terms of human-computer interaction has proved problematic. Indeed, it has been suggested that although many educational sites claim to have it, very few actually do (Canning-Wilson and Wallace, 2001). A number of different definitions of interaction have been provided. For example, Sims (1994) highlighted seven levels of interaction, whilst Moore and Kearsley (1996) define three fundamental types of interaction: content-learner, learner-teacher and learner-learner all of which can occur either synchronously or asynchronously. Difficulty in application is unfortunate given that the value of interactivity has been demonstrated in on-line educational provision (e.g. Jung et al, 2002).

It has been recognised that one of the key factors in the success of learning are the motivational aspects (Pintrich et al, 1986) and as such the material had to be developed in such a way as to improve and increase motivation. The first attempt at developing the material had revealed that this was the major difficulty reported by students. They found it difficult to motivate themselves with the on-line material. Out of a total of sixty-four responders, approximately a third reported that this was the major issue for them in terms of on-line learning in health psychology. For example: *'fairly easy to forget to study for this module'*, *'when under lots of deadlines its easy to put Blackboard to one side and get a little behind'*, *'lack*

of traditional lectures decreases motivation to learn' and 'needs a high degree of self-motivation, extremely passive tool for learning'. From these reports it would appear that students found it difficult to motivate themselves to learn and to take on the role of independent learners. Obviously, therefore the challenge is to provide students with an environment that enhances motivation, engages them but which also directs and rewards. As Race (1996) points out, the medium is part of the message. In order to develop student motivation with the material, four highlighted dimensions needed to be addressed (Keller, 1983; Stanton et al, 2001): student interest, relevance of material, student expectancy and satisfaction.

Hence, in order to develop the new material a series of key elements had to be tackled. Table 2 outlines how each of these issues was confronted for this particular development. In this way, it was hoped that there would be a true interaction between the computer and the learner and that motivation for the module would increase. Examples of some of the specific methods adopted in the web pages to increase interaction, interest and motivation are provided in table 3.

Issue	How addressed
Interactivity	A range of activities directed via web-base instructions with instantaneous feedback provided along with tutor-learner interaction.
Individualisation for student and cohort	A series of "gates" introduced to monitor and direct progression dependent on the cohort, level and skill/knowledge level of the individual student.
Student interest	Development of small chunks of information that should heighten student interest and lead them on to finding out other information.
Relevance of material	Differing pages/topics developed dependent on the student's professional course.
Student expectancy	Refers to the learners' perception of success and how much they consider it to be under their control. A number of short quizzes based on the presented material prior to the final assessment.
Satisfaction	Intrinsic motivations enhanced via the interactive and light-hearted nature of some of the material with external rewards developed.

Table 2: Issues addressed in the development on an on-line health psychology module.

Examples of the specially designed web pages can be viewed at the following address (this has been established for demonstration purposes only, and is not viewed by the students and, hence, does not provide a complete view of the student experience):

<http://www.uwic.ac.uk/shss/dom/newweb/DU/example.htm>

Topic	Explanation
Responses to stress	A small Java Script program in which the student presses a button and highlights an increasingly irate response. Ultimately, an explanation of the form and measurement of Type A behaviour (i.e. those prone to heart attacks).
E-Mail exercises	Small-scale exercises are presented throughout the web pages, which encourage the student to assimilate their learning. These are completed on forms and e-mailed to the tutor. An instant response is provided, along with a more considered one within 5 working days.
Games	A range of games are presented which have been developed to engage the student, enhance learning and allow for a bit of light relief. For example, there are crosswords, hangman games, word-searches and jigsaw scramblers for pictorial health psychology models.
All pages	All units start with aims, essential material and access to further information on how to use pages. Links to a reference list and glossary are presented throughout.
Links to external sources	The power and extent of the internet is used. The student is directed towards reading at an external source, which they have to read, analyse and respond.
Questionnaires	A series of questionnaires (for example examining stressful life events, or gender) are presented, marked and appropriate comments made through a JavaScript.
Exercises	Each of the topic chunks ends with a short (4, or 5 item) multiple-choice test which allows the student to assess their learning. Feedback, and directions are provided.
Graphs	Several graphs illustrating key points are presented throughout the pages. Each of these requests the student to interpret and respond (for example, by clicking on the graph to indicate when an event occurred). Instant feedback is provided.

Table 3: Example pages drawn from the Health Psychology module.

Student experience

Preliminary student evaluations from twelve students (the system is to go “live” from October 2002 for all student cohorts) felt that the module presented them with *'useful, relevant and helpful material'* and praised the *'links'*. Several made direct comments about the amount of *'additional information'*, which they felt was of great benefit, as it is *'easily accessible'*, and *'presented in a logical manner'*. The student evaluation of the first version (Upton and Cooper, in press) was extremely positive. However, it was apparent that there was a need to improve the material to engage the students with the material in order to improve their independent learning. It is hoped that this has been achieved with the increasing use of the material described in this report.

Tutor experience

Despite the enthusiasm and encouragement for the use of on-line learning, often mediated through a virtual learning environment, the potentially overwhelming preparation time should not be underestimated (McLoughlin and McCartney, 2000). The development time associated with this material ran into several hundred hours and certainly in excess of the time required for the development of a traditional lecture based course. Furthermore, the knowledge and skill base of the primary author for preparing online material had to be increased from zero. The time involved in learning new skills was also considerable and this has to be taken into account with the development time.

Overall, despite the encouragement to develop on-line material there is a need for further support and provision for academic tutors: many have ideas but not the knowledge or skills to implement them. Some have ideas, but not the knowledge to know whether they are possible or not.

CONCLUSION

Despite the numerous benefits of on-line learning, there are also potential drawbacks, with one of the key ones being a reliance on student initiative and motivation (Waschull, 2001). In this paper we have described a method, which we hope, will be of benefit in this regard for a number of different student cohorts. Obviously the individual methods described in this report have been employed within other settings and for other groups, although not to the extent (in terms of range of students or academic levels) in health psychology. The use of on-line learning is certainly increasing, especially within the UK and psychology, but there is a need for a greater examination of the material, and how this is presented to best engage with the learner (e.g. Stanton, Porter, and Stroud, 2001). No longer is technology the problem – indeed there are a number of well-developed virtual learning environments, which assist the tutor in enabling on-line learning, similarly there are a number of web page development packages that ease their development. Students are becoming more conversant with the experience of on-line learning and with this experience come expectations. Tutors and on-line developers are going to have to increase their skills in the development of interactive material in order to encourage students to use it, interact with it, and engage with it.

REFERENCES

- Canning-Wilson, C. and Wallace, J. (2001) Interactivity: The relationship between EFL and the human-computer interface [online]. Available: <http://www.eltnewsletter.com/back/April2001/art552001.htm> [21st July 2002]
- Jolliffe A., Ritter J., and Stevens D. (2001). *The On-Line Learning Handbook*. London: Kogan Page
- Jung, I., Choi, S., Lim, C. and Leem, J. (2002) Effects of different types of interaction on learning achievement, satisfaction and participation in web-based instruction. *Innovations in Education and Teaching International*, 39, 153-162.
- Keller, JM (1983) Motivational design of instruction. In: Reigeluth, CM (ed.) *Instructional Design Theories and Models: An Overview of Their Current Status*, LEA, New Jersey, pp. 383-434.
- Marks, D.F., Murray, M., Evans, B. and Willig, C. (2000) *Health Psychology: Theory, Research and Practice*. London: Sage publications.
- McLoughlin, C. and McCartney, B. (2000) *If going online is the answer, what are the questions that guide the design process?*, Moving Online Conference, Grand Mercure Hotel, Gold Coast, Australia, 18-19 August, 2000, Southern Cross University. [online]. Available <http://www.scu.edu.au/schools/sawd/moconf/mocabstracts/moc15ab.html> [1 October 2002]
- Moore, M G and Kearsley, G (1996) *Distance Education*. Wadsworth Publishing Company, Belmont.
- Patrick J (1992) *Training: Research and Practice*, Academic Press: London.
- Pintrich, PR, Cross, DR, Kozma, RB and McKeachie, WJ (1986) Instructional Psychology, *Annual Review of Psychology*, 37, 611-651.
- Race, P. (1996). *A Fresh Look at Independent Learning*. [online]. Available: <http://www.lgu.ac.uk/deliberations/eff.learning/indep.html> [17th July 2002]
- Sims, R (1994) Seven levels of interactivity: implications for the development of multimedia education and training. In M. Ryan (ed) *Proceedings of the Asia Pacific Information Technology in Training and Education (APITITE) Conference, Volume 3*. Brisbane, Qld: APITITE.
- Stanton, N.A., Porter, L.J., Stroud, R. (2001) Bored with Point and Click? Theoretical perspectives on designing learning environments. *Innovations in Education and Teaching International*, 38, 175-182.
- Stanton, NA, Porter, LS and Stroud, R (2001) Bored with Point and Click? Theoretical Perspective on Designing Learning Environments. *Innovations in Education and Teaching International*, 38, 175-182.
- Upton, D. and Cooper, C.D. (in press) Experiences with an on-line health psychology course. *Psychologist in Wales*
- Wade, W. (1994) Flexible learning and flexibility in course provision. In Martin, J. and Darby, J. (Eds) *The CTISS File. Flexible and Distance Learning, Vol. 17*. CTISS Publications, University of Oxford.
- Waschull, S.B. (2001) The online delivery of psychology courses: Attrition, performance, and evaluation. *Teaching of Psychology*, 28, 143-147.
- WBEC (2000) *The power of the Internet for learning: moving from promise to practice*, Web-Based Education Commission, [online]. Available: <http://www.ed.gov/offices/AC/WBEC/FinalReport/WBECReport.pdf> [1st October 2002]