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Video conferencing: an effective solution to long distance student placement support?

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Context

It is common practice for healthcare educators to visit students during clinical placements (Northumbria University, School of Health, Community and Education Studies, 2008; University of Bradford, 2007) in order to provide support and guidance for both student and clinical educator/mentor, and monitor placement quality. With some annual student intakes exceeding 400 and multiple placements at often distant locations, clinical visits represent a significant cost in time and travel expense. Government targets for carbon emissions (Department of Trade and Industry (DTI), 2003) and financial constraints on higher education (Higher Education Funding Council for England (HEFCE), 2008) mean that an evaluation of this practice is required.

Relevant bodies (e.g. Royal College of Nursing (2002); Chartered Society of Physiotherapy (2003)) recommend clinical visits as best practice, ensuring and developing placement quality and relationships. As lifelong learning increasingly involves high technology, reducing time spent and cost through its use must be considered.

This project aimed to undertake clinical visits via video conferencing (VC) in order to explore the associated logistics, feasibility, benefits and problems. Although based within physiotherapy, the hurdles and questions arising from this project are relevant to anyone considering use of technologies in this context.

Literature

A large body of research suggests value in supporting students during placement periods (Andrews et al., 2005; Hutchings et al., 2005; Newton and Smith, 1998); however, the question of value for money needs to be addressed (Martin, 2005). Gillespie (1997) researched Occupational Therapy students' perceptions of the value of clinical visits,

finding perceived value in providing recognition of and opportunities to address arising issues. However, with widening participation and increased student consumerism (HEFCE, 2001; Rolfe, 2001) student support has evolved since Gillespie's publication, suggesting a need for more contemporary investigation.

Though visits engage academics with 'coal face' policies such as *Agenda for Change* (Department of Health, 2001) and allow monitoring of placement quality (Swinehart and Meyers, 1993), little evidence specifically supports face-to-face interaction.

Within distance learning, computing and business, extensive research explores VC efficacy when applied to traditionally face-to-face activities, most commonly group interactions and outputs. Results suggest VC to be more effective for some group objectives than others, though conclusions vary (Crede and Snizek, 2003; Hayward, 2002; Bailenson et al., 2002).

Video conferencing

Collins et al. (1999) conducted a pilot project in social work education, investigating use of VC to conduct placement visits. They investigated tutor and practice teachers' experiences during ten VC placement contacts, reporting overall positive responses to the medium and to potential further use but difficulties in establishing new relationships via video link, instead advocating initial face-to-face meetings. Despite the study limitations in solely using postal questionnaires, identified flaws in VC (incomplete eye contact, facial expression and body language) indicate questionable performance in facilitating emotional support.

Abbott et al. (1993) investigated student perceptions of distance learning via VC, describing perceptions of it having met distance learning needs, but appearing to increase student anxiety at 'having a camera pointed' at them. Abbott et al. (1993) advocate a period of familiarisation with the medium, based on individual need, prior to use. Within the wider context, literature explores the capabilities, limitations and potential of VC, providing a broad technical and implementation guide (Littmann, 1995; DTI, 1998). Bertsch et al. (2007) and Bednar et al. (2007) investigate VC efficacy in teaching, describing little difference in performance markers between VC and direct instruction. These authors and Marrow et al. (2002) have, however, highlighted student perceptions of decreased 'comfort' or satisfaction related to instructor skill with the medium, and exacerbated

by technological, accessibility and communications problems. Pratt (2008) goes on to discuss the larger sociocultural implications of introducing technologies into existing practices, suggesting that proper conception prior to implementation is essential.

Methodology

Aims and objectives

This pilot project aimed to explore the feasibility and logistics, and perceptions of participants related to the introduction of VC into the support of undergraduate Physiotherapy students during placement learning. The project objectives were to:

1. investigate and evaluate the logistics of using VC to assist in supporting students and educators during clinical placements;
2. evaluate the benefits and difficulties of using this technology from a student and an educator perspective;
3. initiate the creation of a template/protocol for the use of VC as a means of conducting supportive dialogue.

This was a small scale pilot project, utilising video link to replace normal face-to-face clinical visits.

Sample

A convenience sample of five students and six educators were recruited from the author's visiting rota. Each physiotherapy senior lecturer visits students attending placement, visits being allocated via a rota. Due to anxieties and a degree of hostility in some academic areas regarding this initiative, the direct involvement of the author/researcher in the project became necessary. Though risking bias (Hicks, 2002), participation of the author as the visiting tutor was deemed to present less of a risk than involving individuals hostile to the project. Every attempt was made to ensure good operational rigour.

Initial plans were to provide students with a laptop and webcam for video calling. However, due to security issues, National Health Service (NHS) Trusts were unable or unwilling to allow students access to local internet connections for this purpose. The sample was, therefore, further limited to student placements with access to on site video conferencing; those attending a large teaching hospital with an adjoining education suite.

Project outline

The same objectives were given to video links as to face-to-face meetings:

- To engage in tri-partite discussion between visiting tutor, clinical educator and student regarding placement progress, issues arising and development of learning.
- To discuss with the student individual development, theory-practice links, evidencing achievements and engagement with placement opportunities.

Meetings with participants were undertaken to clarify the purpose of the 'visit' and to explain the logistical process. A template to standardise video link content was produced, although individual student needs would take priority as required. Participants were provided with written instructions and contact details should problems arise.

'IP' versus 'ISDN'?

A trial video link was undertaken between the hospital and university sites. The university uses the 'IP' (Internet Protocol) video conferencing system, which uses high speed, compressed data packages and is quick to operate and free at source (K-20 Education Network, 2006). However, it transpired that the hospital utilised the older 'ISDN' (integrated services digital network) system, which transmits data along the existing telephony network (K20, 2006). Therefore, a 'middle man' was required to link the two systems. This was carried out by JANET video conferencing services (JVCS): JANET UK – a company that has expertise in connecting ISDN and IP via a middle connection (Ja.net, 2008). Difficulties with booking connections between three locations were experienced but ultimately the problem was solved. The trial link also exposed problems with the mobile unit initially used, which produced a poor quality and pixelated connection. This was corrected with the use of the larger, classroom based equipment.

Evaluation

Following the video link, participants were asked to complete individual questionnaires, designed to highlight themes for further discussion in follow up focus groups. This questionnaire used both open and closed questions to evaluate perceptions relating to logistics and the process itself, and compare the experience with the standard face-to-face meeting.

The questionnaire was piloted for comprehension and validity prior to use.

In addition, the researcher recorded details of each meeting, noting technical difficulties, perceived differences from face-to-face meetings and any follow up action plans. This supported questionnaire data in informing focus group content.

A follow up focus group was conducted one week following completion of the placement, involving five students and helping to clarify points, explore questionnaire answers and discuss the future possibilities of using VC.

Results and discussion

Savings and logistics

Initial calculations suggest that using VC results in an approximate saving of £100 and 4 travel hours for the 5 students involved in this project. In a programme of 60 students, attending 8 placements each per annum, potential cost reductions are substantial.

This project, however, highlighted issues with signal quality, logistics and equipment availability that proved to be trying. In particular, a screen picture that alternated between a view of the hospital site and the JANET office proved to be amusing if frustrating. These issues perhaps illustrate the current limitations of this technology, though in spite of them, the use of VC did appear to be perceived as successful.

Impact of the medium

Participants appeared to perceive the project as having been successful and having been an enjoyable experience. However, the author experienced discomfort with using VC. The author believes that much of this discomfort was due to initial sub-maximal positioning of video screen and camera, resulting in problems with eye contact. However, there was also a perception of an inability to effectively read non-verbal communications compared with face-to-face contact, though the cause of this was difficult to establish.

Possibly a factor of unfamiliarity with the medium, a perception of reduced non-verbal communications may explain similar perceptions of discomfort reported in other literature (Bednar et al., 2007; Collins et al., 1999). O'Malley et al. (1996) describe increased interruptions combined with increased length of communications through video link.

Exacerbated by low bandwidth and transmission delays this was an experience echoed by the author with conversations perceived as being more 'careful', through increases in occurrences of clarification of understanding and care taken over clarity of non-verbal communications. O'Malley et al. (1996) suggest this to be due to reduced confidence that communications are understood, resulting in compensatory actions.

Despite the author's perceptions, participants did not express similar concerns and appeared to support the findings of Collins et al. (1999), with comments such as, 'If a placement is going well, it's a quick and modern tool to address and evaluate issues re. learning outcomes and [continuing professional development]'.

Fulfilling the role

Whilst perceived as an overall success, the project highlighted problems with evaluating the quality of written materials such as learning portfolios via the video link. Participants discussed the potential to alter the delivery format from a portfolio to a Microsoft PowerPoint presentation in order to address this issue. Alternatives to this might include the use of real-time data sharing software.

In addition, students highlighted a need for clarification or standardisation of visit content with consideration of individual need. This was felt to be necessary in order to enable appropriate evaluation of VC's fitness for purpose for undertaking clinical 'visits'. All participants expressed concerns over VC's suitability for undertaking supportive communications during failing placements.

One student expressed dissatisfaction with her support via VC, having experienced difficulties during her placement. On discussion, no participants could describe what was lost from support via video link. Studies have explored correlation between psychological factors such as independence or self-confidence and amenability towards information and communications technology (ICT) (Dunn and Ridgeway, 1991; Katz, 2002). This supports further consideration of individual need in planning the implementation of technologies into existing support systems.

Limitations and recommendations

Though limited to a small sample, key questions arising from this project indicate that further research

is required in order to evaluate VC as a means of providing distant placement support.

Participant responses to using VC and the perceived inconsistency in clinical visits question the overall value of visits themselves. A lack of focus group for educator participants weakens the evaluations of the study. However, the insights of student participants suggest that clarification of the value, purpose and content of clinical visits themselves is a necessary precursor to investigation of VC's fitness for purpose in this role

Participant perceptions and available literature suggest potential correlation between psychology and amenability towards ICT. Therefore, in considering individual need, comparisons between VC and face-to-face communications require further exploration prior to wider use. Though VC is no longer new technology, there is an increasing interest in virtual technologies for student support (Bailenson et al., 2002; Minocha and Roberts, 2008). Advocated as increasing the sense of involvement of the user, virtual technology may allow less confident students to excel in discussions when lacking the perception of a face-to-face 'threat'. However, within health care, there are arguments for competency in 'real world' communication that may not be advantaged through virtual skill development.

Conclusion

Despite initial expectations that this pilot would lead to a larger role for VC technology, the project has resulted in more questions than answers. However, in an increasingly high tech environment, research into this medium will illustrate issues that are likely to inform the application of many newly arising technologies.

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