Outline and Evaluation of a Joint European and Canadian Virtual Mobility: e-Learning Project.

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Abstract: The "virtual mobility" project was created as part of a joint Canadian and European Commission funded project to explore cross-cultural clinical curricular developments in the radiation sciences. The aim of the project was to facilitate student learning of the cross-cultural differences in the delivery of healthcare within the disciplines of diagnostic radiography and radiotherapy. The project was delivered as case study group work, on-line via the virtual learning environment (VLE) "Blackboard". Upon completion of the project, participants and staff facilitators were encouraged to complete an on-line questionnaire, which was used to inform future improvements.

Keywords: Partnerships in e learning; cross-cultural education; on-line collaboration; group work.

1. Background

The "virtual Mobility" project was created as part of a three-year joint Canadian and European Commission funded project entitled "Cross-cultural Clinical Curricular Developments in the Radiation Sciences". The funding period being 2002 – 2005. Joint approval and funding was granted by Human Resources Skills Development Canada and the European Commission's Directorate General for Education and Culture, and involved the following institutions: The Michener Institute of Applied Health Sciences, Toronto, Ontario, Canada; QEII/Dalhousie School of Health Sciences, Halifax, Nova Scotia, Canada; Ottawa Hospital, Ottawa, Ontario, Canada; INHOLLAND University, Harlem, Netherlands; Institute Paul Lambin, Brussels, Belgium and University of Hertfordshire, Hatfield, UK.

In addition to physical student and faculty exchanges, an objective was set to develop a short on-line course, named the "Virtual Mobility Project". This was to reflect the increasing interest in exploring flexible learning and e learning at traditional campus-based universities. Within the UK, the government has placed a greater emphasis on flexible leaning and e-learning, as outlined in the white paper "The future of higher education" (Department for education and skills, 2003). Increasing numbers of traditional campus-based universities have begun to provide distance education, and the traditional differences between distance-teaching universities and traditional universities are fading, due to a trend towards convergence, not only of technologies but also of pedagogies and institutional approaches (Collis and Moonen, 2001).

This "virtual mobility project" was developed to engage students to participate in on-line discussions and research related to a posted topic/case study via the virtual learning environment (VLE) "Blackboard", which was hosted by the Michener Institute of Applied Sciences, Toronto, Canada. The structure of the project was developed during the first year of the project, with the intention to run it during the second and third years of the project.

2. The virtual mobility project

2.1 Aim

The aim of the project was to facilitate student learning of the cross-cultural differences in the delivery of healthcare within the disciplines of diagnostic radiography and radiotherapy. This was to be achieved by multi-cultural student groups collaborating on-line to discuss and submit a written report regarding a number of issues arising from a given case study. Fung (2004, p136) states that: "With advances in our understanding of learning, educators now place greater emphasis on collaborative learning and the development of participatory learning communities to promote the social construction of knowledge".

The learning outcomes for the Virtual Mobility Project are outlined in table 1, below.

2.2 Method of delivery

The Virtual Mobility Project was delivered for the first time over a four-week period between January – February 2004.

31 students from 5 participating institutions took part in the project. Students were selected on a voluntary basis. All students undertaking the project were studying either diagnostic radiography or radiotherapy.

Discussion groups were formed by pairing European Institutions with Canadian Institutions.

The discussions could be conducted in either English or French, according to the comfort level of the students participating. Reports could be written in either language. To help students translate reports, a translation web site was posted in the external links section on "Blackboard".

Table 1: The learning outcomes for the virtual mobility project (UH, IPL, InHolland, 2004)

Upon successful completion of this course the learner will be able to:
1) Discuss professional behaviours in a global sense
2) Create an approach to dealing with cultural and translation issues among patients
3) Discuss strategies to address the issue of refusal of treatment
4) Compare professional practices in different countries
5) Communicate effectively in a cross-cultural environment

The project was delivered as case study group work, on-line via "Blackboard". The case study is outlined in figure 1 below:

"You Are scheduled to treat a 15 year-old female patient with osteosarcoma. Although you suspect she can speak English, each day she is escorted by her father to treatment and all discussions that you need to have with her are conducted through the father as the translator. On this particular day, the father appears agitated and distraught. At the scheduled treatment time, the father presents to inform you that the patient will no longer be receiving treatment. Upon further enquiry, the father discloses that his wish to discontinue treatment is due to the perceived lack of respect afforded him by a technologist the day during an examination his daughter had at the CT Scanner. During this interaction with the patient's father, you observe the patient arguig with her father (in a foreign language) and you sense that she is willing to receive treatment".

Discussion Points:
1) Age of consent – refusal of treatment by father – does the father have the right to refuse treatment for the daughter?

2) Cultural/translation issues – accuracy of information being shared – how do you overcome this situation?

3) Professionalism - finding out about how the father was disrespected – how would you deal with this?

Figure 1: The case study for the virtual mobility project

The project consisted of two phases: phase 1 representing approximately 21 hours of work and phase 2 approximately 11 hours of work. For phase 1, groups were instructed to produce and post a single report comparing and contrasting their respective practices. For phase 2, the students were assigned to one of three separate discussion groups for the review of one (assigned) discussion point as in figure 1 above. Each of these discussion groups were directed to create and post a final synthesis of their assigned discussion point taking into account practice in all partner locations.

2.3 Challenges

There were a number of challenges to be faced in setting up the project.

Alignment and timing. The overall structure of the educational programmes and the way that students can register for practice differs in the participating countries. Programmes may be delivered over time periods varying between 2-4 years. In some participating countries, qualification entitles students to register immediately in order to practice, whereas currently in Canada, qualifying students are required to sit an additional external state examination in order to be allowed to practice. Differences also existed in the content and structure of individual courses or modules delivered at the individual participating institutions. It was important, therefore, for all participating institutions to examine their courses or modules, in order to deicide where the "virtual mobility project" had most relevance to the overall structure and content. At some institutions, this was third year courses or modules; at others it was second year courses or modules. When each institution had identified a relevant course or module within which to run the project, participating students would be exempt from another element of coursework, so that the work

undertaken for the project would contribute to the students overall mark for the course or module, and would not create an additional assessment burden. It was also felt to be preferable to run the project with groups of students who were currently undertaking academic blocks, as not all students would have access to computers at their clinical sites.

Accessibility – choice of suitable virtual learning environment (VLE). The project was delivered on-line via the VLE "Blackboard" hosted by the Michener Institute of Applied Sciences, Toronto. This institution had previous experience of using this VLE for structured group work, and was willing to create a project course site, register students and faculty members, and provide technical support if needed. Not all participating students were familiar with "Blackboard", but guidance on how to use the site was made available. One of the benefits of using "Blackboard" was the on-line "chat" facility called "Virtual Classroom". This gave students the opportunity to arrange real-time discussions, taking local time differences into account.

Choice of common case study. The students undertaking the project were studying either diagnostic radiography or radiotherapy. It was therefore important to select a case study, which was appropriate and relevant to both disciplines. One imaging modality, which has particular relevance to both disciplines, is CT scanning. In diagnostic radiography it could be used to help diagnose primary or metastatic spread of cancer for staging purposes. In radiotherapy, CT scanning can be used for treatment planning or simulation. It therefore seemed the ideal common area in which to locate the case study.

3. Evaluation

Upon completion of the Project, students and faculty facilitators were encouraged to complete an on-line evaluation form. Evaluation forms were completed by 23 (74%) of students and 5 (100%) facilitators. The evaluation questionnaire consisted of demographic information, multiple choice questions and open questions.

The following key areas will be considered here, both in terms of student and staff (faculty facilitator) evaluations:

- Quality of learning experience – did students learn about other cultures approaches to their discipline?
- Ease of use of "Blackboard" and technical support.
- Time spent working on the project and overall length of project.
- Key areas for improvement
- Things that worked well

3.1 Quality of learning experience

Students were given the statement: "How would you describe your learning experience?" and were given the options of excellent, good, satisfactory or poor (See figure 2).

Staff were given the statement: "In my opinion this was a valuable learning experience for the students", and were asked whether they strongly agreed, agreed, disagreed or strongly disagreed with the statement (See figure 3).
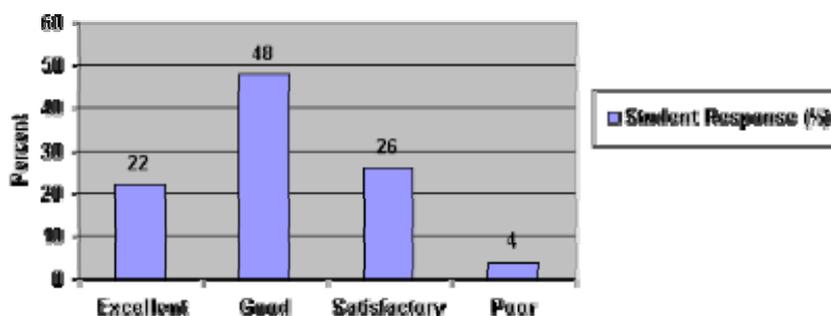
Figure 2: "How would you describe your learning experience?"
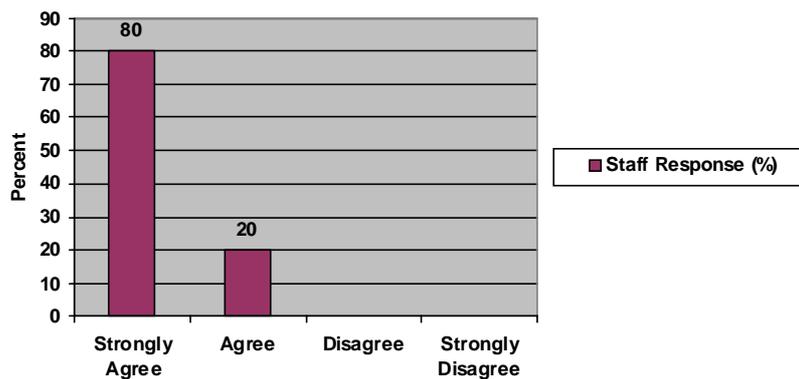
**Figure 3:** "In my opinion this was a valuable learning experience for the students"

Both students and staff viewed the project's value as a learning experience positively. In total, 70% of student respondents described the learning experience as "good" or "excellent" and 100% of staff respondents agreed or strongly agreed with the statement "In my opinion this was a valuable learning experience for the students". This view was further supported by positive student comments. It was felt from this that the overall design of the project was good and that it provided a valuable learning experience.

Students were given the statement "I learned about other cultures' approaches to my discipline", and were asked whether they strongly agreed, agreed, disagreed or strongly disagreed with it.

Staff were given the statement: "In my opinion, my students learned about other cultures' approaches to my discipline", and were asked whether they strongly agreed, agreed, disagreed or strongly

disagreed with the statement. Figure 4, below, combines student and staff responses.

In total, 92% of student respondents "agreed" or "strongly agreed" with the statement, and 80% of staff respondents "agreed" or "strongly agreed" with it. The very high response from students was further supported by comments on the strengths of the project. In addition to learning about cultural differences in healthcare, students also initiated discussion threads about the differences in radiography and radiotherapy education in their respective countries and discussed other social and cultural differences. The level of curiosity and interaction between the students increased as the project progressed, and the social interaction continued as students agreed times to "meet" on-line in "virtual classroom", a "chat room" facility within "Blackboard"

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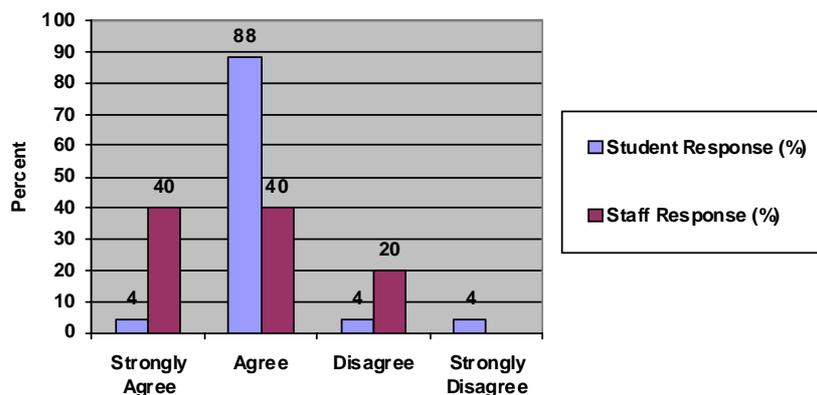
Figure 4: "I learned about other cultures' approaches to my discipline/ in my opinion, my students learned about other cultures' approaches to my discipline".

3.2 Ease of use of "Blackboard" and technical support

Students and staff were given the statement: "I found Blackboard easy to use", and were asked whether they strongly agreed, agreed, disagreed or strongly disagreed with the statement (see figure 5, below).
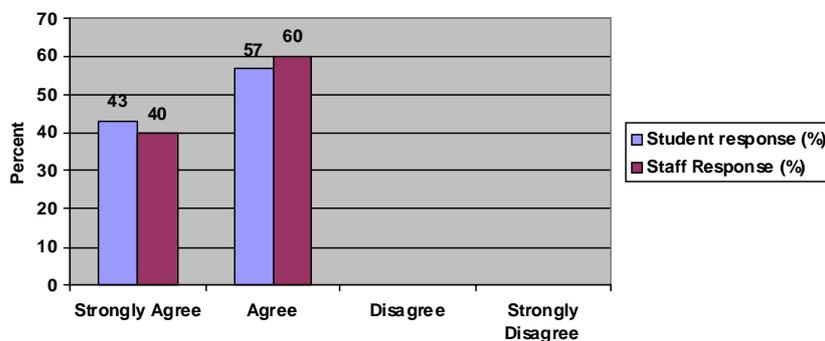

Figure 5: "I found "Blackboard" easy to use"

In total, all students and all staff agreed, or strongly agreed, with the statement "I found "Blackboard" easy to use".

Students and staff were given the statement: "The technical support I received from the Michener met my needs", and were asked whether they strongly agreed, agreed, disagreed or strongly disagreed with the statement (see figure 6, below).

All students and staff either agreed or strongly agreed that they found "Blackboard" easy to use, and that the support from the Michener Institute met 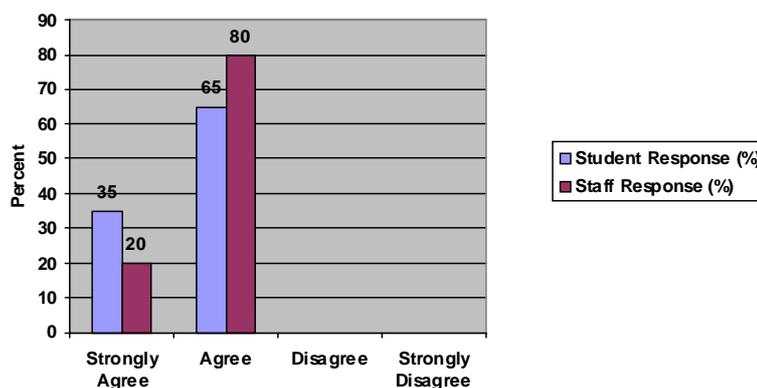their needs. These figures clearly indicate what is viewed by many to be one of the key components in the delivery of a successful on-line course. Salmon (2002) has stated that individual access and the induction of participants into on-line learning are essential prerequisites for the on-line learning process. Similarly, Kennedy and Duffy (2004) have described technical support as an essential feature of an on-line course. In an analysis of extensive field trial results carried out by the Canadian Virtual University, Harasim (1999, p48) reported that:

> *"The major problems students encountered were not related to their workload but rather to technical difficulties and slow networks."*

Figure 6: "The technical support I received from the Michener met my needs"
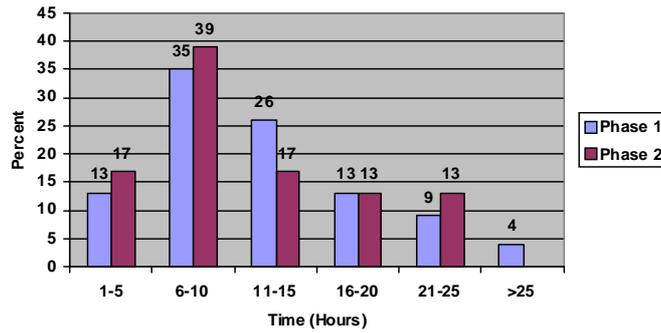
3.3 Time spent working on the project and overall length of project

Students were asked to indicate the approximate amount of time spent working on phases 1 and 2 (including research, postings, report writing etc.), from the following ranges:

- 1-5 hours
- 6-10 hours
- 11-15 hours
- 16-20 hours
- 21-25 hours
- Greater than 25 hours

Figure 7, below shows the student responses for phases 1 and 2 of the project.
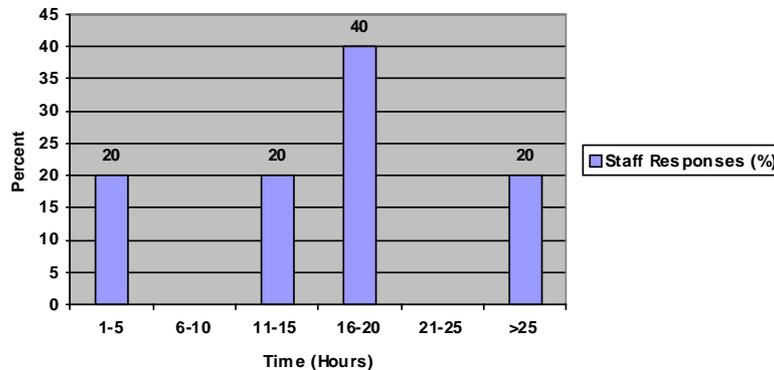
Figure 7: Amount of time (hours) students spent working on phases 1 and 2 of the project

The amount of time spent working on the project invoked a wide range of responses for both phase 1 and phase 2. Within the short timeframe for completion of the project students could be flexible in the amount of time they spent working on the project, and also when they chose to work on it. Students were not directed to keep a diary of their time spent working on the project and, as such, the responses are estimates. As can be seen in figure 7, above, the greatest percentage of student responses indicated that they spent between 6-10 hours working on both phases 1 and 2 of the project.

Staff were also asked Indicate the approximate amount of time they spent working on the project, from the following ranges:

- 1-5 hours
- 6-10 hours
- 11-15 hours
- 16-20 hours
- 21-25 hours
- Greater than 25 hours

See figure 8, below.

Figure 8: Amount of time (hours) staff spent working on the project

Again, there was a spread of responses across the time ranges. Not all staff participants had experience in the area of on-line facilitation prior to running the project, and this may be one reason that contributed to the overall range of responses. Further evidence for this comes from the open question on key areas for improvement. Some

staff requested clear guidelines on the role of the facilitator.

Students were asked to consider the length of time given to complete the case and to indicate whether it was "too short", "just right" or "too long". Figure 9, below, illustrates the student responses.
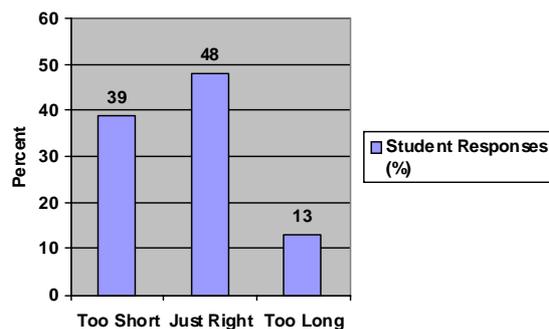
Figure 9: Student response to consideration of the time allocation given to complete the project

A significant proportion of students (39%) indicated that they felt the time given to complete the case was too short. Upon reflection, and further discussion at the end of the project, it was agreed to extend the period of the project from 4 to 6 weeks and to introduce an introductory phase to allow a degree of on-line socialisation before commencement of the project.

3.4 Key areas for improvement

In addition to multiple choice questions, students and staff facilitators were asked two open questions: "give two suggestions for improvement", and "two things that worked well were:"

The student responses to the question asking for suggestions for improvement were varied and key responses were:
- Provide more information regarding expectations.
- Provide more specific details regarding the case itself.
- Review the timing of phases within the case study.
- Consider the use of a resource person.
- Consider the use of physical and/or on-line meeting prior to the start of the case study.
- Key staff responses to the question were:
- More defined guidelines for the written reports.
- Better communication with students at the start.
- Good description for the students as to what is expected of them.
- Review the timing and time set to run the project.
- Guidelines for the facilitators.
- A small number of students expressed the desire for face-to-face meetings during the project. Allen and Lawless (2003) have identified that on-line collaboration can be a

source of stress for some students, and Rosenberg (2001, in Schweizer et al, 2003) suggests that face-to-face classroom learning can be used to support e-learning in certain aspects.

3.5 Things that worked well

- In response to the open question asking for "things that worked well", the following key responses were identified by students:
- Good organisation.
- Great way to learn about other countries and the way they practise.
- Fantastic medium to present a lot of ideas.
- Contact between students and teachers.
- "Blackboard", very easy to use and fun.

Staff responses identified that:
- Students were keen and self-directed.
- Good interaction occurred among most students.

3.6 Planning for future delivery

- From the experience of running the project for the first time, and taking into account student and staff evaluations, the following changes were agreed:
- Instead of a 4-week period, the project would run over a period of 6 weeks.
- It would include an introductory phase where the students could get to know each other.
- The students would be provided with clearer guidelines.
- "Milestones" rather than phases would be used to focus student effort and direction. The separation of phases was felt to disrupt the development of ideas and increase confusion amongst participants.
- Guidelines would be produced on the role of the facilitator.

4. Conclusion

This project represents the first step in developing a cross-cultural on-line course, which enables students studying radiography or radiotherapy to collaborate internationally to gain a deeper insight into global and cultural differences within their chosen discipline of study.

The sustainability of the virtual mobility project beyond the period of funding has been agreed by all participating institutions. The Michener Institute is prepared to continue to host the project on "Blackboard". Future developments might see the project being extended into a course or module, which could become more fully integrated into the programmes of study undertaken at the participating institutions.

Acknowledgements

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