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Use of International Internet Discussion Boards to Promote Health and Technology Knowledge and Skills in Nursing Education

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Abstract: The education of health care professionals cannot be limited solely to the study of health care systems within one's own region or country. Active participation in the global community requires nurses to develop an expansive view of health care. In addition, nurses need to develop communication skills enabling them to interact globally in the pursuit of better health for populations. Experience is required with technologies to enhance global communication in relation to health.
Theoretical Framework: Social constructivism.
Design: Evaluation study using a descriptive survey and content analysis of an online student discussion group.
Sample: 21 pre-registration undergraduate nursing students from one university in the United Kingdom and 13 nursing students (10 pre-licensure and 3 graduate students) from one university in the United States.
Method of Data Collection: Students were divided into small groups and participated on two discussion boards via WebCT. The objective of the discussion boards was to facilitate exchange on issues related to health concerns and behaviors common to the respective geographical regions. A self–completion on-line questionnaire was developed to evaluate the educational benefit of the discussion groups in facilitating knowledge exchange.
Method of Analysis: Descriptive statistics for survey items and content analysis of the narrative comments on the survey and the discussion board.
Findings: While some variation between the students from the different countries was identified. Students generally found the experience beneficial and gained a greater insight into different health care systems. Discussion board narratives indicate some common health concerns among students on both sides of the Atlantic. Student comments on the evaluation survey indicate a preference for a real-time format.
Application to Nursing Education/Practice: International discussion boards are a cost-effective and pedagogically sound strategy for facilitating student learning regarding global health issues. They also increase student familiarity and competence with online tools relevant to the healthcare setting. International discussion boards are a cost-effective and pedagogically sound strategy for facilitating student learning regarding global health issues. They also increase student familiarity and competence with online tools relevant to the healthcare setting.

Keywords: International discussion boards nursing health

1. Background

We live and work within a global context. This context requires that the education of health care professionals not be limited solely to the study of health and health care systems within one's own region or country. Active participation in the global community allows the nurse to develop an expansive view of health care. In addition, nurses need to develop communication skills enabling them to interact globally in the pursuit of better health for populations. To achieve this, a variety of strategies are needed within nursing educational programmes. Whilst the use of the internet has been described in nursing education, few studies are identified that focus on enhancing exchange of ideas between nursing students (Friedemann & Anderson 2005; Wharrad et al 2005; Leppa & Terry 2004; McKenna & Samarawickrema 2003). No studies that report the use of discussion boards to connect nursing students from differing programmes within different countries have been found. The purpose of this paper is to describe the efforts of two Universities delivering nursing programmes with an aim to increase internet technology skills and health knowledge, whilst promoting self directed and peer learning, through an international discussion board.

The development of Information Technology (IT) skills and knowledge within undergraduate education is of paramount importance (UKCC1999). According to Wanless (2002) insufficient attention and investment has been paid to information and communication technology in the National Health Service (NHS) to date. The tasks faced by nurses' range from development of electronic patient records to staff skills in knowledge and information management to maintaining their professional portfolios. The challenge is for nursing curricula to prepare new graduates who are able to work competently with current technology and appreciate the need for life long learning to maintain their proficiency with the technology as it develops (Department of Health 2001).

International education opportunities were once based on the premise that the only way to gain a global perspective was to travel to a different country and immerse oneself in the culture of that country for an extended period of time. This immersion experience was believed to be critical for the student to gain a perspective on life that was different from the perspective advocated by the main stream culture of their home country (Hilgenberg & Schlickau 2002; Kirkpatrick; Brown & Atkins 1998; Scherubel 2001). This approach is not always practical for nursing undergraduates. The curricula of most nursing programmes are rigidly regulated, usually with specific courses set in a specific order. Curricular requirements often differ depending on licensing/registration requirements of the country as well as the academic level of the nursing program. Consequently, the coursework required for students from different countries shows similarity in content but vast differences in structure. Courses taken in another country may not easily transfer to meet the requirements of the home country programme. Whilst a few Universities are able to offer opportunities to study abroad, this is often extra curricular or costly to the student. In some cases where nursing students wish to study abroad, they may need to put off graduation in order to accommodate the extra courses taken abroad. This often incurs extra financial costs that are not within the reach of many nursing students.

Recognizing the need for a global appreciation of health and health care and the need for internet technology skills, the course organisers for 2 international Universities collaborated to develop an on-line International web discussion board. The objectives of this exercise were: (1) to expose students to health care issues that are pertinent in another part of the world and (2) to encourage technological expertise in electronic professional communication strategies.

2. Theoretical Framework

The theoretical framework for the research is linked to the pedagogy of the curricula and is a direct outgrowth of a social constructivist perspective of learning that accounts for the nature and existence of a

concept through its social relationships, practices and discourses (Friedman, 2006). Students from the outset are actively engaged in their learning, collaboratively considering their own explanations for phenomena, resolutions to problems or formulation of questions (Gagnon and Collay 2000). The curriculum and the educational strategies adopted, such as the international internet discussion boards, look always to encourage the students to take active responsibility for their own learning and also reflects the significant move in education from 'knowing all' to 'knowing how'. This framework is useful in nursing when looking at practices in other regions or countries because it refrains from labeling concepts or situations as either good or bad but, rather, a reflection of societies construction of that concept within that culture. This philosophical perspective emphasizes discourse and allows the move from the "right or wrong" framework that is frequently associated with nursing students to a framework that says, "It is simply different than what we do here. What can we learn from it?"

The international web discussion groups look to:

- Promote and produce skills in relation to health and internet technology which demonstrate a safe, reflective, competent, caring and accountable practitioner who can assume responsibilities necessary for public protection on graduation. As a professional working in health care, the graduate will have the required knowledge, understanding and skills and the ability to apply the principles and concepts of using the internet expected when working in health care in the United Kingdom and United States of America.

- Promote and produce a practitioner who demonstrates equity and fairness, a non-judgmental attitude and a respect and value for diversity in their responses to posted web discussion information about health and health care.

- Allow for a high level of intellectual development, professional development and the acquisition of skills necessary for the dynamic world of nursing and health care. The aim is to produce a graduate nurse who can utilise a wide range of academic methods of enquiry enhancing her/his development as a competent practitioner who will develop into a life long learner.

- Reflect the Universities' aim to provide a high quality education in relation to health to emphasising the development of appropriate critical, analytical, communication and practical skills involving the internet technology.

The curricula utilise a variety of learning experiences to develop information technology skills and develop knowledge about health to meet the regulatory body requirements of the Nursing and Midwifery Council in the United Kingdom and the United States licensing bodies. In both Universities, all students have access to WebCT, discussion groups, email and e-portfolio system. The web discussion board system is fully integrated with WebCT and is fully accessible to all students. From year 1 students in both universities are introduced and assessed on their utilisation of information technology as part of their progression. The aim of the universities is to encourage life long learning, personal development, transferable learning skills and information technology competencies amongst all students. It is vital that nurses develop their professional knowledge and competence to cope with the complexities of modern professional practice for example the knowledge and skills framework (Department of Health 2001).

3. International Web Discussion Groups for Teaching and Learning

Discussion boards are a valuable learning and assessment tool that foster not only the sharing of knowledge, but also provide an opportunity for critical thinking, reflection, appraisal and tolerance for the opinion of others whilst developing appropriate collaborative skills among novice professionals (Buckley, Beyna, & Dudley-Brown, 2005). Whilst the assessment in the UK University is not currently a major feature of the discussion board, the US have graded criteria for assessing student involvement in the discussions. The virtual learning environment of the discussion board enables the course organizers to view ALL interactions and record ALL data as a record. This allows for monitoring of different students understanding of health issues related to the course as well as their technical skills with the internet technology. The course organisers can adapt teaching material in response to the virtual learning

environment record of the students' interaction and understanding. Participation in web discussion boards is a chance to practice and expand students' written communication skills and expand the walls of the classroom by providing added discussion and clarification of course topics (Teikmanis & Armstron 2001:80, Harden 2003).The social and academic process of the discussion boards are shown to be mutually supportive for students. They are relatively safe ways of developing their learning from peers and getting feedback about their conceptualization of health and healthcare systems (Buckley et al 2005, Wharrad et al 2005). The driver for the international internet web discussion boards is very much about the learning opportunities in relation to understanding global health and health care, not purely the technology. However, the technology needs to be learned and students need to safely develop their technology skills with the internet.

4. Aim
To evaluate the effectiveness of an international education web discussion board for nursing students in enhancing technology skills and health information knowledge.

5. Setting and Sample
The International web discussion board took place on the University WebCT platform of the US University. The sample included 21 second year undergraduate nursing students from a United Kingdom University and 13 students from a public University in the United States. (10 undergraduate and 3 graduate nurses).

6. Design
A post intervention evaluation study which combined qualitative and quantitative methods was designed to capture the data. Specifically the design involved a descriptive survey and content analysis of an online student discussion group.

7. Intervention/ International Web Discussion Board
The authors, who are course organisers for components of the nursing programmes in their respective Universities, agreed on two questions for the focus of the international web discussion. The questions were considered pertinent to the learning objective of the courses which included learning about health and gaining technology skills.

The 2 questions posed were:
- What do you consider to be the most important health issue in your country and why do you believe this to be so?
- What are the issues for accessing health care services in your country?

The students were asked to respond to each of the two questions. In addition, students were encouraged to pose their own questions and to respond to several of the comments that other students had posted. Students were assigned alphabetically to small groups of no more than five to six students. Previous experience in online education of one of the authors had shown that groups of no more than 5 are diverse enough to stimulate discussions and small enough to control participation. A major challenge of web discussion boards is the reading of the comments posted by other students (Buckley et al 2005) thus, keeping the participants in any one discussion board to a small number, allows the students to have time to read and consider the postings of other members, so as to be able to have time to post well thought out responses and pose pertinent questions.

The students in the UK were supported within the University environment with two introductory technology sessions of 50 minutes duration to familiarise the students with the computer and web technology. The students were supplied with a printed and electronic sheet explaining the steps to access the international WebCT discussion board. The course organiser demonstrated the step by step process with a computer and projector so students could follow the process at both introductory sessions. A few students requested individual help during the sessions, but all had mastered the

technology after 50 minutes. Students in the US had completed an information technology course and had used the discussion board format extensively in prior course work. The US students had also completed several assignments related to health care in the UK. The international web discussion board was open for two weeks. Both groups could access the discussion board via the internet anywhere in the world with their personal password. The students were able to engage with the discussion boards on a flexible basis when they liked and where they liked after the introductory sessions.

The discussion exercise was part of the graded course requirements for the US course. Each student's discussion postings were rated by the faculty member on a scale of 0 to 3 points with 3 points indicating well thought out responses, initiation of their own questions, and response to at least three other postings. No grade was attached for the UK students although the focus of the questions related generally to the focus of the assessed coursework assignment. Whilst both Universities use English as a first language, a few of the students involved in international the web discussion group in both Universities had English as a second or third language.

8. Data Collection and Analysis

A self completion questionnaire including 8 Likert-type items and 3 open ended questions was designed by the authors and administered via WebCT at the end of the two week international web discussion board period. The 21 UK students and 13 US students completed the questionnaire which had a scale of 1 to 5, with 1 strongly disagree and 5 strongly agree. The quantitative data was entered into Excel and then imported into SPSS for descriptive statistics analysis by the authors. The answers to the open ended questions were reviewed for content themes.

The authors undertook content analysis of the qualitative text of the online web discussion between the students once the discussion boards closed. The transcript of the student dialogue on the international web discussion board was down loaded and the content analysed for concepts and themes that were generated from the discussion of the 2 questions initially posed by the authors. The three authors independently analysed the content of the discussion board record and then shared with each other the main concepts and themes from their analysis. All data was held securely on password protected computers and in locked filing cabinets.

9. Findings

The frequency results for each item in the questionnaire are summarized in Table 1. The majority of students viewed the web discussion boards favourably.   Table 2 presents the mean score for each of the 8 items in the questionnaire along with the Standard Deviation (SD) and Pearson's Correlation Co-efficient and significance. The mode and the median score for each item was 3, very few students scored below a 3 for any item. Using the mean, the US students generally rated the experience more highly than the UK students with a few exceptions. The majority of students viewed the international web discussion as being enjoyable, improving their use of the technology, found it educational and gave them a better understanding of global health issues, both difference and similarities.

The 8 questionnaire items (5= strongly agree)	UK students N=21	U.S. students N=13	Overall N=34	Pearson p significance
1. Exercise was educational in terms of my career knowledge about health care in other parts of the world.	3.0 (SD 0.46)	3.4 (SD 0.51)	3.1 (SD 0.51)	r=0.393 0.021
2. I believe I have a better understanding of the similarities and differences between some health issues of concern in the UK and the US	3.1 (SD 0.30)	3.6 (SD 0.51)	3.3 (SD 0.46)	r=0.555 0.001
3. I believe I have a better understanding of the similarities between some health access issues in the UK and US.	3.0 (SD 0.40)	3.6 (SD 0.52)	3.2 (SD 0.53)	r=0.565 0.001
4. I believe I am better able to discuss global health issues now than prior to exercise.	2.8 (SD 0.60)	3.5 (SD 0.52)	3.0 (SD 0.66)	r=0.508 0.002
5. The Exercise was educational in terms of my personal knowledge about other parts of the world.	3.1 (SD 0.33)	3.4 (SD 0.51)	3.2 (SD 0.43)	r=0.362 NS
6. I believe I am better able to use web discussion tool than prior to exercise.	3.1 (SD 0.54)	2.9 (SD 0.86)	3.0 (SD 0.67)	r=-0.126 NS
7. I Found this exercise enjoyable.	3.1 (SD 0.38)	3.4 (SD 0.52)	3.2 (SD 0.50)	r=0.488 0.003
8. I Would be willing to do similar exercise in future.	3.0 (SD 0.455)	3.5 (SD 0.52)	3.2 (SD 0.51)	r=0.377 0.028

Table 2 The mean score for each of the 8 items in the questionnaire along with the Standard Deviation (SD) and Pearson's Correlation Co-efficient and significance.

Comments on the open ended questions identified a number of strengths, limitations, and topics for future discussions. Students commented that the exercise was enjoyable and more organised than they expected with so many participants. A number of students commented on the limitations of discussion boards that do not allow for real time discussions and suggested chat rooms, instant messaging, or arranging for a mutually agreeable time for discussion. Students appreciated most the chance to communicate with other nursing students and to learn of similarities and differences in health issues and health care access in another country. A wide variety of topics for future discussions were identified; for example, stereotypes, nursing education, responding to a scenario, and opinions on operational issues of the health system.

The students identified a wide variety of topics through their discussion board. 'Hot topics' for health (Table 3) included obesity and related diseases, e.g. diabetes and coronary heart disease. The students gradually identified the extent of co-morbidity and the importance of inter-related health issues. An additional area considered was children's developmental screening which has a long history as a core,

primary care service in the UK, but is being reduced and students perceived it is not currently core in the US. The students remarked on the quality of mental health services between the countries as well as the issues related to the elderly. An area of great interest to the students is access to healthcare and the strengths and weakness of the National Health Service versus the US mixture of private health insurance and government funded programs.

Topics students raised in the discussion board:
▪ **Obesity**
▪ **Access to health care**
▪ **Health insurance**
▪ **Perception of nurses by public**
▪ **Child development**
▪ **Advanced Practice roles**
▪ **Smoking**
▪ **Mental illness**

Table 3 Hot Topics for Health

10. Discussion
The international web discussion board offered the opportunity for nursing students in the UK and US to become familiar with sharing information internationally with other nursing students. The students developed computer skills and familiarity with a web based interface and package. Results indicate that the student's perceived that the international discussion board helped increase their information technology (IT) skills and enhanced their appreciation of the opportunity for global dialogue in respect of health and nursing issues with other professionals in the health and social care context. The students entered into good debate within and between the countries. The findings of this study support introducing technology, with appropriate academic and technical support, as a pedagogically sound way of using technology in the learning environment.

Discussion points raised by question 1

Analysis of the respondent's discussion of question 1 revealed striking commonalities between health concerns of the UK and US students. The primary area of discussion concerned the rising rate of obesity and the implications for general health status in both the UK and the US. Many discussions were focused on recent lifestyle changes, such as working mothers and lack of physical activity, and generally poor nutrition knowledge and practices of the citizens. Students suggested a number of educational approaches to solving this global health problem such as improved school nutrition programs. The cost of health care and the limitations of both health care systems were addressed to some extent although this topic was discussed more extensively in response to question 2 (see below). Concerns about child development issues were expressed in both the US and UK including limited screening in the US and rationing of these services in the UK. Issues of care for the mentally ill were tied to stigma and cost in the US. Other topics lightly covered were the provision of care of the elderly and the impact of the aging population on the US health care services as well as binge drinking and asthma in the UK.

The students focused very much on people being educated to make individual behaviour and lifestyle changes to address health issues and did not consider the regulatory or statutory approach to improving health through socio-political forces. This is an area which could be further developed in a future discussion group.

Discussion points raised by question 2

Analysis of the respondents discussion of both topic questions demonstrate how this international discussion enabled debate about the financing of health care and the resource implications of different aspects of health care versus preventive care. Students explored the taxation system in the UK and the insurance system versus the government funded programs in the US. Access to primary prevention and secondary care services was discussed and the students identified a greater emphasis in the UK on primary prevention than the US. Concerns were noted in both countries about the public's lack of knowledge of available services and entitlements. Importantly, the students rapidly moved on to debate what a 'core' service is and what it is not! This is a complex and important debate for first and second year nursing students. Some discussion occurred as to what should be available to all and what services should be paid for by whom. There was a sense that the US students perceived many benefits in the UK system, but they recognised that there are greater waiting times within the UK. UK students appreciated the benefits of the NHS but expressed many concerns about its limitations.

In addition to identifying the benefits of the UK system for preventive care, the students also remarked on the deficits of mental health promotion and care in both countries. Gate keeping in the US was perceived as being undertaken by insurance services whereas in the UK this was perceived as General Practices in Primary Care. The US model can be identified through the dialogue as an illness model whereby insurance companies pay for medical treatment, but limited health promotion. This is in contrast to primary care services and policy drivers in the UK at present (Scottish Executive 2003, 2005).

It became evident that even the US privatised insurance is inequitable and precarious and that some areas of the NHS are more or less accessible dependent on a variety of factors e.g. policies of the individual Health Boards/Trusts, prescribing patterns and referral patterns of General Practitioners (family doctors in primary care). The debate identified that the both countries' systems are very unequal. Students identified in the US the importance of being well enough to work to pay for insurance and how difficult it could become for people to maintain insurance if they become ill. In addition the students identified that the accessibility of the services between the 2 countries had some similar constraints, for example, around opening times, language skills of health care professionals and people not knowing their rights to health care services. The inappropriate use of the emergency room (ER) in the US is notable and this is also occurring in the UK but to a lesser extent. The need to invest in health promotion to reduce health treatment costs and reduce suffering was well made by the students.

The students engaged in good debate and a few touched upon what it is to be a nurse, not a main point of the discussion boards, but demonstrated their interest in exchanging with colleagues across the water and social networking! It is important to recognise that in caring for people with rare conditions, the best person to collaborate with to ensure the best care, may be situated on the other side of the world and that the use of technology enables us to share information which can benefit patients thousands of miles away. The international context of this web discussion group has been welcomed by academic staff and students.

Identifying that the US student generally valued the international web discussion board more highly than the UK students is in keeping with the observation that people from the US generally rate items more highly than people from the UK. This may be a cultural variation. There are limitations to the statistics as there is only a small number in the sample and size of the 2 groups is different, yet the findings give a clear indication that the Internet discussion board is a valuable learning tool for both UK and US students. This research is based on the opinions of the students and it is acknowledged that it would be useful in the future to obtain results about knowledge from a comparison group of students who were not involved in the discussion on international discussion board compared with those exposed to such an activity.

11. Conclusion

The majority of students found the discussion board beneficial for gaining insight into different health care systems and for considering different perspectives of health and health care provision. With good technology support during the initial introduction to the discussion boards and a clear focus for purpose of the discussion, they are a pedagogically sound strategy for facilitating student learning regarding global health issues. The discussion boards can facilitate peer learning and can be useful for students to gauge their own knowledge and understanding when compared with their peers. The opportunities for academic and social networking are valuable. While some variation between the students from the different countries was identified, students generally found the exercise beneficial and gained a greater insight into different health care systems. Discussion board narratives indicate some common health concerns among students on both sides of the Atlantic. Student comments on the evaluation survey indicate a preference for a real-time format.

12. Implications for Nursing Education

The international internet discussion boards are an accessible approach to introducing undergraduate nurses to internet technology to help achieve the technological proficiencies expected of newly graduated nurses and to consider topical health issues within a global context. The discussion boards are cost effective, flexible learning environments which can provide international learning opportunities which overcome the boundaries of time and physical space. Opportunities for peer learning around group assignment work and peer feedback on student learning. The Web discussion boards could become more focused around assessed course work for peer learning towards a group work approach to assessed work. The contribution of all participants to the discussion and assessed work is readily recorded and evident to course organizers and markers. This lends itself to identifying how well individual students are contributing to peer assisted teaching and learning and contributing to a joint piece of assessed work. The web discussion board facility lends itself to facilitating student peer assessment. The students can, through the discussion boards, devise marking criteria for the course work and set about meeting the objectives for the course work and then use their marking criteria to see how well they have achieved in relation to their own devised criteria and their peers. The web discussion board is a useful learning approach which students need to develop for a transferable skill and life long learning. Use of discussion boards are becoming increasingly common among professional groups including nurses for discussing practice issues or concerns of specific professional nursing groups. A professional nurse must feel comfortable using internet technology to seek answers to professional questions as well as keep abreast of both practice and policy concerns.

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Item Number	Strongly Disagree		Disagree		Neither Agree/Disagree		Agree		Strongly Agree		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
1. Exercise was educational in terms of my career knowledge about health care in other parts of the world.	0	0	2	6	1	3	24	71	7	21	34	100
2. I believe I have a better understanding of the similarities and differences between some health issues of concern in the UK and the US	0	0	0	0	0	0	24	71	10	29	34	100
3. I believe I have a better understanding of the similarities between some health access issues in the UK and US.	0	0	2	6	1	3	23	68	8	24	34	100
4. I believe I am better able to discuss global health issues now than prior to exercise.	0	0	6	18	1	3	19	56	8	24	34	100
5. The Exercise was educational in terms of my personal knowledge about other parts of the world.	0	0	0	0	1	3	26	76	7	21	34	100
6. I believe I am better able to use web discussion tool than prior to exercise.	1	3	4	12	0	0	22	65	7	21	34	100
7. I Found this exercise enjoyable.	0	0	0	0	1	3	26	76	7	21	34	100
8. I Would be willing to do similar exercise in future.	1	3	4	12	0	0	22	65	7	21	34	100
Total Column %		1		7		2		68		22		

Table 1. The number and percentage of responses to each of the 8 items in the questionnaire