1. Introduction

Despite the significant expansion of technology enhanced higher education across the world in all disciplines, including the health and caring professions (López-Pérez et al., 2011, Garrison, 2011, Stacey and Hardy, 2011), there has been surprisingly little empirical research into how best to evaluate this mode of learning. In the UK for example, the majority of higher education institutions (HEIs) rely upon the National Student Survey (NSS) for the design of their student evaluations. This is problematic because the NSS format pays conspicuously little attention to the acceptability of, or student satisfaction with digital learning techniques (Ginns and Ellis, 2009, Wilkinson et al., 2009). Bullock and de Jong (2014, p.156) warn that this dearth of reliable evaluation evidence, is 'An evangelical approach … associated with atheoretical, sloppy 'research' with no appreciation of the technology's limitations.'

This paper reports on the quantitative findings of a mixed-methods study set up and carried out to address the current deficit in availability of tested and reliable Technically Enhanced Learning (TEL) evaluation tools in health education. The evaluation tool tested in the study was designed to measure acceptability of, and satisfaction with a blended learning module, specifically designed for a preregistration, undergraduate midwifery module offered at level 4. Starting with a description of how TEL was embedded into the module to create a blended learning environment - using a mixture of face-to-face teaching, e-learning and on-line interactive storytelling - we will go on to describe the nature of the evaluation tool itself and the quantitative research that was carried out to test the feasibility and validity of this evaluation tool. The paper will conclude with a discussion on the implications and potential application of the findings.

2. Background to the Blended Learning Approach

Over a decade has passed since the UK's Higher Education Funding Council for England (HEFCE) set out its strategy to support HEIs in enhancing learning, teaching and assessment through the use of technology (HEFCE, 2005). This commitment to the facilitation of the digitisation of the higher education provision was further ratified with the publication of a strategy document where HEFCE state that: 'Effective use of technology is vital if we are to maintain the world-class provision of UK higher education.' (HEFCE 2009:7). In response to this national educational policy shift towards technologically enhanced higher education, a first year, undergraduate midwifery module, designed to introduce students to the legal and ethical framework of midwifery practice, was developed using technology and an innovative pedagogic approach. Taking the Higher Education Academy (2017) description of blended learning - 'use of multiple methods to deliver learning by combining face-to-face interactions with online activities.', the Nursing and Midwifery Council approved preregistration module described in this paper introduced a blended learning to improve students' learning experience by developing their capacity for reflection (Cooner, 2010), an essential element for the deep learning necessary for this topic (Kember, 2008, Mann et al., 2007).

The design of the blended learning module followed Carroll et al.'s (2009) five-point framework. According to this framework, blended learning is enhanced when the presentation of the e-learning (1) is attractive and usable; (2) is flexible; (3) involves active peer communication; (4) is underpinned by mechanisms for support; (5) includes elements of knowledge validation. To achieve all five elements of the framework the undergraduate preregistration, professional issues in midwifery module used four distinct learning modes that ran simultaneously:

1.

Face to face lectures where students were introduced to key concepts that related to the module's learning outcomes.

2.

A module located on the Moodle Virtual Learning Environment (VLE) where students were able to (and expected to) access supporting learning materials including digitised reading, quizzes and videos.

3.

Web based story telling - An online role-play hosted on Moodle where students take on roles and interact in character to experientially explore the learning outcomes of the module.

4.

Face-to-face tutorials where students have the opportunity to debrief from the role-play and discuss their learning applying theory to simulated practice.

3. The Evaluation Tool

The evaluation tool tested in the study was developed to capture student satisfaction with the web based storytelling component. The emphasis on the TEL element of the module in this tool was to both address the limitations in the University's existing National Student Survey (NSS) structured module evaluation tool and to avoid repetition, as students were expected to complete the University's module evaluation questionnaire as part of the curriculum governance.

4. The Conceptual Framework of the Evaluation Tool

The questionnaire had been designed to reflect Chickering and Gamson's (1987) Seven Principles of Good Practice in Undergraduate Education. This influential work has been used for the development of best academic practice in HEIs internationally and is based upon the following: (1) encouragement of contacts between students and faculty; (2) development of reciprocity and cooperation among students; (3) use of active learning techniques; (4) prompt feedback; (5) emphasis on timed tasks; (6) communication of high expectations; and (7) respect for diverse talents and ways of learning. This approach to the evaluation of undergraduate education was considered to be a good fit with Carroll et al. (2009)framework upon which the module, and specifically the online story telling element of the module, had been designed.

Building on the work of Bangert (2004), who developed and tested a Seven Principles evaluation questionnaire for assessing the effectiveness of an Internet-based educational statistics course, a questionnaire was developed to measure student satisfaction with the TEL approach. The research being reported in this paper was set up to test the acceptability and effectiveness of this questionnaire - Student Midwife Evaluation of Online LearningEffectiveness (SMEOLE). Please see Appendix B.

5. The Research Process

A mixed methods research design approach was adopted (Creswell and Plano Clark, 2011). This design meant that the study had two discrete data types each requiring a different approach to analysis. The quantitative arm of the study reported here, involved testing the internal consistency and reliability of the SMEOLE questionnaire. Acceptability of the SMEOLE questionnaire was measured using the completion rate, with further acceptability and feasibility being explored using the qualitative arm of the study, the findings of which are reported elsewhere.

Students' participation in the quantitative arm of the research took place at the same time as the University's routine module evaluation. All students, who attended the last lecture of the module, were asked to complete by hand a hard copy of the SMEOLE questionnaire. Students were given time during the lecture to complete both the NSS inspired University module evaluation and the SMEOLE questionnaire. Completed SMEOLE questionnaires were collected up and placed into a sealed envelope by a student volunteer. Each questionnaire was completed anonymously and was allocated a code and analysis of the data retrieved from SMEOLE was undertaken using SPSS version 22.

6. The Study Sample

The sample frame for the questionnaire element of the study involved 100% of the population: first year undergraduate students studying Midwifery at a London based HEI. This target was not achieved however due to the fact that not all the students were present for the last lecture of the module. 46 out of the total population of 53 (87%) completed the questionnaire. The sample size impacted on the statistical analysis that could be meaningfully carried out. For this reason, the statistical analysis consisted of Cronbach alpha testing and correlation tests to determine the reliability and internal consistency of the SMEOLE questionnaire.

7. Ethics

The voluntary nature of the study was explained to the students prior to their participation. The fact that the participation would have no impact upon the module's assessment was emphasised both verbally and in the study's information letter. Information about the study was made available to the students electronically one month prior to the data collection period and a hard copy of the same information was distributed to each potential participant at the point of data collection. Completion of the SMEOLE questionnaire was anonymous and was taken as consent for participation in this element of the study. Ethical approval was granted from the University's Ethics Committee – application number available on request from the corresponding author.

8. Findings

This section of the paper will present the quantitative analysis, the results of the Cronbach alpha test and a description of the correlation analysis that was carried out on the different components of the SMEOLE questionnaire. This section will be followed by a discussion of these findings.

8.1. Descriptive Statistics

Comparison of completion rate and lecture register indicates that the SMEOLE questionnaire achieved 100% completion rate for those students present at the distribution point – the final lecture of the module. Every participant completed all of the quantitative questions in question categories, although not all the students successfully followed the instructions provided at the top of the questionnaire. Students were instructed to indicate their level of agreement with the SMEOLE statements using a cross, on a 5 point ordinal Likert scale: strongly agree, agree, undecided, disagree and strongly disagree. 17 out of 46 respondents understood the SMEOLE instructions completing the questionnaire correctly throughout. 6 out of 46 students made corrections in their completion of the questionnaire, partially complying with the format recommended in the SMEOLE instructions. Furthermore, one student selected more than one option on the Likert scale for each of the statements. These findings indicate that 50% of the students who completed the SMEOLE questionnaire did not fully understand the instructions provided.

The mean and standard deviation ranges for each of the seven categories of the SMEOLE questionnaire were calculated and are displayed in Table 1.

Table 1. SMEOLE Descriptive statistics: mean and standard deviation scores.

Descriptive statistics SMEOLE		
Question category 1 - student face to face contact		
	Mean	Std. deviation
1.1. The lecturer communicated effectively about the online learning	1.4	0.49344
1.2. The lecturer was concerned about student learning	1.6	1.04048
[a]1.3. The lecturer was not very enthusiastic about the online learning	4.6	0.71051
1.4. The lecturer used Moodle to create a comfortable learning space.	1.6	0.50121
Question category 2 – cooperation among students		
2.1. The online role-play promoted cooperative learning activity between students	1.8	0.60313
2.2. The online role-play encouraged students to interact with one another	1.6	0.57651
2.3. Undertaking the online role-play has helped me develop my ability to work as a team member	2.2	1.06707
[a]2.4. The way the module was structured failed to facilitate the sharing of ideas and learning with other students.	3.9	1.11468
Question category 3 - active learning		
3.1. The online role-play increased my interest in the professional issues of midwifery practice	2.0	1.09191
[a]3.2. The online role-play did not enable me to develop my midwifery skills	3.9	0.99394
3.3. The role-play motivated me to learn more about this area of midwifery practice	2.2	0.94996
3.4. The module was designed to allow me to take responsibility for my own learning.	1.8	0.82474
Question category 4 – time on task		

Descriptive statistics SMEOLE		
[a]**4.1. The online role-play was not well organized**	3.9	0.82269
4.2. The role-play helped me achieve the learning outcomes of the module	2.4	0.91049
4.3. The time spent undertaking the role-play was appropriate for the learning achieved	2.4	0.83203
4.4. Participating in the role-play was a good use of my time.	2.5	1.01354
Question category 5 – high expectations		
5.1. We were provided with clear explanations of our weekly role-play activities	1.6	0.77053
[a]**5.2. The online instructional materials were difficult to understand**	4.0	0.82970
5.3. I felt well prepared to undertake the online role-play.	2.1	0.87444
Question category 6 - diverse talents and ways of learning		
6.1. The online role-play provided the opportunity for students to make unique contributions to the learning	1.9	0.65349
6.2. The lecturer was tolerant of students' ideas and views	1.3	0.44396
6.3. Our IT literacy level did not impact upon the online role-play activity	2.0	0.95346
6.4. There was sufficient flexibility for the completion of the online role-play.	1.7	0.67420
Question category 7 - overall		
7.1. The online role-play enabled me to see maternity care from the woman's perspective	1.6	0.83203
7.2. The role-play activity increased my understanding of midwifery decision-making and the emotional complexities that are involve	1.7	0.81294
7.3. This exercise is a valuable part of the module.	2.2	1.05798

a

Statement negatively worded.

In each category, bar one, differences in the means were accountable by the negative wording of the statement. For example, in category 1 - ‘Student face to face contact’, all statements achieved a

mean score of 1.6 or below. Only one statement had a higher mean score of 4.6, and this statement was negatively worded – 'The *lecturer* was not very enthusiastic about the online learning'. The relatively higher mean for this statement suggests that the students did not agree with this statement, a response that was in line with the scores for the other statements in the category. This pattern of means was consistent across all of the seven categories of questions although the pattern was stronger for some categories than others, with the pattern being strongest in question categories one, three and four. Interestingly those categories that did not show this pattern particularly well, tended to excite more interest during the focus group interview, which will be discussed in the subsequent paper in this series.

Standard deviation scores were on the whole low suggesting a high level of consensus of opinion across all the participants on all of the seven question categories. The standard deviation scores were highest for the Cooperation Among Students category of statements and this was the only category to have a statement with a standard deviation score above 1.1. Not surprisingly, this category turned out to be an element of the questionnaire that the focus group were keen to explore and became most animated about, a point to be explored in the subsequent paper in this series. Question categories 5 and 6 (High Expectations and Diverse Talents and Ways of Learning) both had standard deviations scores across all their statements below 1 and all the other categories of questions in the SMEOLE questionnaire had scores below 1 for all but one statement.

The standard deviation scores of the five negatively worded statements in the questionnaire were checked and no consistent pattern was observable. Some of these statements achieved low standard deviation scores while others had relatively high scores. This finding suggests that the students read the negatively phased statements correctly and responded accordingly.

8.2. Reliability Testing

The reliability of the SMEOLE questionnaire was measured using the Cronbach alpha measure. The seven categories together showed at least a good level of internal consistency, as shown by values of Cronbach's coefficient alpha above 0.7 (range 0.7–0.8). Item total statistical analysis indicated an increase in the coefficient score to above 0.8 if the statement '*The online role*-play did not *enable* me to develop my midwifery skills.' were to be removed from the questionnaire.

9. Internal Consistency Testing

Finally, all the data from the seven question categories were checked for correlation coefficients using a non-parametric tests for ordinal data – Spearman's test (see Appendix A). For question category 1, Student Face to Face Contact, all correlations followed the expected pattern. That is to say, the negatively worded statement had a negative correlation with the other statements in the category, while all the other positively phrased statements were positively correlated. However only the correlations between statement 1.1 'The *lecturer* communicated effectively about the online learning' and the other statements in this category were significant.

The correlation between the statement scores in category 2, 3 and 7, (2. Cooperation Among Students, 3. Active learning and 7. Overall) were stronger with every one reaching statistical significance and correlating in the pattern expected for the wording of the different statements. Correlations in category 4 -Time on Task - followed the expected pattern for all the statements bar 1 – *The time spent undertaking the role-play was appropriate for the learning achieved*. This positively phrased statement was unexpectedly positively correlated to the negatively worded statement in this category, although it is worth mentioning that none of the correlations between this negatively worded statement reached statistical significance. All the other positively phrased statements in this

category by contrast had statistically significant correlations. The correlations in category 5 - High Expectations - followed the expected pattern reaching statistical significance. The correlation pattern for category 6 - Diverse Talents and Ways of Learning was also as expected, although there was only one statistically significant correlation between two sets of statements in the category, '*Our IT literacy level did not impact upon the online role-play activity*' and both '*The role-play provided the opportunity for students to make unique contributions to the learning*' and 'There was sufficient *flexibility* for the completion of the online role-*play*.'

Overall these findings indicate that the tool has an adequate level of internal consistency and reliability. The completion rate suggests that feasibility of using the tool is good. The findings also provide invaluable evidence for development of the instructions on the questionnaire.

10. Discussion

Despite the UK higher education funding bodies' recent work on the development of the NSS questionnaire, the opportunity for students to evaluate blended learning and TEL components, of their modules and programmes, continue to be conspicuous in their absence. This is surprising and disappointing when considered against the effort that went into this work including the commissioning of an advisory study that comprised a structured literature review, including focused search procedures of academic databases and 'grey literature' (Diamond et al., 2014), an information mapping study (Diamond et al., 2016), further primary research conducted by the education bodies themselves to inform proposals for the future direction of the Key Information Set and Unistats (HEFCE et al., 2015) and a three month open consultation period.

This wasted opportunity makes the proposition of this paper more urgent. The research, described above, was driven out of a concern that the pre 2016 NSS ignored current TEL curriculum developments and therefore failed to reflect students' learning experience. Unfortunately the 2017 NSS questionnaire suffers from the same limitation. The University-based module evaluations that follow the NSS structure, fail to capture student attitudestowards the changing learning environment where blended learning techniques using technology have been increasing adopted.

The quantitative outcomes of this research suggest that while areas for improvement are evident, students will be receptive to a shift in priority in student feedback. The 100% completion rate for example, which resonated with the findings from the qualitative analysiswhere students talked positively about the design and usefulness of the SMEOLE questionnaire, suggest that students would value the opportunity to feedback on all elements of the module, including the blended learning and TEL approaches, and not just those captured in the UK NSS questionnaire. The reassuring means and standard deviation values are likewise encouraging.

While these findings are encouraging however, there are limitations in the SMEOLE, revealed by the quantitative analysis, warranting further discussion. The accuracy in completion of the questionnaire for example, was an unexpected and disappointing finding. Compelling data on this issue arose out of the qualitative analysis - to be described in the subsequent paper - providing invaluable information for the future and apparently essential piloting work. One solution to this problem, not without its irony, would be to design the questionnaire electronically and this is an area for further exploration and testing.

The Cronbach's coefficient alpha values with the statement 3.2 removed (*The online role*-play did not *enable* me to develop my midwifery skills) is disappointing as this is a crucial element of the learning that needs to be evaluated. Further work on the phrasing of this statement to strengthen

the internal consistency of the questionnaire is another development objective indicated by this work.

The Spearman's correlation coefficients data was on the whole encouraging although stronger correlations within some of the categories of statements would have been more reassuring.

11. Conclusion

In this paper, we have described the quantitative results of a mixed methods educational evaluation study. The quantitative arm of the study was designed to test the internal consistency, reliability and feasibility of a module evaluation tool specifically developed to capture students' views of and attitudes towards a module designed with a TEL approach. The research described has been driven out of a concern that despite the enhancements recently made to the NSS there is a continued mismatch between TEL curriculum developments and student evaluation opportunities, with the latter trailing behind the former. These findings suggest that this developmental work could provide a valuable basis upon which other blended learning curricular could be effectively evaluated. Not only does this work suggest that a shift in focus at the module evaluation level would be acceptable, the findings provide a framework for this development.

Acknowledgements

We would like to thank the Centre for Maternal and Child Research at City, University of London for sponsoring us to conduct this work. We would also like to acknowledge the *Health's Got Talent* competition and thank them for their recognition and endorsement of this project as an area of best practice and innovation. Thank you to Dave Flinton and Shashi Hirani for their expert statistical input. Finally, we would like to acknowledge the inspirational work of Clive Holtham and his colleagues at Cass Business School, City, University of London and Roz Sunley's 'Laputare' project at the University of Winchester. Without this inspiration our preregistration midwifery education innovation would never have got off the ground.

Appendix A

Spearman's Rho correlation for SMEOLE question category 1

SMEOLE statement number	**1.1**	**1.2**	**1.3**	**1.4**
1.1.	1.000	0.587[a]	− 0.321[b]	0.524[a]
1.2	0.587[a]	1.000	− 0.248	0.162
1.3	− 0.321[b]	− 0.248	1.000	− 0.177
1.4	0.524[a]	0.162	− 0.177	1.000

SMEOLE question category 2

Statement number	2.1	2.2	2.3	2.4
2.1	1	0.575[a]	0.590[a]	− 0.409[a]

Spearman's Rho correlation for SMEOLE question category 1

SMEOLE statement number	**1.1**	**1.2**	**1.3**	**1.4**
2.2	0.575[a]	1	0.449[a]	− 0.357[b]
2.4	− 0.409[a]	− 0.357[b]	− 0.353[b]	1.000

SMEOLE question category 3

Statement number	3.1	3.2	3.3	3.4
3.1	1.000	− 0.508[a]	0.469[a]	0.606[a]
3.2	− 0.508[a]	1.000	− 0.534[a]	− 0.404[a]
3.3	0.469[a]	− 0.534[a]	1.000	0.301[b]
3.4	0.606[a]	− 0.404[a]	0.301[b]	1.000

SMEOLE question category 4

Statement number	4.1	4.2	4.3	4.4
4.1	1.000	− 0.148	0.099	− 0.115
4.2	− 0.148	1.000	0.459[a]	0.646[a]
4.3	0.099	0.459[a]	1.000	0.544[a]
4.4	− 0.115	0.646[a]	0.544[a]	1.000

SMEOLE question category 5

Statement number	5.1	5.2	5.3
5.1	1.000	− 0.573[a]	0.351[b]
5.2	− 0.537[a]	1.000	− 0.391[a]
5.3	0.312[b]	− 0.391[a]	1.000

SMEOLE question category 6

Spearman's Rho correlation for SMEOLE question category 1				
SMEOLE statement number	**1.1**	**1.2**	**1.3**	**1.4**
Statement number	6.1	6.2	6.3	6.4
6.1	1.000	0.177	0.348[b]	1.000
6.2	0.177	1.000	0.192	0.177
6.3	0.348[b]	0.192	1.000	0.348[b]
6.4	0.236	0.181	0.450[a]	0.236

SMEOLE question category 7

Statement number	7.1	7.2	7.3
7.1	1.000	0.711[a]	0.520[a]
7.2	0.711[a]	1.000	0.484[a]
7.3	0.520[a]	0.484[a]	1.000

a

Correlation is significant at the 0.01 level (2-tailed).

b

Correlation is significant at the 0.05 level (2-tailed).

Appendix B Supplementary data

Download Word document (97KB)Help with docx files

SMEOLE questionnaire.

References

Bangert, 2004

A. Bangert**The seven principles of good practice: a framework for evaluating on-line teaching**

Internet High. Educ., 7 (3) (2004), pp. 217-232

ArticleDownload PDFView Record in ScopusGoogle Scholar

Bullock and de Jong, 2014

A. Bullock, P. de Jong**Technology-enhanced learning**

T. Swanwick (Ed.), Understanding Medical Education: Evidence, Theory and Practice (2nd ed.), John Wiley & Sons Ltd., Chichester (2014), pp. 149-160

View Record in ScopusGoogle Scholar

Carroll et al., 2009

C. Carroll, A. Booth, D. Papaioannou, A. Sutton, R. Wong**UK health-care professionals' experience of on-line learning techniques: a systematic review of qualitative data**

J. Contin. Educ. Heal. Prof., 29 (4) (2009), pp. 235-241

CrossRefView Record in ScopusGoogle Scholar

Chickering and Gamson, 1987

A. Chickering, Z. Gamson**Seven principles for good practice in undergraduate education**

AAHE Bull., 39 (7) (1987), pp. 3-7

View Record in ScopusGoogle Scholar

Cooner, 2010

T. Cooner**Creating opportunities for students in large cohorts to reflect in and on practice: lessons learnt from a formative evaluation of students' experiences of a technology-enhanced blended learning design**

Br. J. Educ. Technol., 41 (2) (2010), pp. 271-286

CrossRefView Record in ScopusGoogle Scholar

Creswell and Plano Clark, 2011

J. Creswell, V. Plano Clark**Designing and Conducting Mixed Methods Research**

(2nd ed.), SAGE, Los Angeles (2011)

Google Scholar

Diamond et al., 2014

A. Diamond, J. Roberts, T. Vorley, G. Birkin, J. Evans, J. Sheen, T. Nathwani**UK Review of the provision of information about higher education: Advisory study and literature review (report to the UK higher education funding bodies by CFE research)**

CFE Research, HEFCE, Bristol (2014)

Google Scholar

Diamond et al., 2016

A. Diamond, J. Evans, J. Sheen, G. Birkin**UK review of information about higher education: information mapping study (report to the UK higher education funding bodies by CFE research)**

CFE Research, HEFCE, Bristol (2016)

Google Scholar

Garrison, 2011

D. Garrison**E-Learning in the 21st Century: A Framework for Research and Practice**

(2nd ed.), Routledge, New York (2011)

Google Scholar

Ginns and Ellis, 2009

P. Ginns, R. Ellis**Evaluating the quality of e-learning at the degree level in the student experience of blended learning**

Br. J. Educ. Technol., 40 (4) (2009), pp. 652-663

CrossRefView Record in ScopusGoogle Scholar

HEFCE, 2005

HEFCE**Strategy for e-Learning**

[online]

HEFCE, Bristol (2005)

Available at:

http://webarchive.nationalarchives.gov.uk/20100202100434/http://www.hefce.ac.uk/pubs/hefce/2005/05_12/, Accessed 12th Oct 2016

Google Scholar

HEFCE, 2009

HEFCE**Enhancing Learning and Teaching through the Use of Technology. A Revised Approach to HEFCE's Strategy for e-Learning**

HEFCE, Bristol (2009)

Google Scholar

HEFCE et al., 2015

HEFCE, the Scottish Funding Council (SFC), the Higher Education Funding Council for Wales (HEFCW), the Department for Employment and Learning in Northern Ireland (DELNI)**UK Review of Information about Higher Education: Report on the Review of the Key Information Set and Unistats**

HEFCE, Bristol (2015)

Google Scholar

Higher Education Academy, 2017

Higher Education Academy**HEA Starter Tools**

[online]

HEA, York (2017)

Available at:

https://www.heacademy.ac.uk/enhancement/starter-tools/blended-learning, Accessed 1st Oct 2017

Google Scholar

Kember, 2008

D. Kember**Reflective Teaching and Learning in the Health Professions**

John Wiley & Sons, Chichester (2008)

Google Scholar

López-Pérez et al., 2011

M. López-Pérez, M. Pérez-López, L. Rodríguez-Ariza**Blended learning in higher education: Students' perceptions and their relation to outcomes**

Comput. Educ., 56 (3) (2011), pp. 818-826

ArticleDownload PDFView Record in ScopusGoogle Scholar

Mann et al., 2007

K. Mann, J. Gordon, A. MacLeod**Reflection and reflective practice in health professions education: a systematic review**

Adv. Health Sci. Educ., 14 (4) (2007), pp. 595-621

View Record in ScopusGoogle Scholar

Stacey and Hardy, 2011

G. Stacey, P. Hardy**Challenging the shock of reality through digital storytelling**

Nurse Educ. Pract., 11 (2) (2011), pp. 159-164

ArticleDownload PDFView Record in ScopusGoogle Scholar

Wilkinson et al., 2009

A. Wilkinson, A. While, J. Roberts**Measurement of information and communication technology experience and attitudes to e-learning of students in the healthcare professions: integrative review**

J. Adv. Nurs., 65 (4) (2009), pp. 755-772