

Effect of blended teaching on research skill attainment among health sciences doctoral students: a pilot survey results

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Abstract

Current models of doctoral research training on Computer-Aided Qualitative Data Analysis (CAQDA) are often remain problematic in terms of cost and time effectiveness. This study aims to explore the use and effectiveness of the blended teaching and learning methods in teaching NVivo qualitative research software skills for health sciences doctoral students in one North East University in England. After delivering a course, we assessed self-measured confidence and evaluated the course. Findings shows that blended teaching-learning approach would enhance student confidence in using Nvivo 10 research skills among health sciences doctoral students. Further work is needed to explore the strategies to enhance student satisfaction.

Key words: NVivo, blended teaching methods, health sciences doctoral education, e-learning, researcher development

Introduction

Qualitative research methods remains as popular research methods within health and social sciences research particularly in nursing research in the UK ¹. NVivo software was designed by QSR international to support qualitative researchers to analyse their unstructured data in a systematic way ^{2,3}. By using NVivo, both text-based and visual data can be analysed. Hence, there is a greater learning need among health sciences doctoral students to utilise this qualitative research software either to use or enhance their awareness.

Currently, various learning opportunities are available for training the use of NVivo. This includes free workshops, webinars, and YouTube tutorial videos that promote self-learning. On the other

hand, most UK universities deliver NVivo research training through their central research-training faculty (for example Graduate School) for all their doctoral students using diverse teaching methods. Recently blended teaching proved to be effective educational strategy¹⁻³. Indeed, blended teaching was commonly used teaching method in training research computer skills. Many global universities deliver a two days course; first day was about theory of NVivo principles and second day was focusing on practical demonstration. Another model is to deliver a 1/2 day of theoretical learning experience and ½ day of practical demonstration. Some other universities offer a short NVivo course as a content-based approach that consists of a two days course (one day for managing media files and another day for teaching on managing text files). structure of delivering the course that consists of self-directed e-learning experience related to theoretical content of Nvivo 10 as a

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Indeed, this structure does have an approach that facilitates teaching Nvivo 10 with two different variety of data i.e. text and media. Other universities have also developed a newer structure of delivering the course that consists of self-directed e-learning experience related to theoretical content of Nvivo 10 as a pre-requisite followed by a ½ day of face to face delivery of demonstration of Nvivo 10 skills.

In spite of these significant attempts of delivering teaching and learning methods in NVivo courses, due to the higher popularity, we have found that a sizable number of doctoral students on waiting list to undertake this training in any UK universities. This results in Graduate schools to struggle to deliver this course to a wider number of students across the University. On the other hand, little is known about the effectiveness of various learning-teaching strategies in relation to doctoral students' research skills enhancement. Therefore, in an attempt to encourage more student-centred learning, we conducted a pilot study to investigate the effectiveness of the blended teaching and learning methods in teaching Nvivo 10 qualitative research software courses for doctoral nursing research students.

Methods

We used survey method to evaluate effectiveness of the blended teaching and learning methods in teaching Nvivo 10 qualitative research software courses for doctoral nursing research students.

Setting and sampling: This study took place in a University in the North East of England where the researcher/s were employed. A convenience sample of all health sciences doctoral students of second year and third year were included (n=53), however we informed this course will be offered only for first 15 volunteers. All students were informed about this study through an email invitation. Students were notified that their participation in the research was voluntary and did not provide any formal academic credit, and would mean completing a survey questionnaire.

Intervention: Based on the literature and previous experience of the first author, we developed a two stage Nvivo 10 blended training course.

Stage 1: an e-learning course that consisted of

a) Introduction about this e-learning course

b) Learning Zone on the topic NVivo 10 (Introduction about NVivo 10, Benefits and purposes of NVivo 10, Key components of NVivo 10 and video tutorial based Basic NVivo skills that are needed for using Nvivo 10.

c) A short assessment. We made as passing this short assessment as mandatory to participate in stage 2 face to face practical demonstration

The e-learning portal was developed by the learning technology team and tested by the authors before it went live. All 15 students were approached through an email that contained link with e-learning portal where the course was attached.

Stage 2: In this ½ day of course, students were given hands-on training on further key skills related to the NVivo 10 course. This was supported by a practical workbook.

Data collection: On completion of course (both face to face and eLearning), students were asked to complete two assessment tools:

1) Quantitative survey using self-measured confidence scale.

To determine students' initial self-assessed confidence on the use of this eLearning package on NVivo skills, this study used modified the Pittsburgh Freshman Engineering Attitudes Instrument (PFEAS). PFEAS is a closed-form survey questionnaire developed and tested at the University of Pittsburgh that was originally designed to evaluate innovative changes made to the engineering curriculum at the University of Pittsburgh (Besterfield-Sacre et al., 2001). In this questionnaire, students were asked to rate their self-assessed confidence in the pre-requisite background knowledge and skills and in their perceived ability to utilize NVivo. (See Table 1).

2) Modified course Evaluation tool

In order to assess the course content and learning outcomes, we used following modified module evaluation tool. (See Table 2)

Table 1: Modified PFEAS scale

Self-Assessed Confidence measure or statement	Rating Value
I feel confident in my basic <i>understanding about the purposes and benefits of using NVivo 10 for analyzing qualitative data.</i>	1-has low confidence 5-has high confidence
<i>'I feel confident in my knowledge of using key components of NVivo 10 , a qualitative analysis software'</i>	1-has low confidence 5-has high confidence
<i>"I am confident about my skills in identifying the key components of NVivo 10 for routine qualitative analysis "</i>	1-has low confidence 5-has high confidence
<i>'I am confident about my basic understanding about coding and querying skills through using NVivo 10'</i>	1-strongly disagree 5-strongly agree
<i>"I feel confident in my ability to using NVivo 10 in my future qualitative data analysis."</i>	1-strongly disagree 5-strongly agree

Table 2: Modified course Evaluation tool

S.N	Module Evaluation Tool	Rating Value
1	<i>The module was well structured</i>	1-strongly disagree 4-strongly agree
2	<i>The workload for this module was greater than for other face to face research training at the same level</i>	1-strongly disagree 4-strongly agree
3	<i>E-learning material was well organised</i>	1-strongly disagree 4-strongly agree
4	<i>The tutor was able to explain the material clearly</i>	1-strongly disagree 4-strongly agree
5	<i>The material was at level appropriate to the stage of your research training programme</i>	1-strongly disagree 4-strongly agree
6	<i>Learning outcomes were clearly stated</i>	1-strongly disagree 4-strongly agree
7	<i>Module material was consistent with stated learning outcomes</i>	1-strongly disagree 4-strongly agree
8	<i>Recommended online sources of information was useful</i>	1-strongly disagree 4-strongly agree
9	<i>Video practical's were relevant and stimulating</i>	1-strongly disagree 4-strongly agree
10	<i>The use of visual aids for E-learning was helpful</i>	1-strongly disagree 4-strongly agree

Ethics consideration:

We obtained appropriate departmental approvals before we conducted this study. Furthermore, as this software was developed and was designed by QSR internationals, Australia and teaching this course needed to extensively use screenshots of Nvivo 10 software; formal approval was obtained from QSR internationals, Australia. Contact details of student support groups for example NVivo support forum were provided. Prospective students were requested to provide inbuilt informed consent prior to enter this e-learning course. We informed the students that their individual identities would remain anonymous.

Results

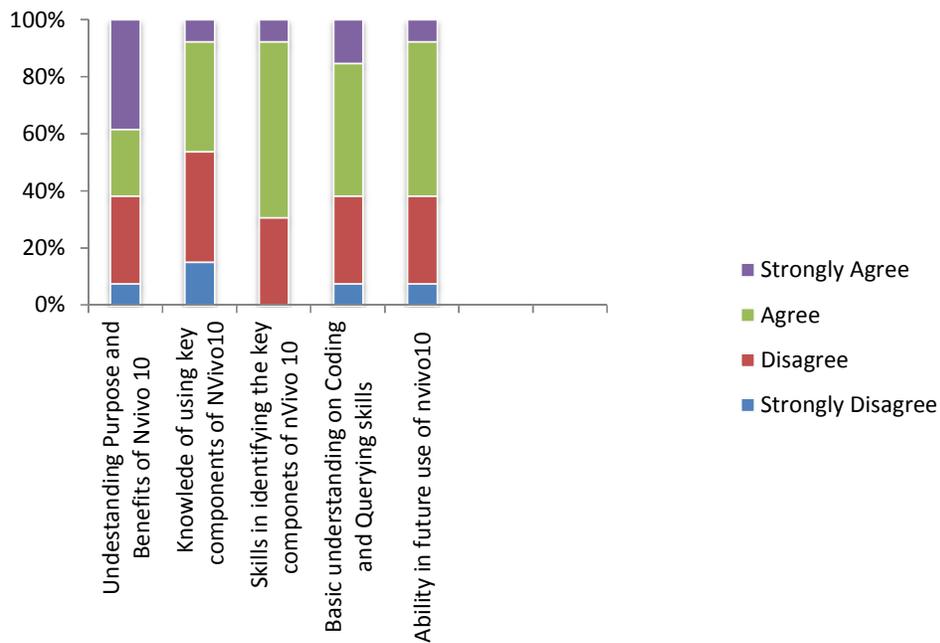
This study was conducted during November 2011-December 2012. In total, 15 students expressed their interest and enrolled into the course. Four students dropped out from the course. The reasons include that they received a place on another course; Graduate school introduced additional courses to

reduce the waiting list, sickness and their teaching commitments. However, as we re-enrolled other students who expressed their interest to attend this course, finally 13 doctoral students attended this course and all completed the evaluation tool.

Findings 1: Does blended learning increase doctoral students’ self-confidence to utilise NVivo research skills?

Our findings show that 60% (n=7) of the participants felt confident about their basic understanding about the purposes and benefits of using NVivo 10 for analyzing qualitative data. Furthermore 70% (n=8) of participants were confident in their skills in identifying the key components of NVivo 10 for routine qualitative analysis. However 50% (n=6) participants reported that they had low confidence in their knowledge of using key components of NVivo 10. On the other hand, 60% (n=7) participants reported their higher confidence level in their ability to use NVivo 10 for their future qualitative data analysis.

Figure 1 self-reported confidence rate among health sciences doctoral students

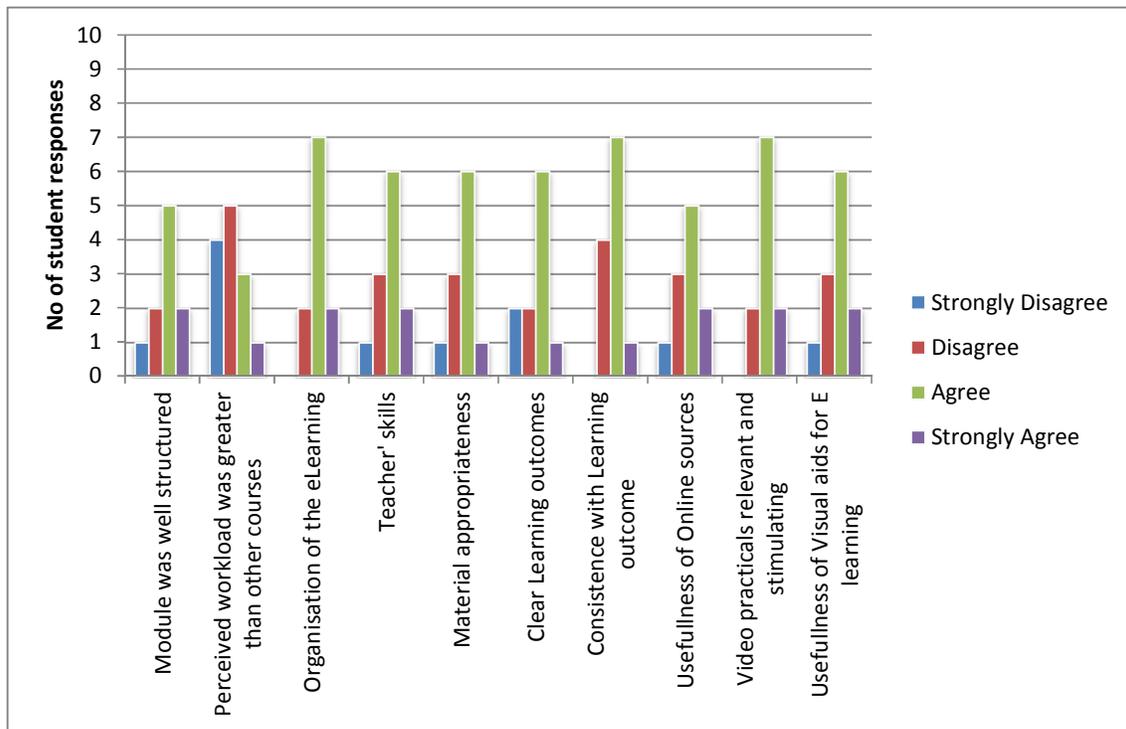


Findings 2: How well blended learning course suited health sciences doctoral students’ learning needs in utilising NVivo research skills?

The highest degree of agreement (70%) (n=8) observed among our participants was in the area of the structure of the module and organisation of e-learning materials, and similar grade of participants

also agreed that the video practical contained relevant materials and was stimulating. 60% (n=7) of participants were in positive agreement with learning outcomes and appropriateness of the module with their learning needs. Importantly, 80 % (n=10) of participants disagreed that their perceived workload for this module was greater than for other face to face research training at the same level.

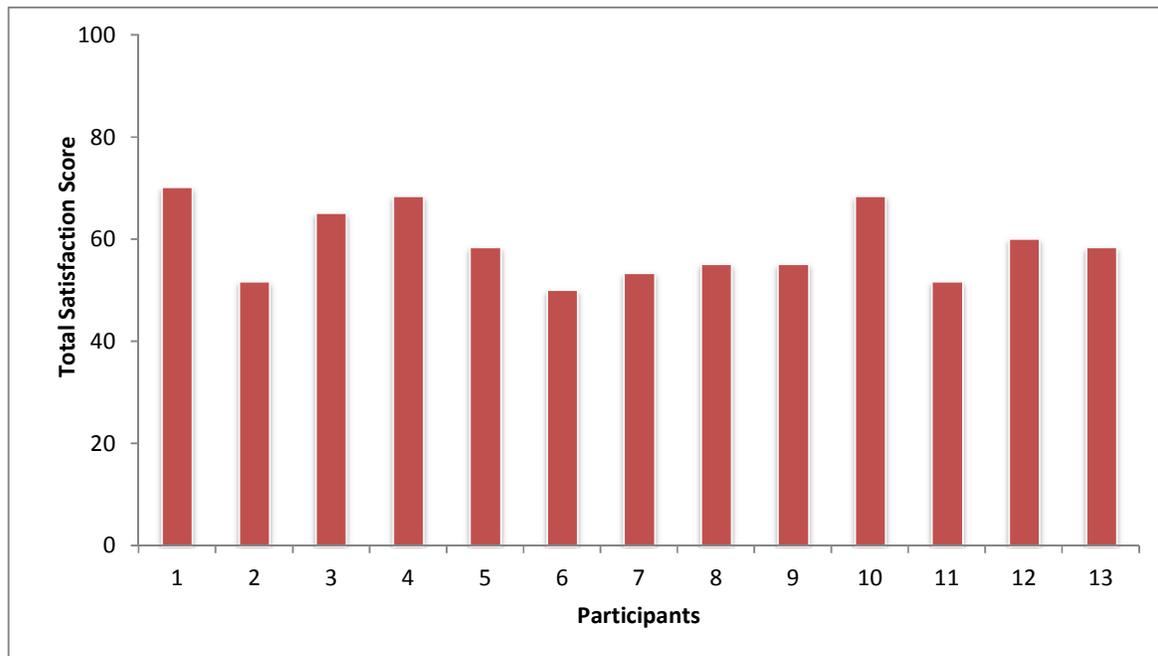
Figure 2: Doctoral nursing student’s response to module evaluation tool



Findings 3: How well were health sciences doctoral students satisfied with blended learning course?

The health sciences doctoral students were asked questions (five point Likert scale , where 0 being level low confidence and 5 being highest agreement) on their confidence in understanding the purpose and

benefits, knowledge, skills , understanding coding and querying in NVivo software. The sum of score of individual students was normalised to 100 where 0 being worst possible score for satisfaction and 100 being the best possible score. Results shows that over 50% of students were satisfied with overall learning outcomes of this blended learning on the research skills.

Figure 3: Overall student satisfaction with blended learning course

Discussion

Our findings demonstrated that blended learning methods in doctoral education could increase health sciences doctoral student self-confidence to utilise their learned research skills in the future. This is similar to the other studies that evidenced the use of e-learning in higher education settings that benefits flexibility, ability to address individuality and cost effectiveness^{4,5}. In contrast, a systematic review on web based learning (WBL) argued that WBL does not always facilitate 'individualised instruction' may result in social isolation, increased up-front costs and technical problems⁶. Another comparative study between online and classroom based pharmacology courses⁷ revealed that online course students reported less self-perceived knowledge gains that resulted in poor course evaluation.

In our study, most of the health sciences doctoral students agreed that video tutorial based teaching enhanced their learning outcomes. This is contrast to some poor practices developing e-learning resources as a traditional monotonous audio-recording or video recording on PowerPoint based on presentation.

However, we created an enriched interactive e-learning resource in our study through working together with university learning technology team. This includes online resources such as video recorded authentic scenarios, problem based learning methods (scenario based learning), and student centred learning activities, opportunity for students to provide responses, providing online constructive feedback based on student response, expert views on student responses, integrating further learning opportunities and other supportive resources. Our findings resonates with a pervious study by So³ that evidenced that use of blended teaching methods that includes a careful integration of instructional activities and appropriate mode of delivery that facilities more student satisfaction. Kirkley and Kirkley¹ suggested the need for teachers to recognise the importance of integrating constructivist principles while creating blended learning environments that are 'realistic, authentic, engaging and extremely fun'. Such student centred approach is essential as student motivation remains mainstay in any learning and blended success².

Conclusion

Our study suggests that delivering Nvivo 10 research training through the blended structure teaching and learning method helped to deliver more sessions and encourage student centred learning. This indeed could facilitate more students to attend this course and also reduce workload for the staff. However, further research is needed to explore and devise strategies to make students attend the face-to-face practical session with adequate preparation. One way possible is to be firm with formal assessments that were associated with e-learning materials as a pre-requisite. Further exploration is needed to provide a concrete initial introductory learning experience and on-going and

drop in sessions for NVivo training could have been useful to enhance student satisfaction. Evidence suggests (2001) that the meaning and value of self-directed learning SDL is explicit only when used in conjunction with teacher-led methods. Therefore, further work is needed to explore the strategies for enhancing student satisfaction.

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