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YMIDW-D-16-00350 'Innovation in preregistration midwifery education: web based interactive storytelling learning.'

Highlights

- Web based storytelling offers a way of instilling empathy into midwifery practice.
- The technology used is relatively low tech and low cost for simulated practice.
- This pedagogic approach has significant potential for use in diverse settings.
- There is a significant time cost in using web-based interactive storytelling.

Abstract

Background: Through a critical description of the implementation of a web based interactive storytelling learning activity introduced into an undergraduate, preregistration midwifery education programme, this paper will explore how low-cost, low-fidelity online storytelling, designed using Moodle, can be used to enhance students' understanding of compassion and empathy in practice.

Sample: Cross sectional sample of first year undergraduate Midwifery students (n111)

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Method: Drawing from both research and audit data collected in an Higher

Education Institution in London England, the paper presents the case for using

web based technology to create a sustainable model for midwifery education.

Results: Initial results indicate that it is both the low cost and positive student

evaluations of web based interactive storytelling, which make this approach to

preregistration midwifery education which suggests that this approach has

significant potential for learning and teaching in midwifery education in diverse

settings around the world. Or how about: global relevance?

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Introduction

There is a general consensus that compassion and empathy are essential components to safe and effective midwifery practice. Despite this, troubling evidence from all over the world suggests that qualified midwives can fail to embrace these core values in their everyday practice (Bowser and Hill, 2010; White Ribbon Alliance, 2011; WHO, 2015; Kirkup, 2015). Given the significant benefit to women, the inclusion of an effective method for midwifery students to experience what compassionate and empathetic care looks like, and how it feels to receive it (or not receive it), was considered to be fundamental to the development of a first year, BSc midwifery professional practice module. The objective of this paper is to firstly, provide a description of a technologically based educational devise – online storytelling – that was used for the exploration of empathy through experiential learning; secondly, present empirical evidence collected to capture students' evaluation of this pedagogic approach to learning to care. This online learning was designed to emulate a practice environment where students could apply their theoretical learning of the ethics of professional practice, to authentic tasks involving complex decision-making. The blended learning module described in this paper was delivered as part of a preregistration programme in London England.

In the paper we firstly describe the fictional, virtual community we created to host an interactive role-play. This description will be followed by the presentation of two discrete and different types of data - student authored, web based interactive storytelling, collected for auditing and showcase purposes and secondary outcomes of a research project designed to test a blended learning

evaluation tool. Using this material, the paper will illustrate our successes and failures in enhancing the students' understanding and insight into compassionate and empathetic care through web based interactive storytelling.

Background

Higher education across a range of health professions has embraced the use of interactive technology, both virtual and physical, in its preregistration education delivery. Student opportunities to learn and consolidate professional knowledge and skills using technology enhanced learning environments range from hands on clinical simulators (McKenna, 2011; Reilly, & Spratt, 2007) to high fidelity online gaming (Boulos, 2007; Jarmon et al, 2009; Killi, 2005; Wiecha et al 2011). Uptake of a pedagogy using online simulated practice in midwifery, however, has been relatively slow. Furthermore, both simulated approaches to practice learning, while successful in many high-income country contexts, are limited by the financial investment required and level of technological expertise needed for their development. Sustaining such technology-enhanced learning environments are consequently viable only for those institutions that have the substantial resources necessary to invest in both technology and people. In response to the intensification of the austerity measures within public funded Higher Education in the UK, we set out to provide first year preregistration Midwifery students with an online interactive learning environment that embedded the core values of compassion and empathy into their learning experience without incurring a significant cost burden to the publically funded University. What is distinct about the online content delivery described in this paper is the adaptation of the principles of 'serious gaming' (Ritterfeld et al, 2009) – gaming that is undertaken

for educational purposes- to a low-fidelity and importantly low cost, open source learning platform – Moodle (Modular Object-Oriented Dynamic Learning Environment) a free open-source e-learning management system . It is a relatively low cost technology-enhanced learning environment that could have application worldwide.

Methods

This section of the paper has a dual purpose, reflecting the dual aim of the paper itself. This duality stems from our desire to describe both the intervention itself – the web based interactive storytelling learning – as well as the audit and secondary research outcomes that arose out of this intervention. The first part of this methods section will focus on describing the online role-play environment that was created for two cohorts of undergraduate midwifery students in the academic years 2014/15 and 2015/16. This will be followed by a description of the data collected through both audit and primary research.

The intervention

Since learning by doing is considered to be a useful for device for the acquirement of the tacit knowledge that is intrinsically bound to the action itself, in this case caring, Health education programmes emphasise the importance of practice based learning – both simulated and real. What such learning experiences do not necessarily provide however, is a sense of the experiential knowledge from the service user's perspective: How it feels to be on the receiving end of the care. In an effort to provide such learning, thereby giving students a lived experience where empathy could be explored, we developed two fictional immersive communities in Moodle: Beccasville and Charlotesville.

Using these relatively Moodle based activities, first year midwifery undergraduate students were able to experience what it is like to make autonomous clinical decisions as a midwife and more importantly, what it feels like to be in the shoes of the service user affected by these clinical decisions.

Each student had the opportunity to play both a midwife and a client as the roles were reversed when the role-play moved from one fictional community to the other. Storytelling was an essential component to the design of the role-play. Plot development devices, strongly defined characters and dilemmas designed to encourage the students to scrutinize their own preconceived ideas and prejudices were embedded throughout the role-play. Character information about the midwife was provided upfront, information about the woman's character and her domestic circumstances was released sequentially as the role-play developed. This drip-feed approach was designed to encourage dynamic and responsive decision-making. Although the communities and characters in the interactive storytelling were fictional, we drew heavily upon the clinical experience of our midwifery academic staff to ensure authenticity.

Students attended two, real time antenatal appointments both as the midwife and importantly for this paper, the pregnant woman- one at 12 weeks gestation the other at 36 weeks - during each of the two role-plays. In the first running of the two role-plays students conducted these appointments using Adobe Connect webinar platform (a synchronous, audio and visual, multi person interactive web based meeting space). The option to use Adobe Connect gave students the flexibility to interact face-to-face whilst not having to attend the university. Due to technical limitations however, in the second running of the role-play students

were able to conduct the appointments either using Adobe Connect or physically in classrooms provided on campus. Having attended the appointments, students were tasked with completing and sharing several online activities hosted on Moodle. When playing the pregnant mother this activity included online forum chats and reflective journals. All of these activities were undertaken in character.

The data

The data used in this paper has been taken from two separate sources: the first is an audit and the second a research project.

The audit

Audit of the web based interactive storytelling took place during the first running of the web based interactive storytelling learning in the academic year 2014/15. The anonymised extracts of Moodle posts made by the students during the role-plays that appear in this paper have been taken from this audit exercise.

Audit sample

68 students took part in the web based interactive storytelling learning. All online role-play posts made during the academic years 2014/15 were analysed for the audit.

Audit design

Prior to the commencement of the interactive storytelling learning exercise, participating students were informed that their involvement in this learning activity was part of a curriculum feasibility exercise that involved audit data collection. Oral consent to use their online contributions as part of the

curriculum development audit and audit dissemination via conference papers and publications was gained. The students were encouraged to be actively involved in the production of the audit documents, publications and conference presentations.

The research

The second data source used in this paper comes from a research project designed to develop a reliable and valid evaluation tool to measure acceptability of and satisfaction with this blended learning approach to preregistration midwifery education - Student Midwife Evaluation of Online Learning Effectiveness (SMEOLE). The questionnaire used is included in the appendix of this paper.

Sample:

All the students who took part in the second running of the web based interactive storytelling learning in the academic year 2015/16 were invited to complete the education evaluation tool. To optimise the response rates, students were given time during the final lecture of the module complete questionnaire. 43 of the 58 students who took part in the online role-play completed the questionnaire.

Design:

The structure of the evaluation tool came out of Chickering and Gamsons (1987) Seven Principles of Good Practice in Undergraduate Education. This influential work, used for the development of best academic practice in HEI internationally, underpinned both the web based interactive storytelling itself and the evaluation

tool designed to test its acceptability and effectiveness. The SMEOLE

questionnaire used a standard likart scale to measure acceptability and

effectiveness against seven indicators that were adapted from Chickering and

Gamsons' work: [1] the lecturer's role in the web based interactive storytelling

learning; [2] the development of reciprocity and cooperation among students in

the learning activity; [3] the level of personal engagement and active learning

inspired by the activity; [4] the allocation of time in relation to the value placed

on the learning; [5] the adequacy of the expectation management and

preparation for the task; [6] respect and provision for different ways of learning;

[7] the opportunity to develop skills relevant to the module's learning outcomes.

The data

The research data included in this paper are taken from the SMEOLE project's

secondary outcome measures: the acceptability and effectiveness of web based

interactive storytelling learning as part of an undergraduate midwifery

curriculum. The secondary outcomes included describe four of the seven

indicator measures: the lecturer's role in developing a safe learning environment,

the development of reciprocity and cooperation, the level of personal

engagement the learning inspired and the opportunity to achieve the learning

outcomes – compassion and empathy skills – of the module.   These data take the

form of descriptive statistics of the indicator scores and extracts of optional free

text feedback included in the questionnaires.

Ethics

Ethical approval was obtained from the City University London's Senate Research Ethics Committee.

Findings

This section of the paper falls into two discrete sets of findings. The first part, audit findings, will provide vignettes lifted from the role-play itself. This will be followed by a description of the secondary outcomes of the SMEOLE research project, conducted to test an educational evaluation tool designed to measure the acceptability and effectiveness of the web based storytelling learning.

Audit findings

From analysis of the online contributions made by the students we were able to identify three themes that mapped well against the learning outcomes of the module in which the web based interactive storytelling learning was introduced.

Authenticity

One of the most gratifying observations to come out of the audit of the web based interactive storytelling learning was the student's enthusiasm for creating an authentic experience, particularly when playing the character of the pregnant woman. This could be seen through the style of language some of the students adopted in their in-character Moodle based communications when they played the pregnant women. The extract, taken from a Moodle discussion activity in week two of the role-play set in the fictional area of Charlottesville, provides a sense of the effort put into this authenticity:

> *'Wow well ive just read that article you were talking about too! I'm sure Katie Price and Victoria Beckham had C sections, you know to posh to push!!*

> *I defo want one theres me worrying about getting to the hosy at night well I*
>
> *could just book my section have childcare for Sidney sorted I dunno with a*
>
> *neighbour or something and know I will be out asap!! Hang on need to ask*
>
> *the midwife how long I will be kept in after the c section though!!*

Such effort at authenticity were consistent through both the 2014/15 and 2015/16 running of the web based interactive storytelling learning. This getting in character appeared to allow the students to discard their professional persona and immerse themselves in the care episode from the service user perspective. As such the students were able to engage in midwifery care from the woman's perspective, walking a mile in their shoes.

Tensions

Relationship development between the midwife and the woman was achieved by building the story sequentially during the role-play, typically by introducing elements of tension that both characters in the role-play had to manage.   These tensions did not necessarily play out in the real time appointments (although sometimes this was the case) however, the online reflection activities particularly for those playing the pregnant woman, allowed students to explore the lived experience of clinical care tension, as this extract illustrates:

> *'I had my 36 week check today and I told my midwife that I was interested*
>
> *in requesting an elective section. All the celebs living a grand celebrity life*
>
> *style are having them. If they feel to posh to push, why cant I choose the*
>
> *same option. I told the midwife it would be more convenient for me as I*
>
> *already have a little girl, this way I can make childcare plans for her and not*
>
> *go through the frustration in waiting. The midwife didnt seem impressed*

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with my reasons and kind of became a bit impatient with me. She expressed

that a section is major abdominal surgery...like I don't already know this.

I'm already fed up of being pregnant and the uncertainty of when the baby

will come will drive me insane like it did with my first. Hopefully I can

convince her in 2 weeks time, as I'm running out of time and I am already

tired of this and want my life and my body back to normal.'

As this extract suggests, the service users perspective of the care they received was frequently at odds with the midwife's perspective. This disconnect tended to create tensions that the students endeavoured, not always successfully, to resolve.   Importantly, the students were able to identify practice quality and explore the anxiety unsympathetic practice can cause. This insight allowed the group, in classroom based discussions, to unpack what constitutes compassionate and empathetic sensitive midwifery practice.

Disclosure

Economy with the truth was another important theme that came out of our audit of the web based interactive storytelling learning. The extracts below, taken from several of the pregnant mother's in character, online discussion activities, provide examples of the kind of things the students grappled with.

Student A: 'it's tough not knowing exactly who Sid's father is and having to

say that in front of the midwife.

Student B: Maybe just don't mention unless its asked, that way it saves you

from going over old ground which is sometimes hard to talk about.

Especially now you have good support from your current partner. Are you gonna mention about the previous miscarriages?

Student A: that's got to be a tough to talk about too, I found from going through that too I only really mentioned if it was asked.'

Other students expressed similar in-character concerns about disclosure of personal information:

Student C: 'what if the midwife asks me questions I don't wanna answer?...
Student D: But what about that story in the paper about smoking? They'll judge me if I tell 'em I smoke! Mebby I should tell 'em I have 1 a day and not 10, eh?'

Student E: 'u know what babe dont tell them that jack aint sidneys dad cause if u do they will put that in the notes.....what if jack sees......

does jac know u had an abortion???

This type of concern with confidentiality and the fear this can create, impacted upon the quality and depth of information sharing between the woman and the midwife characters:

Student F. 'It felt exhausting to continually feel I had to hide my relationship. I am not so much afraid of overt homophobia as the subtle clues that people think we should not be parents. '

Student G: 'I was worried about telling Margaret about the abortion I had when I was 15 because my boyfriend doesn't know about it and I didn't want him to see it in my notes.

These examples provide a glimpse into the complex ideas students explored through their engagement with the web based interactive storytelling learning. The immersive environment created through Moodle, enabled the students to partake in authentic and engaging learning activities where they could explore complexities of the midwife mother relationship in the first person. The findings from our audit suggest that it was this opportunity to experience care both through the role of service provider and service user that gave students a depth of learning that could not be achieved through more conventional styles of teaching. This interpretation was supported by the secondary outcome measures from the research conducted to develop and test an educational evaluation tool.

Research findings

This section of the paper presents both the secondary outcomes of the SMEOLE research project – the testing of the acceptability of embedding web-based storytelling learning in an undergraduate midwifery module - along with examples of the some of the free text comments the students provided in the research questionnaire.

The lecturer's role indicator:

 In order to optimise the learning experience through enjoyable and engaged interactivity (Baid and Lambert, 2011), it was essential for the students to feel safe within the Moodle based environment. We therefore included a question in

the evaluation that provided students with the opportunity to rate the web based interactive story telling environment on Moodle, in terms of 'a comfortable learning space'. 100% of the respondents either strongly agreed or agreed that the lecturer used Moodle to create a comfortable learning space.

Development of reciprocity and cooperation indicator:

Since cooperative and collaborative learning has been identified as an essential component to safe maternity care provision, the interactive storytelling learning was designed to both develop and challenge the students' team working skills. To assess the effectiveness of this element of the interactive storytelling design, students were asked to rate the level of cooperation that they achieved in their role-play groups. 91% of students either agreed or strongly agreed that the online role-play had promoted cooperative learning between students while 85% either disagreed or strongly disagreed that it has **failed** to facilitate the sharing of ideas between students.. However, just 63% either agreed or strongly agreed that the learning activity had helped them develop team-working skills

Level of personal engagement indicator:

To measure the students' satisfaction with this interactive storytelling approach to learning, the questionnaire included a series of questions aimed at understanding whether the students felt the role-play had enabled them to enhance their understanding of the professional issues that underpin midwifery practice. Although the responses to these questions were not unanimous, they were encouraging. 74% of students either agreed or strongly agreed that the role-play had increased their interest in the professional issues of midwifery practice; 78% either disagreed or strongly disagreed that the role-play had **not**

enabled them to develop their midwifery skills; 70% of students either agreed or strongly agreed that this learning had motivated them to learning more about this area of midwifery practice.

Learning compassion and empathy indicator:

Finally, to ensure that the learning introduced through the web based interactive storytelling activity provided students with the opportunity to develop their knowledge, understanding of and appreciation for compassion and empathy in midwifery practice they were asked whether the learning have enabled them to see maternity care from the woman's perspective. 93% of the students who completed the SMEOLE questionnaire either agreed or strongly agreed with this statement.

The value of using role-play in learning

To conclude this findings section of the paper, we present some of the free text qualitative data collected via the SMEOLE questionnaire along with audit feedback taken from the first running of the web based interactive storytelling learning. While much of these data are encouraging, we also include some less favourable to give voice to the minority, but important opinion, where anxiety about this way of learning threatened to obstruct potential learning opportunity.

 One 2014/15 student told us:

> *'I personally had a phobia for technology. At first I was not keen on the role*
> *play; I was in a group with four of my colleagues that understood the*
> *importance of this module and what it meant to be future midwives. As a*
> *result we worked collaboratively, maintain time management and organise*

our selves in such a professional way. I have learnt so much and would strongly recommend it for future use.'

Other 2014/15 and 2015/16 students explained:

'When I initially commenced with the role play, I did not feel that I would learn very much. I had already spent 10 weeks on placement … As the role play advanced and we played the different roles I can say that I did benefit. I thoroughly enjoyed seeing how the other students handled the roles, the questions they asked or answered and the knowledge they had compared to mine enabling me to learn from them.'

'It was interesting to see things from the women's point of view and it also made me aware how easy it is to miss something at bookings as a midwife. It was good to expose gaps in my knowledge and legal aspects of practice. I made several mistakes as the midwife when I filled in the notes. These were highlighted at the tutorial (which i thought were very useful). I've left them instead of change them so i can see where I went wrong'

However other students from both cohorts did not find the experience as helpful:

2014/15 student: 'This activity is absolutely dependent on all members taking part, if any are missing it doesn't really work. There is no one to bring up different issues.'

Another student remarked of the difficulty of immersing into the role in order to make is authentic:

2015/16 student: 'It was hard to get into character among friends'

Finally not of all the students felt that the web based interactive story telling enhanced their learning at all, as one student said:

2015/16 student: 'The role play was easy to access and well explained. However, I don't feel as it aided my learning any more than placement and reading.'

Discussion

The principle aim of the web based interactive storytelling described in this paper, was to deepen student understanding of the professional issues that underpin midwifery practice, particularly compassion and empathy. Despite nursing and midwifery being defined in terms of being caring professions, recent investigations into practice in the UK make sombre reading, describing both nurses and midwives failing to demonstrate empathy or compassion in their practice (Francis, 2013; Kirkup, 2015). The need to ensure that qualifying midwives have a thorough understanding of the ethics of maternity service provision in the UK has never been more urgent. Inspired by the 'Whose shoes: walk a mile in my shoes' campaign (Nutshell Communications, 2015) - a UK initiative designed to embed empathy and compassion into the fabric of every care and support organisation – we set out to create a low cost and sustainable learning experience where students had first hand, lived experience of both the service delivery perspective and the service user perspective. Using a blended

learning approach - where an online interactive storytelling activity was embedded into a conventionally taught Midwifery Profession Issues module - first year undergraduate students were given the opportunity to put their learning into action through playing fictional pregnant characters accessing the maternity services provided in a virtual community.

Although we have been able to provide a range of both audit and research data in this paper to illustrate how the core midwifery professional values of compassion and empathy can be learned through a virtual community hosted on Moodle, there are important limitations that need to be acknowledged. The first is that the research findings described here come from the secondary outcomes from the SMEOLE research project. The research project was set up to test a blended learning evaluation tool, the results of which are to be published elsewhere. The research findings presented in this paper, therefore, should be interpreted with caution and be read as an indicator for the need for further primary research to be done in this area of educational practice.

The second is that although the majority of students reported benefitting from the learning provided through the web based interactive storytelling, it was not a style of learning that suited all of our students. Particularly disappointing was the outcome that only 63% of students felt the activity helped them develop team-working skills.   An unexpected result, given that a much larger majority recognised that the activity had encourage collaboration between the students.

Another important point that requires further development in this section of the paper is the issue of sustainability. Although the data in this paper indicates that our web based interactive storytelling model provides an engaging and low cost

approach to preregistration midwifery education delivery, with promising potential for global application, this approach to learning is labour intensive.   In this last part of the discussion we feel compelled to dispel a commonly held myth about online learning: that it demands less time from the academic/teacher when compared to traditional didactic content delivery approaches. Although successful in producing an immersive online role-play without a project budget, it is important to point out that this was a costly venture in terms of time commitment for the academic staff involved. Not only was the development of the role-play labour intensive, the constant monitoring of all of the online student activity was surprisingly time consuming. What this innovation in learning could never claim to be, therefore, is a strategy for reducing staff input in content delivery, in fact in our experience quite the reverse is true. Our experience of this web based interactive storytelling leads us to concur with Koch (2014), that the educator's role in online learning is more complex compared with the more traditional role and we strongly support the call for more empirical research on this area of education.

Conclusion

In this paper, we have critically described a web based learning innovation that was introduced into a UK based, pre-registration midwifery education programme in the academic years 2014/15 and 2015/16. This learning was part of a blended learning module on the professional issues that underpin midwifery practice. Using two discrete data types: audit and research, we have explored the strengths and limitations of this approach to content delivery.

Web based, interactive storytelling is relatively new to preregistration midwifery education. With this paper, we hope to drive both research and educational interest in this currently underdeveloped area of preregistration education delivery. The evidence presented in this paper suggests that this approach pedagogy offers a low cost, and therefore globally applicable, way of instilling compassion and empathy into midwifery practice.

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Appendix 1

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	.49344
1.2. The lecturer was concerned about student learning	1.6	1.04048
** 1.3. The lecturer was not very enthusiastic about the online learning	4.6	.71051
1.4. The lecturer used Moodle to create a comfortable learning space.	1.6	.50121
Question Category 2 – **Cooperation among Students**		
2.1. The online role-play promoted cooperative	1.8	.60313

learning activity between students		
2.2. The online role-play encouraged students to interact with one another	1.6	.57651
2.3. Undertaking the online role-play has helped me develop my ability to work as a team member	2.2	1.06707
** 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
** 3.2. The online role-play did not enable me to develop my midwifery skills	3.9	.99394
3.3. The role-play motivated me to learn more about this area of midwifery practice	2.2	.94996
3.4. The module was designed to allow me to take responsibility for my own learning.	1.8	.82474
Question Category 4 – **Time on Task**		
** 4.1. The online role-play was not well organized	3.9	.82269
4.2. The role-play helped me achieve the learning outcomes of the module	2.4	.91049
4.3. The time spent undertaking the role-play was appropriate for the learning achieved	2.4	.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	.77053
** 5.2. The online instructional materials were difficult to understand	4.0	.82970
5.3. I felt well prepared to undertake the online role-play.	2.1	.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	.65349
6.2. The lecturer was tolerant of students' ideas and views	1.3	.44396
6.3. Our IT literacy level did not impact upon the online role-play activity	2.0	.95346
6.4. There was sufficient flexibility for the completion of the online role-play.	1.7	.67420
Question Category 7 - **Overall**		
7.1. The online role-play enabled me to see maternity care from the woman's perspective	1.6	.83203
7.2. The role-play activity increased my understanding of midwifery decision-making and the emotional	1.7	.81294

complexities that are involve		
7.3. This exercise is a valuable part of the module.	2.2	1.05798

** statement negatively worded