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Using qualitative data analysis tools 'fit for purpose' for making sense of teacher educators' use of digital technologies in their pedagogical practices

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ABSTRACT *This article describes the analysis process associated with an ethnographic study in which data were generated through interviews, observations, focus groups and hanging out techniques. The purpose of the study was to make sense of how teacher educators' specific technological and pedagogical practices were formed, with particular focus on the possible influence of their culture. The researcher used various analysis strategies involving the integration of a number of digital data tools (NVivo-10, Mindjet, Inspiration-8-IE, and Microsoft applications) that served different purposes at different times. The article argues that researchers should consider using an integration of different digital tools, applying them as 'fit for purpose' at various times during data analysis. It suggests doing this will assist researchers to seek a deeper understanding of qualitative data and manage the 'messiness' of analysis, while assisting with the complexity of the meaning making process.*

KEYWORDS *Qualitative data analysis tools, teacher educators, fit for purpose, digital technologies, padagogical practices*

Introduction

For many years, researchers have been developing computer-based techniques and strategies for managing and analysing data, however until recently, they were largely confined to working with quantitative data. Denzin and Lincoln (2011) argue that historically qualitative researchers have limited the use of digital tools to manual functions such as highlighting, cutting, pasting, sorting, and shuffling (checking through) cards. However, in the 1980s and 1990s, computer-based qualitative data analysis (QDA) programmes emerged. Some of these tools such as AQUAD (Analysis of Qualitative Data), QUALOG, QUALPRO, NUDIST (Non-numerical unstructured Data Indexing, Searching, and Theorising - later known as Nvivo), LISPQUAL, and The Ethnograph, were used for analysing textual and other qualitative data. Most of these tools simply enabled the numbering of textual data to assist with identifying patterns or trends. Some researchers raised concerns regarding the computerisation of qualitative data analysis, claiming that the resulting outcome distorted or diminished the richness of meaning inherent in qualitative data (eg., Gasaway, Elder, & Campbell, 1984; Kelle, Prein, & Bird, 1995). Welsh (2002) noted that there are two schools of thought on the use of digital tools in qualitative research. One is those who consider the use of digital tools central to the analysis process, and the other who claim the use of these tools is unimportant, with the potential of generating a "wrong kind of analysis" (Welsh,

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2002, p. 5). However, Welsh further asserts that it is unhelpful to restrict oneself to either of these thoughts, but rather seek the best result possible from both forms of analysis. Bazeley and Jackson (2013) argue that opposition towards using QDA tools among researchers, results from those who have doubts about using any form of digital tool for qualitative analysis. For example, Kelle et al. (1995) argue that qualitative analysis should not concentrate on using digital tools, when the desire is to mine for deeper meaning. Their main argument is that computers cannot assume the researcher's role of generating accurate understanding from textual data. Their concerns also relate to the researchers' dependence on computer programs to capture the logic of the whole meaning-making process. However, Bazeley and Jackson (2013) claim that such perspectives are based on often incorrect perceptions - that automated coding processes are based entirely on systems that use complex dictionaries and semantic rule books to guide the analysis process. However, they comment that this is not the case, and that such programs are generally designed for quantitative analysis purposes.

Further critique comes from Weitzman (2000), who argues that using digital tools can lead to researchers' 'false hopes' of relying on the tools for generating deep meaning from data. Supporting this perspective, Roberts and Wilson (2002) state:

The data are fuzzy, with slippery boundaries between meanings, and not ideally suited to categorisation and classification using digitally based software. Employing a digital tool …has the potential to destroy any understanding arrived at. (Roberts & Wilson, 2002, p. 2)

They further argue that the nature of qualitative data and the importance of capturing contextual meaning and participants' experiences, are not well catered for, through QDA tools. However, their concerns were mainly associated with a researcher's dependence on a single digital tool for analysing data. Weitzman (2000) asserts that analysing qualitative data depends on selecting appropriate strategies and tools according to the nature of data the researcher has, the type of analysis that he/she seeks, and the outcomes desired. Accordingly, to manage these issues, researchers should not restrict themselves to one way of conceiving data analysis, or limit themselves to using a specific tool. However, ultimately it is the researcher who must decide the most appropriate tools for undertaking the analysis. Bazeley and Jackson (2013) comment that the effectiveness of data analysis can be influenced by the way a specific tool is used. However, it is pertinent to note most literature in this regard reported on the use of a single digital tool for data analysis, rather than an integration of multiple tools used at different times for different purposes.

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Qualitative data coding and analysis

Qualitative data analysis is often described as an arduous task for researchers, as it usually involves making sense of a large volume of data from diverse sources (Basit, 2003). The main objective of analysis is to answer the research questions. It should also inform the reader about the participants' experiences, stories, events, assumptions, or perspectives in an orderly and intelligible manner. This process involves making sense of collected data in relation to participants' situated contexts. Dey (2003) comments that it is important for "situating peoples' action, and of grasping its wider social and historic import" (p. 33). In order to make sense of data, qualitative researchers often adopt a grounded theory approach (Glaser & Strauss, 1967). Grounded theory is an approach to qualitative analysis where researchers use strategies to inductively generate ideas by adopting specific coding strategies for generating themes, and applying constant comparison to validate their understanding (Strauss, 1987). Grbich (2013) argues that using grounded theory helps the researcher to capture an in-depth understanding of data useful for theorizing new knowledge.

Qualitative analysis comprises specific strategies and techniques that help the researcher make sense of data. Some of these strategies relate to technical aspects such as recording, transcribing and managing data (Bloor & Wood, 2006). The primary purpose of analysis is making sense of data by treating it 'bit by bit', and assigning categories or codes (Dey, 2003). Auerbach and Silverstein (2003) argue that the main purpose of coding is identifying patterns and themes, as this is an essential part of organising and making sense of qualitative data. Seidel (1998) describes coding as noticing relevant aspects of data, collecting examples for understanding, and examining the relevance of those aspects to identify the commonalities, difference, patterns and structure. Although there is no one definition or set of guidelines that can explain the coding process, it basically comprises a process of grouping, categorising, and labelling, to identify themes and patterns (Grbich, 2013).

Using digital tools in QDA

Bazeley and Jackson (2013) assert that new digital tools such as Nvivo can support the research process by assisting researchers to write memos, track ideas, index and code data, create conceptual labels, categorise, group and examine patterns and themes, and develop visual representations and reports. Creswell (2007) claims that technology-assisted analysis enables researchers to code data

understand data because of their ability to assist with analysis in a systematic manner. Use of a digital tool such as Nvivo, allows researchers to check coded data and the sources without any confusion, and continue until the completion of coding the whole set of data. However, countering this, Roberts and Wilson (2002) claim that using tools such as NVivo can cause researchers to lose "contact with the context and meaning of raw data by too much data manipulation" (Roberts & Wilson, 2002, p. 11). Their concerns relate to not being able to capture the in-depth story embedded in data, due to researchers' over dependence on participants' verbatim responses, ignoring the context in which the conversation was expressed. GarcíaχHorta and GuerraχRamos (2009) argue that researchers need to be mindful of issues (such as leaving the topic aside or ignoring the context) that could be associated with the use of QDA tools, such as Nvivo. It may offer "great help and can enhance interview data analysis … [however, its] capabilities must not be overestimated" (p.151) in terms of managing the meaning making process.

Notwithstanding such critique, GarcíaχHorta and GuerraχRamos (2009) comment that digital tools may help researchers to evaluate the consistency of themes and patterns in data. Seidel (1998) suggests that when seeking consistency in themes, researchers can identify unexpected or surprising things by using topographical maps, which he defines as:

[A] way of coding the landscape so that it shows you the physical features of the landscape. It shows you the hills and valleys, forests and clearings, and other features and details of the landscape in relationship to each other. (Seidel, 1998, p. 10)

While referencing that Seidel's idea of topographical map is not necessarily related to the use of digital tools per se, there are a range of mind mapping tools that can help researchers achieve similar outcomes. However, our argument is whether tools such as Nvivo or similar, could allow researchers to use the idea of a 'topographical map' in conjunction with other digital analysis tools, when seeking unexpected or unpredicted knowledge.

This article describes and explains a process carried out in a doctoral study, which applied a range of strategies and an integration of digital tools for organising, analysing and generating understanding from diverse qualitative data. The use of different digital tools at different times for different purposes, was valuable for managing and analysing the substantial volume of data generated in the study, and helping the researcher identify patterns and themes existing within it. It explains the use of multiple tools including NVivo, was highly beneficial for analysis, particularly for managing the 'fuzziness' and 'vagueness' of qualitative data. It argues limiting analysis to the use of one specific tool or predetermining use, would have lessened the likelihood of extracting accurate meaning across multiple datasets in a manageable way.

The next section provides the research background, explaining the analysis process used in this study, and argues the value of utilising such an approach.

Research Background

The aim of this research was to unpack any relationship that may have existed between teacher educators' pedagogical practices and cultural aspects that are embedded in their context of practice. In order to better understand their practices, the researcher adopted Bourdieu's (1977) notion of habitus as a lens for exploring what teacher educators do in relation to their use of ICT in their pedagogical

practices and how that associated with cultural dispositions in their context. The researcher investigated the pedagogical practices of a cohort of eleven teacher educators in a teacher education institution located in the Maldives (a small country, comprising a chain of 1196 coral islands distributed vertically from north to south in the South Asian Region). Data gathering occurred in four phases. The first three phases were undertaken in the teacher educators' professional context. During these phases, the researcher spent five working days per week over eleven weeks with the participants. The last phase was carried out by distance, whereby the researcher conducted follow-up interviews via Skype and Viber (free applications for phone calls). Data were gathered using a range of methods such as interviews, classroom observations, focus groups, and "hanging out" with participants (Bloor & Wood, 2006, p. 85).

The researcher used multiple strategies and tools for analysing data collected through the various methods. However, precise strategies or steps followed during analysis emerged as the analysis evolved, and accordingly the analysis tools were decided upon depending on the purposes and nature of understanding needed to reach robust answers responding to the research questions, at each stage.

Data analysis and the use of digital tools

The analysis process that evolved adopted a variety of digital tools and loosely followed five steps, as depicted in Figure 2. In each step the digital tools served different analysis purposes. These steps, tools, and related epistemology (guiding principles of analysis) are outlined in Figure 1.

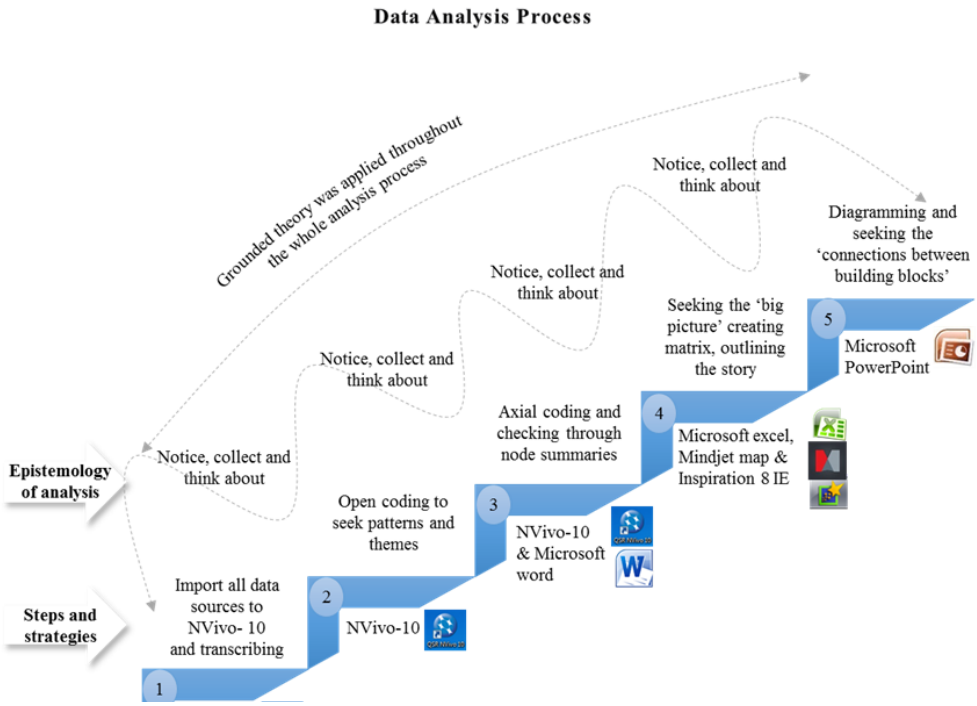

Figure 1. An outline emerged throughout the researcher's analysis process

Step-1: Import data sources to NVivo-10 and transcribing

The analysis process commenced by importing all data sources, both written and digital audio format. These sources included written field notes, observation notes, digitally recorded interviews, and digitally recorded focus group discussions. Importing these data into NVivo-10 helped to manage everything in one space. NVivo-10 also enabled the researcher to transcribe as she listened to audio recordings. The researcher also wrote memos on what she was learning as she transcribed. Transcribing is a crucial step in data analysis because it is where the primary analysis starts, and it allows the researcher to become very familiar with the data, by repeatedly listening to participants' conversations, expressions, tones, and pauses that are encompassed in their conversations. Eleven individual interviews, five focus group sessions and five follow-up interviews, were transcribed. An iterative process of listening and transcribing assisted the researcher to gain preliminary ideas for coding the data.

Step-2: Open coding for seeking patterns and themes (NVivo)

An open coding technique was applied as the transcripts were processed line by line, and code nodes were created in NVivo-10. Initially, the researcher started coding interview transcripts, then observations, followed by focus groups and the reflective journal. Evaluating these data led to the development of free nodes (initial ideas for coding) relating to what was found to be relevant to the focus of her research. These included challenges, early experiences, perceived benefits, ways of using technologies, and so on. The initial node folders and some created nodes are illustrated in Figure 2. The process of reading through each piece of data and creating nodes helped identify the 'commonness' amongst participants. At this stage, a considerable number of nodes useful for understanding teacher educators' pedagogical practices were developed.

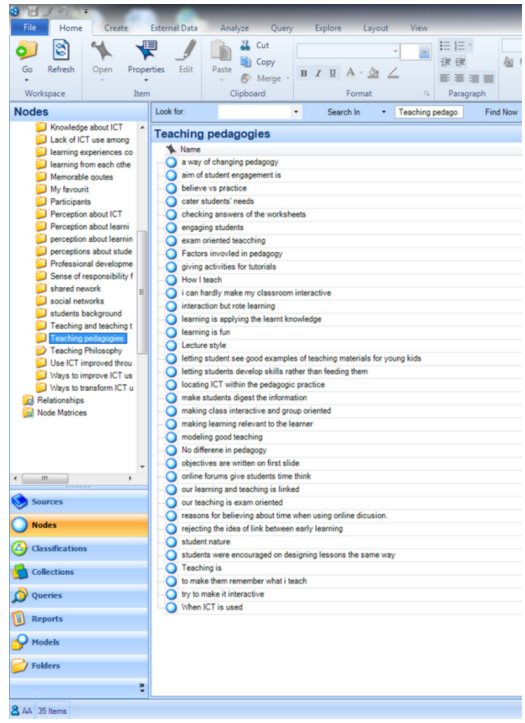

Figure 2. Example of node folders and initial open coding

The codes that the researcher created in this initial stage helped reveal more ideas as data from other sources, including the focus groups, observations, and field journals were incorporated. However, greater consistency in these codes from and across the data was required. To achieve this, data were further analysed using NVivo's memo links that enabled elaboration on what was being discovered relating to the participants' pedagogical practices. In NVivo, memo links are often used for adding researcher notes in order to better understand what participants express. During this process the researcher iteratively worked back and forth to seek better understanding of the data, and accordingly, codes kept changing and new codes emerged. Applying Seidel's (1998) three processes of analysis (notice, collect, and think) throughout open coding, allowed the researcher to realise several changes to previously created open codes. For example, when summary reports were checked through, significant changes emerged.

During the process of open coding, memos on different nodes were also created. These memos linked to what was learned during the 'hanging out' time with the participants, and from the written reflections in the field journal. An example of this is while coding conversations related to 'early experiences' (a node), memos on what was written in the field journal about some particular incidents were added. This frequently linked with informal conversations that had been completed with the participants and other colleagues in the institution. The writing of memos was thus helpful for developing an in-depth understanding of the conversations.

According to Charmaz (2008), memo writing is an important strategy for analysing qualitative data, particularly when coding. One needs to identify the reasons for selecting particular codes for particular conversations. During the initial coding, NVivo's memo option was frequently used to record developing thinking regarding how teacher educators' specific pedagogical practices were formed.

Through writing memos, 'gaps', inconsistencies, incongruences, and possible 'loopholes' in data were identified. For example, a node created earlier was teacher educators' 'belief of Information and Communication Technology's (ICT) potential' for increasing student learning engagement and interaction. However, later through memo writing it was realised that the meaning of 'interaction' was not necessarily linked to teacher educators' understanding of how ICT can help students' thinking, but rather use relating to ICT merely increasing students' rehearsal of the content delivered by them, as illustrated in Table 2.

Writing memos also assisted the researcher to identify many things that appeared inconsistent with the interviews. For example, in an interview, one participant mentioned that she used many types of digital tools in her practices. However, while reading through the reflective journal created when 'hanging out' with participants, it was discovered that the conversation during the interview was not necessarily what they use, rather the tools they know. In the reflective journal it was written that this particular participant displayed very limited activity in the use of Facebook or Twitter, despite interview data suggesting her common use of Facebook or Twitter. NVivo-10 has the capacity to support writing memos 'on the go'. This can help researchers to create memos on thoughts and reflections while data are being analysed. Writing memos helped the researcher in this study to clear doubts, reach consistency, and learn more about what was recorded in the interviews and from other sources of data, as she created codes. Open coding and memo writing assisted with identifying initial categories for axial coding.

Table 1
An example of using memo in NVivi-10

Codes	**Participants' conversations**	**Memos written**
Interaction but 'knowledge-centrism'	When ICT is used, it's easier to open discussion, and it can make the classroom much more interactive (Focus-group). It makes the classroom more alive. Students become more interactive, involved, engaged, they get more opportunities to open their mind (Interview). We can make our classrooms much enhanced and rich conversations can take place (Focus-group).	I noted in my observation of classroom teaching, where participants try to interact and engage students during their lessons. However, the interaction and engagement was more on discussion of the knowledge learnt or explained. This was evident in some participants› teaching as they discussed answers to the questions and definitions that students need to be familiar with. I asked some participants about this. What I learnt from their clarification is that participants often tried to engage students in order to make them learn the knowledge they delivered.
ICT makes teaching easier	Instead of writing all notes on the board, my teacher writes approximately ٤ A٤ sheets of writing on the board (Focus-group). The best thing is that we go to the classroom having all that in our slides (Focus-group). When just Google something or a topic which I need, I will get a huge amount of materials relevant to my lesson (Focus-group).	Often my participants talked about technology and how it helps them to teach in classes. They believe that I CT makes everything easy in their teaching. This in fact is evident in all my participants› talk. Perhaps they adopted ICT because it helps them teach more easily. I wonder the meaning of 'easy' in these comments. Does that mean only what they need to do is dragging the materials into slides and delivering them?

Step-3: Axial coding and checking through node summaries

Axial coding comprises techniques for intense analysis of data categories, however it is unlikely to take place during the early analysis or in the initial data analysis stages (Strauss, 1987). Axial coding is an important element of grounded theory analysis. During this process a researcher examines each code for deciding the categories through constant comparisons (checking through the data back and forth) (Bloor & Wood, 2006). In this study, axial coding involved constantly evaluating the categories through which the researcher sought understanding about teacher educators' pedagogical practices, such as early learning, school learning, their use of technologies, and the purpose of different pedagogical orientations with technologies. The process involved evaluating previously created codes and checking through node summaries in order to identify sub-themes. This was assisted by an option in NVivo-10 that gives a summary of created codes aligned with participants' conversations. An example of category and sub-themes is provided in Table 3.

Harding (2013) claims that when commonalities, patterns, and themes are identified, it is necessary to employ a constant comparison between different

needed to seek a holistic understanding of teacher educators' journeys of forming a specific practice. Responding to this, reading through codes by using the node summary reports (NVivo option) and drafting some parts as Word documents, enabled the identification and collection of more ideas about the aspects that were consistent and congruent, in terms of generating better understanding of teacher educators' pedagogical practices. This process helped to identify the discrepancies, contradictory ideas, surprising features and characteristics in data, informing the next analysis stage.

Table 2
Example of axial coding

Main category	Sub-categories	Participants' conversations
Early learning experiences	Accepting the knowledge as transmitted by teachers	We obey our teachers' instructions. We quietly listen to what teachers explain. Thus, we learn, rehearse the knowledge until we become fluent in the reading of the whole text (Interview).
		Teachers' instructions whether written or verbal are normally copied as they are because we don't doubt about the knowledge he/she explains. We know that they are always right (Interview).
	Note taking	…teacher dictates or writes notes on the board. We [her classmates] have to write sometime A٤ size ٥/٤ sheets in every class (Interview).
		She normally writes the notes on the board, and we will copy them in our exercise book (Interview).
	Text book teaching with exam-oriented approach	In English the teacher will give parts from text books to read, and reading comprehension in a worksheet. Students don't get many choices even answering them (Interview).
		Sometimes the teacher will allocate parts to read aloud during teaching. When we read she will explain the parts (Interview).

Step-4: Seeking the 'big picture' (using Microsoft Excel, Mindjet, and Inspiration 8 IE):

Dey's (2003) concept of data 'fuzziness' emerged in a number of themes and sub-themes generated from data in this study. Although the previous analysis steps enabled commonalities to be identified, they did not fully support the generation of an 'entire story' about the teacher educators' journeys in forming specific pedagogical practices. Hoping to achieve a more consistent understanding of their

journey, it was decided to use other digital tools including Microsoft Excel to create a teacher educators' matrix, Mindjet to generate a 'landscape representation', and Inspiration 8 IE to develop a visual overview.

a) Creating a 'teacher educators' matrix' in Microsoft Excel (Figure 3)

This process comprised developing a matrix within Excel spreadsheets of teacher educators' backgrounds (age, teaching experience, qualification, and schooling), the tools they use, classroom pedagogies, and many other aspects related to individual cases. The matrix enabled the researcher to see more clearly differences and similarities regarding adopted tools and teacher educators' backgrounds (age, schooling, qualifications, and teaching experience). It also enabled the identification of some institutional barriers that may have influenced the shaping of their pedagogical practices. For example, using this technique helped clarify understanding of some conversations shared about institutional factors, such as the difficulty and challenges that participants experienced when using different digital technologies. The matrix graphically summarised data relating to the most and least used tools, which helped identify which tools were adopted over others, across all participants. This information, in turn, helped identify the influence of institutional factors on teacher educators' tool adoption, and hence their formed pedagogical practices.

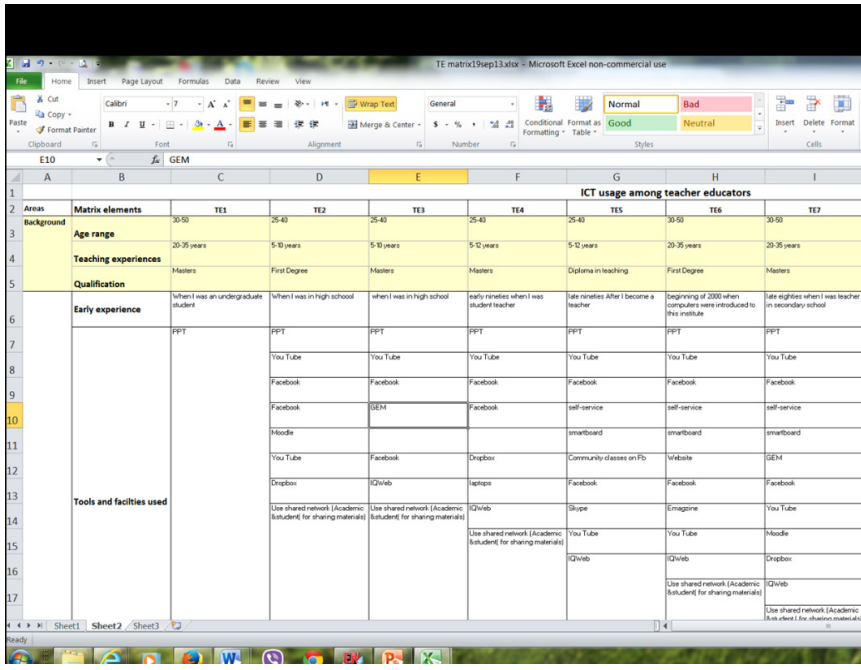

Figure 3. Example of using Excel matrix

b) Demonstrating a 'landscape representation' of data in Mindjet (Figure 5):

Due to the continuously changing patterns in data categories another digital tool was applied to support clarity. This was decided upon due to NVivo's inability to show the conversations and codes together in one space. A tool that demonstrated the interconnection of these was needed. For this reason, Mindjet (a mind mapping tool) was chosen due to its capacity to link the themes with conversations, and its compatibility with Microsoft Word. When Mindjet is installed, Microsoft Word will

will have a specific button in the toolbar ribbon to transfer the writing into Mindjet. During this process, data which was exported from NVivo-10 to Microsoft Word can easily transfer to Mindjet. Using Mindjet supported the iterative checking of themes in relation to conversations, and if needed, the re-organisation of these into different arrangements on the analysis space, as shown in Figure 5. This process helped to unfold some concepts related to participants' forming of specific pedagogical practices, while seeking the connection between their backgrounds and cultural dispositions. In this study, when data were sorted into themes, patterns and categories in one space, it more clearly represented key parts of teacher educators' pedagogical practices, and the relationships between them. However, Mindjet only served the purpose of making textual data and its codes and themes visible in one

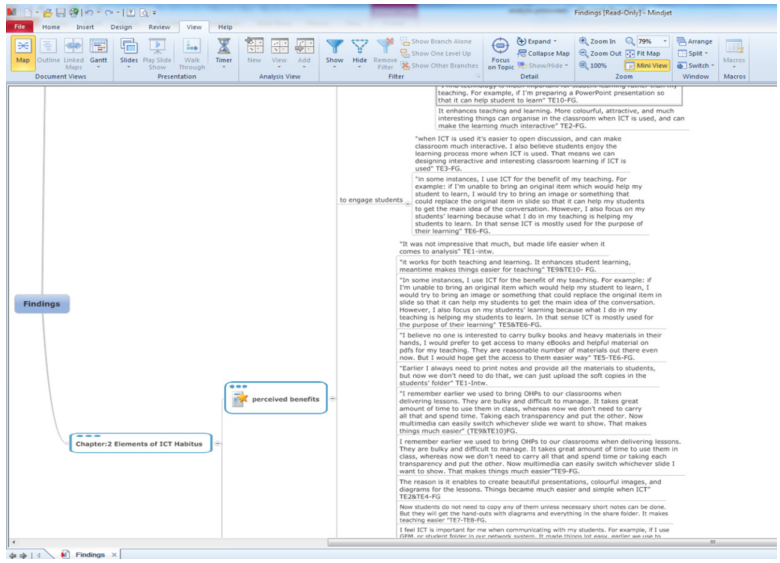

Figure 4. Example of using Mindjet

There was also a need to create a visual overview of individual participant's stories for making sense of the entire journey of forming their pedagogical practices. For this purpose, the researcher decided to use Inspiration 8 IE.

c) Developing a visual overview in Inspiration 8 IE (Figure 5):

Inspiration 8 IE (a mind mapping tool) was used as a convenient means for graphically laying out individual participant's pedagogy-forming journeys. It supported graphic representation of the main episodes of each journey, and allowed the linking of these to each other in forming a complete but succinct story. Creating this graphical overview for each participant was also important to create the vignette of the individual teacher educator's journey. Through using these visual stories, the researcher could just bring those important episodes of their life as sub-headings in each teacher educator's vignette. It also enabled the researcher to

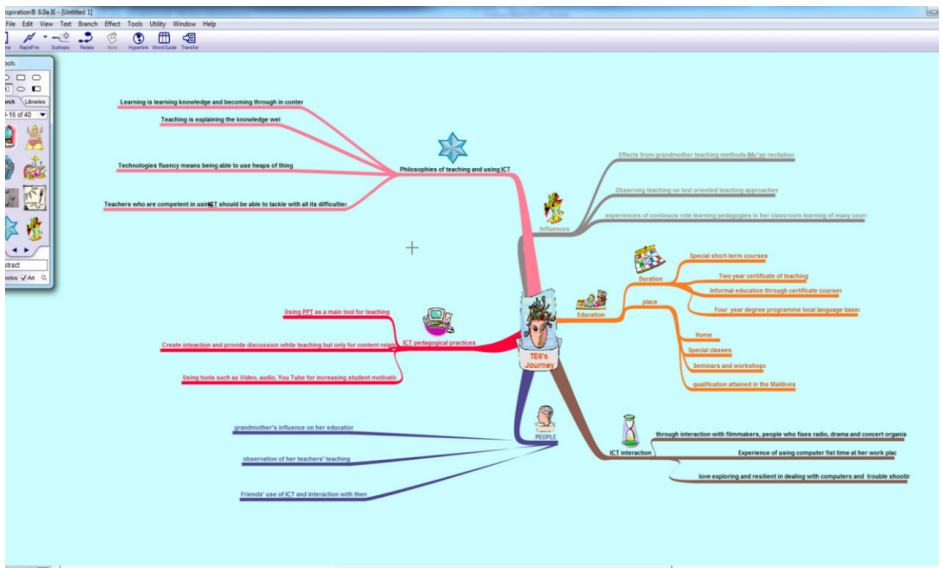

Figure 5. Example of using Inspiration 8 IE

Carrying out three main analysis activities using different digital tools helped identify the 'building blocks' (or main concepts) that influenced the teacher educators' shaping of their pedagogical practices. However, conceptualisation and building connection between the blocks was essential to comprehensively understand each teacher educator's specific pedagogical habitus.

Step-5: Diagramming and seeking the connections between the 'building blocks':

In this study the researcher found most tools that she had previously used did not help her conceptualisation of the participants' pedagogical habitus. Since the researcher used Bourdieu's habitus lens for exploring teacher educators' practice, a diagramming strategy was useful for portraying teacher educators' practice and its associated aspects, with their cultural context.

Interestingly, one of the most commonly available applications, Microsoft PowerPoint was found to be a very useful tool for helping with this conceptualisation. It assisted with visualising and diagramming the concepts that were identified from previous analysis steps, such as cultural influence, early learning experiences, and institutional factors. These concepts by themselves did not explain much about the entire process of shaping pedagogical habitus. They needed to be put together in order to generate a more holistic understanding of how each participant's pedagogical habitus was shaped. Consistent with Dey's (2003) claim, doing this was important to build connection between the concepts in order to theorise and conceptualise an in-depth understanding of the research phenomenon.

The goal of this step was to refine understanding of how teacher educators' pedagogical habitus of using digital technologies was shaped. Through diagramming, a visual representation of concepts that emerged from the different analysis steps, was created. Diagramming was found to be an effective way of representing thoughts visually in a space where it was easier to seek a better understanding of data. Each teacher educator's pedagogical habitus was

diagrammed, focusing on the four different aspects identified through the coding process as being influential. In each diagram, the researcher had a focus question that enabled her to conceptualise participants' journeys in forming their specific pedagogical habitus. For example, is teacher educators' pedagogy influenced by their backgrounds and their institutional context? (Figure 6).

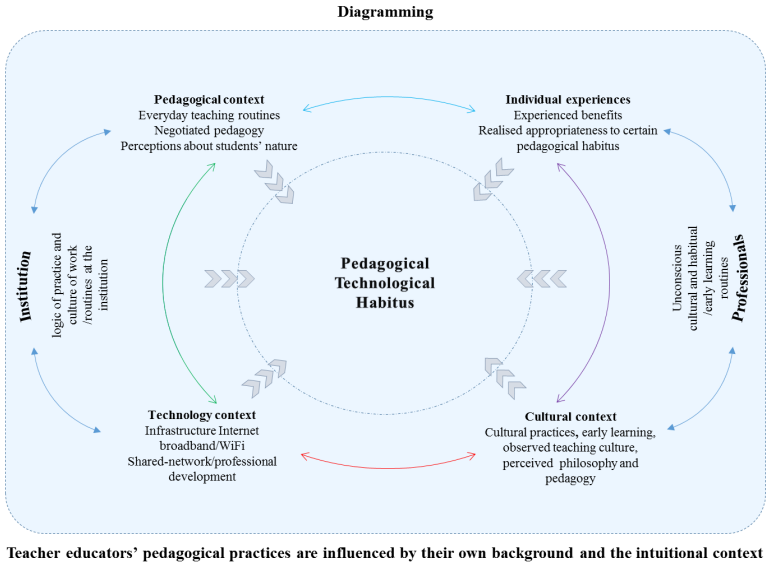

Figure 6. Example of a diagram

Figure 6 demonstrates that teacher educators' formed practice was involved in two aspects: their own backgrounds, and other, their institutional context. Teacher educators' background encompassed their individual and cultural context in which they had specific learning experiences related to cultural practices in the Maldives. The institutional context included pedagogical and technological factors where their present practice was influenced by the available facilities and the institutionalised routines in their workplace. A point to be noted is that this diagram was created based on emerged concepts at the early stage of diagramming. More diagrams were created as the analysis progressed. The process of diagramming helped to refine and build more connection between the ideas that emerged in the early stages of analysis, and draw together effectively the main concepts revealed using the other digital tools.

Implications and conclusion

This article provides valuable insights for integrating various digital tools for analysing qualitative data. In this study, the researcher sought more than just generating themes through traditional coding techniques. In this case, different strategies and digital tools were used to seek connections between concepts and then to link these with the underpinning theoretical 'lens' of the study. The strategies used helped to manage the 'messiness' of analysis, and assist with the complexity of the meaning making process.

Moreover, the process adopted has supported a deeper understanding of data by enabling movement backward and forward iteratively, thereby helping the researcher to conceptualise teacher educators' formed pedagogical practices and the associated cultural influence on these. Although the steps of analysis are drawn as a linear process (Figure 2), the bidirectional-arrows indicate the iterative nature of this analysis within and across steps.

This study suggests qualitative researchers would benefit from mastering a range of skills in using different software applications that they could use to help them more easily build meaning across and within data. It could also be that the more strategies researchers use, the more iterative comparisons can be undertaken when seeking understanding. Researchers should not restrict themselves to the use of a single digital tool for making sense of qualitative data. They should think openly and reflect on a number of strategies and tools that may suit the analysis, the nature of the desired understanding to be gained from analysis, and accordingly, the best form of analysis to respond to their research questions.

Recent studies have acknowledged the use of NVivo as a comprehensive analysis tool for qualitative data (Bazeley & Jackson, 2013; Edwards-Jones, 2014; James, 2013; Leech & Onwuegbuzie, 2011). Notwithstanding this, this article suggests that merely adopting a specific digital tool does not guarantee a comprehensive analysis, rather the way a range of tools are used and integrated for analysis purposes can be beneficial. While in this study the researcher used NVivo for creating codes, seeking patterns, and identifying themes and for categorising data, it did not completely enable her to fully understand her data. Limitations included Nvivo's inability to form a topographical map to help clarify conceptualisations and make connections between key ideas. This was important as the researcher needed to validate her understanding of any connections existing between concepts. Using multiple tools (Mindjet, Inspiration 8 IE, Microsoft Excel, and PowerPoint) allowed sufficient flexibility to create diagrams that supported cross-checking and linking of concepts within and across data. This helped the researcher generate more holistic understandings about the diversity of influences on the formation of each participant's pedagogical habitus.

Using multiple tools (Mindjet, Inspiration 8 IE, Microsoft Excel, and PowerPoint) allowed sufficient flexibility to create diagrams that supported cross-checking and linking of concepts within and across data. This helped the researcher generate more holistic understandings about the diversity of influences on the formation of each participant's pedagogical habitus.

In addition, this study illustrates that researchers do not necessarily need special and expensive software tools designed specifically for qualitative analysis. Using a basic presentation tool (PowerPoint) or mind-mapping tool (Inspiration 8 IE and Mindjet) may, in some instances, adequately support researchers' analysis work. However, it is important that each tool or technique be selected in terms of the nature of understanding that researcher seeks from their data, ultimately enabling more robust knowledge to be generated responding to the research goals.

This article has described how one study used a variety of digital tools and analysis strategies in a structured and organised manner, suited to its research purpose. It presents an approach involving an integration of strategies, tools, and techniques for making sense of data, building connection between concepts, and generating a 'big picture' of the research endeavour. While acknowledging that

approach may not suit all studies, it tentatively suggests benefits from the creative use of different digital tools 'fit for purpose', to yield deeper meaning from rich and diverse qualitative data.

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Challenges in clinical learning: experiences of Maldivian nursing students

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ABSTRACT *Background: Clinical practice is an essential part of nursing education. It provides opportunity to apply theoretical knowledge, and develop skills. Nursing faculty need to identify ways to improve clinical learning for students. The aim of this paper was to obtain an understanding of experiences of clinical learning environment for Maldivian nursing students. A qualitative descriptive design was used and informed consent was obtained from all students. Data was collected from 20 students of Maldives National University, using four focus group discussions. Focus group interviews that lasted approximately one hour were conducted. The interviews were audio taped and transcribed verbatim. The transcripts were red multiple times to gain an understanding of students experiences. Discussions that related to students clinical experiences were extracted and coded under different themes. Mentors, clinical learning opportunities, clinical evaluation, and student feelings were found to be important components of clinical learning. Interpersonal relationships and communication with mentors were found to be important for motivation of students. Factors in the CLE enabled students to make good use of learning opportunities while other factors hindered their learning. Students felt that clinical evaluation was unfair and not reflective of their achievements. Students experienced a number of positive and negative feelings due to their experiences in the CLE. A number of factors present in the CLE could prevent it from becoming an effective learning environment for student nurses. It is important that nurse educators identify these and find ways to improve the effectiveness of the CLE.*

Keywords: inclusive education, readiness, leadership, school climate, curriculum instruction, assessment, individual student support, knowledge, skills, teacher attitude, Maldives

Introduction

Clinical practice is an essential prerequisite component in the education and training of competent of professional nurses. Clinical practice settings are important in preparing undergraduate nursing students for the role of registered nurse (Jonsén, Melender, & Hilli, 2013). Additionally clinical practice provide opportunity to directly apply nursing theories learned in class to practice where by real-world nursing student's get the opportunity to experience of communicating with patients and other members of the healthcare (O Mara et al., 2014, Ha, 2015) . Hence, clinical experience is where the most crucial learning outcome occurs. Dyson & Millward, 2003). The Clinical Learning Environment (CLE) plays an important role for students to achieve their desired learning outcomes (Bisholt et al., 2014). Exploration of this environment provides useful insight into the educational functioning of the clinical areas and allows nurse educators and instructors to enrich students'

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opportunities for learning (Papastavrou et al., 2010). This can assist nursing educators and clinical nurses to develop conducive learning experiences in the clinical setting.

However, since the inception of nursing programs in the Maldives over few decades back, there has never been any research conducted to explore experiences of students' learning in the clinical environment. The aim of this research was to explore the perceptions of student nurses regarding their clinical learning environment.

In the Maldives, nursing and midwifery education and trainings are provided only by Faculty of Health Sciences (FHS), the Maldives National University (MNU). Nursing and midwifery training is offered at main campus in Male', as well as in campuses at four different regions of the country, namely, Kulhudufushi Campus, Gan Campus, Thinadhoo Campus and Hithadoo Campus. At present four different levels of nursing programs are being offered at FHS: Advanced Certificate in Nursing (ACN), Diploma in Nursing (DN), Bachelor of Nursing (BN) and Master of Nursing (MN). Specialized nursing courses such as Advancedas Advanced Diploma in Midwifery and Advanced Diploma in Critical care are also offered. All the programmes have larger clinical components approximately – hours or --- credit points. During clinical posting students are attached to mentors who guide students. These mentors with pre-mentor training and only assigned as a supervisors or mentors, are nurses from the clinical area, and so when students change the clinical area, they are assigned new mentors from the new clinical area.

Literature Review

Clinical experience provides an opportunity to integrate nursing theories to practice and help to improve both nursing knowledge and skills. Placement in the clinical improve aspects such as critical thinking and problem-solving, increase confidence (Moonaghi et al., 2015), develop empathy (Sockhausen, 2005), and a strong sense of belonging (Courtney-Pratt et al., 2012). The quality of clinical experience has a significant influence on the students' ability to become a competent nurse (Peters, Halcomb & McInnes, 2013).

There is a growing body of research to explore the quality and impact of nursing students' learning in the clinical setting (Andrew & Roberts, 2003; Levett-Jones & Lathlean, 2008; Mattila, Pitkäjärvi & Eriksson, 2010; Awuah-Peasah, Sarfo, & Asamoah, 2013; Jonsén et al., 2013; Sedgwick, Oosterbroek, & Ponomar, 2014; Fotheringham, et al, 2015; Ha, 2015; Matchim & Kongsuwan, 2015; Sun et al., 2016). These studies have been conducted across the globe. The findings indicate that clinical learning has many challenges and has positive and negative impacts on students.

A study done by Warne et al., (2010) to explore the clinical learning experience of nursing students in nine European countries revealed that the participants were generally satisfied with their clinical placements. A qualitative etting (Walker et al., 2014).

Positive learning experiences included having visible preceptors and a permissive atmosphere (Jonsén et al., 2013), in addition to being part of team and participating in patients care (D'Souza et al., 2015; Bradbury-Jones, Sambrook and Irvine, 2011). In contrast, adverse experiences of clinical

learning environment were related to feelings of abandonment and powerlessness when preceptors were invisible and the atmosphere of the ward was non-permissive to learning (Jonsén et al., 2013). Furthermore, feelings of being devalued by care team members had detrimental influence on their learning and intent to continue nursing (D'Souza et al., 2015; Bradbury-Jones et al., 2011).

The CLE becomes a challenging area for students due to a number of reasons. They include design and delivery of curriculum (O'Mara, et al., 2014), placement in specialist areas where higher levels of skills are needed (McCallum, Lamont & Kerr, 2016; Meyer, Van Schalkwyk, & Prakaschandra, 2016; Gallagher, 2014; Coyne & Needham, 2012; Mott, 2012), and inadequate preparation of students in practice labs (Nalbosi et al., 2012).

These challenges cause the CLE to become a source of high anxiety for students (Cordeau, 2010; Melincavage, 2011). This can be debilitating and inhibit successful learning (Moscaritolo, 2009). Students experienced anxiety as a result of feeling incompetent and lack of professional nursing skills and knowledge to take care of various patients in the clinical setting (Sharif & Masoumi, 2005). Research shows that students need adequate time in clinical area to overcome this. In addition to anxiety students also experienced frustration (Brown, Stevens & Kermode, 2012), disappointment related to hands-on nursing performance, alienation, degraded self-esteem (Mattila et al., 2010; Ha, 2015), and lack of belongingness (Sedgwick et al., 2014).

In addition to adequate time in clinical (Wawire et al., 2014), involvement of nursing professors in clinical practice led to improvements in clinical learning (Fotheringham et al., 2015). Studies have also shown mentors or preceptors to be an important part of clinical learning (Hegenbarth et al., 2015; Jonsén et al., 2013). When preceptors gave attention and consideration for clinical practice and cultivated a student-friendly educational atmosphere, it helped to achieve learning outcomes (Ha, 2015). In contrast, lack of supervisory support and guidance by lecturers, supervisors and preceptors have been found to be a hindering factor for clinical learning (Anarado, Agu & Nwonu, 2016). Hence, it is crucial for clinical nursing faculty to foster a supportive and conducive learning environment (Moscaritolo, 2009). It is important to identify good role models from nurses in order to ensure facilitation of positive patient care experiences that can in turn lead to good learning experiences (Payne, 2016). A good clinical learning environment could be established through good co-operation and collaboration between academia and clinical site (Chesser-Smyth, 2005; Papp et al., 2003).

Methodology

This study used a descriptive qualitative design. This design is suited to nursing practice research and emphasizes inclusion of existing knowledge in an analytic framework, use of purposive sampling, multiple data sources and inductive data analysis (Polit & Beck, 2014). Focus group interviews were used to obtain detailed description of studentsstudents' clinical experiences, from students who were in different terms of their study.

Participants

Twenty nursing students from the DN and BN programmes who were studying in the Male' campuses were selected using purposive sampling.

The logic behind a purposive sample being used was to provide information rich cases central to the study (Polit & Beck, 2014). Some of the participants had earlier experience of education and work as assistant nurses. Students have had different hours of clinical exposure and were at different levels of study.

Data collection

Data was collected using focus group interviews. There were four focus groups, with five students in each. Each focus group interview lasted approximately one hour. The interviews were audio taped. theThe following questions were used to guide this study: (1) How do you perceive the clinical learning environment? (2) How do you perceive the impact of clinical environment on your learning? (3) What are the positive and negative experiences of clinical learning environment?

Data analysis

Recorded interviews were transcribed verbatim in English language. Each single interview was read several times in order to obtain the actual meaning and then from each transcript significant statements and phrases that directly related to clinical experience of students was extracted. These extractions were categorized under different themes. First of all, extractions were brought together under the individual themes, and then the whole narrative was written together based on these themes. Main themes that were identified were: mentors, learning opportunities, clinical evaluation, and student feelings. The findings will be discussed based on the students' clinical experiences under these main themes.

Ethical Considerations

After recruiting students, a written consent was taken, which included a

clear description of the study, including its aim and structure, and that it will be audio taped. The consent mentioned that participation in the study was voluntary and that refusing to participate and any information they shared will not have any effect on their education. The consent also mentioned that all information would be treated with confidentiality. This was a vital aspect of this study because, it allowed students to communicate openly and talk about their experiences in the clinical setting without fear of repercussions.

Findings

The analysis of focus group interviews revealed four key components that students believed to be important in clinical learning: mentors, learning opportunities, clinical evaluation, and student feelings (see figure 1).

Figure 1: key components of clinical learning

Mentors

Participants believed that their learning in the clinical were very much dependent on the mentors. They experienced a number of positive and negative reactions from mentors. Mentors were a motivating factor as well as a demotivating factor for learning. Mentors who motivated, gave advice and encouraged students to ask questions, in addition to having a good relationship with students:

"that mentor is very good, she will say whenever she is going out or if there is a procedure and she will also tell there is a procedure in certain timings so to be ready for it... also she will tell when you get free time to take a patient and write a care plan and to show it to me [mentor]"

"Because of good mentors we wanted to go to clinical"

Good mentors also took an active teaching role, showed concern, and encouraged students to care for patients independently. As one student explained:

"Some mentors are very good. During the short time they try to give us all signatures, and complete all requirements. … with the support of mentors we are able to full fill the requirements".

On the other hand, lack of communication and guidance from mentors made it difficult for students to manage and provide patient care. According to students:

"… we give them our numbers to call us if their duty gets changed but they don't call us"

"They don't even tell us when they are doing a procedure or attending a patient, we have to run after them even when we do like that [run after them], they don't care"

"Then I had a mentor. What she did to me was she just gives me the patient and vanished. Most of the time during hand over also I won't see her. So I had difficulty in managing chronic and sick cases"

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Mentors who were not helpful made the students feel useless and demotivated them. Students believed that mentor training would help to improve their learning in the clinical environment:

"If there is a mentor who don't know anything about teaching then that mentor cannot perform well with students so it is like a waste. The relationship with mentor and student will be good with proper training".

"It is much better in wards now specially for those who have had mentoring workshops"

Clinical Learning Opportunities

Participants believed that the clinical environment comprised of a number of learning opportunities for them. They identified certain conditions in the clinical learning environment that made it possible for them to make good use of learning opportunities: teaching oriented mentors and clinical staff, and opportunity to practice independently and provide patient care. Students expressed their views as follows:

"We felt very good and satisfied during …[a clinical area] posting. We worked in many areas medical, surgical, there sisters are very helpful"

"My best experience is in …[a clinical area] it was very good. We were given to practice independently during last term and this[term]"

Conversely, a number of conditions were identified that prevented students from making the most of their learning opportunities effectively (Table 1).

Main conditions under which students were not able to make best use of clinical learning opportunities:

- Being new to clinical or particular area
- Mentors and ward staff were not teaching oriented
- Students unaware of learning opportunities
- Work management structure
- Clinical placement schedule

Table 1: conditions that prevented students from making good use of clinical learning opportunities

Students experienced difficulties when they started their clinical for the first time, and when they were posted to a new area, especially the specialised

areas like NICU, CCU or Theater. Feeling scared, unfamiliarity with place and equipments, what the mentors expect from them, mentors not providing adequate learning opportunities, mentors expecting same amount of skill from new students as from senior students, and inadequate orientation to the specific area were some of the main reasons identified. When students were too slow or made mistakes, mentors hesitated to let students practice their skills. As students took longer time to complete the procedures, it interfered with the work of mentors and slowed them down:

"Since we are new students, we ask questions from mentors and we ask them to come for procedures with us so they don't like it because we depend on them. They prefer [experienced] students because they know things and are experienced"

"We [new students] take time in doing procedures therefore they [mentors] don't want to give it [procedure] to us most of the time"

One major hindrance for learning was that students were given work such as taking vitals for all the patients in the ward. By the time students finished taking vitals, all patient care was completed. One student summarised these issues:

"We have noticed that vital checking is for students. We also want to practice other procedures... We have had lot of experience in checking vital signs… we want to go for rounds as well. Sometimes they will give 32 patients to check vital signs for one student. That is about one hour- two hours specially in some wards. During rounds doctors explain lot of things, so we learn a lot during rounds. However due to this problem we can't even attempt ward rounds"

"When we come back after checking vitals all the other work will be finished"

Participants stated that such practices were changing in some wards, and students are getting more opportunities to practice their skills. They recommended that faculty could provide specific written tasks to improve the experience for students. However, some students were of the opinion that this will have no effect.

Students were not able to make best use of learning opportunities because of the way clinical posting was structured. The findings revealed a number of issues related to this: students were posted to clinical area without completing related theory component or adequate practice in the labs, the duration of clinical were not adequate, the area that student was posted was not ideal learning environment, and the timing of students duty:

"… lab practice time is not enough. It is very less. For us during our first semester we had few hours and some times in the diploma course students go to

"… at the beginning of semester we had to go to clinical without studying anything from the subject, so we had difficulty in relating the theory to practice. Especially we were in an area which was new so we were quite lost"

Clinical Evaluation

The results revealed two main issues related to clinical evaluation: difficulties orm"

"Sometimes we don't get the mark we deserve in the evaluation. There may be a student who doesn't do that much work but because of a sweet mentor she may get good marks, which is very unfair"

"It also shows the weaker student may get a very high mark than the student who is working hard. Some mentors give equal marks to both students if she is supervising in order to be fair for the students"

Students face a number of difficulties in filling their evaluation forms. Mentors not being able to complete the form on time, and changing of mentors are common reasons for this:

"So when we come there will be another mentor so this affects our evaluation form. So the ward in-charge may say to fill the form by another staff. They will also say I have done few days duty with you so I don't know about you. So get it filled by some other mentor"

Unfamiliarity of mentors with the evaluation was also found to be an issue related to clinical evaluation. According to one student:

"when we give them the evaluation form they will say to keep it and by the time the posting finish and they don't even know what is written in the form. Actually if they see it before only they will know if we are following the right way"

Participants were concerned with how evaluation is conducted because marks are taken from evaluation and added to the final subject marks. According to one student:

"We are concerned because marks are taken from here [clinical evaluation] to it [final subject marks]"

with getting the clinical evaluation form filled, and a perception of unfairness in the method of evaluation. Participants were of the opinion that mentors gave equal marks to students regardless of their performance, in order to be fair to all students. Furthermore, mentors differed in the way they did the evaluation: some mentors asked questions to assess knowledge of students while other mentors filled the form without asking any questions:

"Some mentors fill our forms without checking the student [knowledge/skill] properly.... Some students may get very high in the evaluation form like 99 for their evaluation... We cannot say that mark is appropriate. For example, there might be a very hard working student and one who does not work hard. When we see the evaluation form there is no change from the form"

"Sometimes we don't get the mark we deserve in the evaluation. There may be a student who doesn't do that much work but because of a sweet mentor she may get good marks, which is very unfair"

"It also shows the weaker student may get a very high mark than the student who is working hard. Some mentors give equal marks to both students if she is supervising in order to be fair for the students"

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Student Feelings

Participants described fears, and positive and negative feelings that resulted from their experiences in the CLE. This had a huge impact on student motivation and performance.

Participants stated that appreciation, and adequate learning opportunities made them feel good and satisfied. Helpful mentors were the main reason for this. Teaching oriented staff and managers lead to a learning focused environment

where mentors took an active teaching role. In turn, students had a clear idea of what they were expected to do. In addition to knowledge related teaching, staff also gave instructions regarding improvement of behaviour and attitude. Students described their experiences:

"For me the best experience is from ...[a clinical area]…that sister comes and asks us to do things and dressing... She also tells us not to sit or stand without doing work"

"We felt very good and satisfied during ...[a hospital] posting. We worked in many areas medical, surgical… sisters are very helpful. I like to go to clinical more than coming to college. Because we get to do things"

Opportunity to provide care independently was a very satisfying experience for the participants:

"My best experience is in ... it was very good. We were given to practice independently"

"I was given a cubicle and was given opportunity to give all the care for patients. That was a very good experience"

Trust from the mentor played an important role in leading to satisfaction of students. Participants believed that trust of mentor allowed student to work independently and provide total patient care.

In addition to mentors, other health professionals on the ward also played a role in feeling of happiness and satisfaction. According to one student:

"doctors teach us ...They will explain things and ask questions if we give them answers they will say very good"

Participants also experienced some negative feelings and worries during their clinical placements. All focus groups reported that their main worry was that the clinical requirements might not be completed. Lack of information regarding clinical requirements, and not getting adequate opportunity to practice skills

were the main reasons for this:

"We are very much worried about, that by the time we finish clinical our procedures and signs will not be able to get… for example this semester we have learnt many new things. But if we don't get to practice those and the posting finishes then we are very sad and upset"

"We fear that we may not get the required signature for procedures. We also don't know that what signs we should get… we don't know which ones to get sign for practice, or which ones to get satisfactory"

The negative feelings that participants experienced resulted from lack of communication and feelings of being humiliated. Lack of communication led to feelings of not being cared for while criticizing in front of others made students feel humiliated. This had an extremely negative effect on students:

"Sometimes we are fed up; don't want to go for duty. Because mentors don't care about us"

"Once I went to give bed bath that was my first time and I was slow and shaky and scared. That time also the mentor humiliated me in front of other staff. Now I am totally fed up of that ward and I never want to go to that ward again"

"Every day I was humiliated and demotivated [student crying]".

Experience of previous students in a ward or with a mentor also led to feelings of fear. According to one student:

"The first day even another student asked me who my mentor was. Then I told her … the girl said, you will think and wish that you would have never got this mentor"

Fear was also a result of lack of self-confidence, especially in specialized clinical areas:

"I got very scared to work alone even though we knew the procedures we did not have that much confidence to work alone. Because that was the first experience of that kind in [that placement area]"

Participants stated that with experience, their fear of wards and mentors decreased:

"When we start to work or get to know the mentor [and ward] we come alright".

From the findings it could be seen that students believed mentors to be an essential part of clinical learning, the learning environment affected students, even though learning opportunities are present in CLE, students are not always able to make best use of them, and students feel satisfied and happy when they are able to make good use of learning opportunities that are present.

Discussion

This study has highlighted significant issues in clinical learning of student nurses: 1) Mentors are an essential part of clinical learning 2) CLEs have a number of psychological effects on students 3) students are sometimes not able to make best use of their learning opportunities 4) students feel satisfied and happy when they are able to make good use of learning opportunities in the CLE. This study's findings are in line with existing knowledge regarding clinical learning of nursing students. This study is also a novel contribution to the study of clinical learning in the Maldives.

Relationships with mentors, curriculum design and delivery, clinical unit, staff lack of familiarity with study programme, interdisciplinary team members, and fear of students from personal experiences and stories heard have been identified

as challenges in the CLE (O'Mara et al., 2014). The participants of the current study also agree that relationships, curriculum, clinical area, staff reactions to students, other health care team members, and fears affected their learning in the CLE. The fear they experienced came from personal experience and stories

stories of peers.

Mentors

In the setting of the current study, the mentor was the main clinical educator of the students. Hence this discussion includes the clinical educator role under different names such as mentor, preceptor, clinical teacher and clinical educator.

Participants of the present study believed mentors to be an important part of the CLE. They stated that mentors could make clinical learning a positive experience or a negative experience for students. Previous studies also have linked good CLEs to good mentors (Cooper et al., 2015; Shoqirat & Abu-Qamar, 2013). Mentor should be a good role model for students to learn from (Foster et al., 2015). Mentors need to identify learning needs and facilitate learning in clinical area (Bradbury-Jones et al., 2011). Similar to current study, teaching and explaining were found to be important mentor activities (Foster et al., 2015). Nurses' passion about teaching students have been identified as a significant criteria to measure the quality and quantity of learning through clinical (Ha, 2015).

The current study showed that communication between mentor and students affected their learning. When mentors communicated well with students, they felt cared for, and were motivated to do well. Previous studies have also highlighted the importance of effective communication between mentor and student. This communication should be based on respect, openness, fairness and justice (Moonaghi et al, (2015). Poor communication has been shown to lead to disappointment and feelings of being ignored (Shoqirat & Abu-Qamar, 2013). Students valued interpersonal relationships as an important part of positive CLEs (D'Souza et al., 2015). These relationships were found to make the CLEs challenging for students (O'Mara et al, 2014). When teachers were unkind and not helpful, students felt less motivated to learn (Moonaghi et al., 2015). Preceptors' attitudes and approaches have been found to be the most common causes for students' dissatisfaction with clinical learning (Cooper et al., 2015; Sundler et al., 2014). The current study participants reflected this view when they stated that mentors who communicate well and were interested in teaching, encouraged students to attend clinical, while mentors who did not communicate and did not guide students, demotivated students.

Participants of present study believed that a number of issues related to mentoring could be enhanced through mentor training. They stated that mentor training is important for their learning, and believed that trained mentors were able to provide a better learning experience. Cooper et al (2015) study on key influences impacting quality of clinical placement also showed that students wanted their preceptors to be well trained to carry out their role.

Clinical learning opportunities

Participants of the study believed that clinical environment provided a number of learning opportunities, and certain conditions present in the CLE enabled students to make good use of these opportunities. Literature demonstrates ample evidence on importance of experiences gained in the CLEs to the development

of knowledge and skills of student nurses (D'Souza et al., 2015; Shoqirat & Abu-Qamar, 2013). Current study showed that teaching oriented mentors and clinical staff, and opportunity for independent practice by students, enabled students to make good use of learning opportunities.

Participants of this study were posted in different wards in hospitals to obtain their clinical experience. They posted medical, surgical, and paediatric wards, in addition to operating theatre, intensive care unit, reproductive health unit, and outpatient services. Previous studies have identified hospital wards as good learning environments where meaningful learning situations were present (Bisholt et al., 2014).

However, all CLEs are not positive and meaningful. Unsupportive CLEs have a negative impact on student learning (O'Mara et al., 2014). Participants of current study identified a number of issues that prevented them from making best use of opportunities present in their CLEs: being new to clinical area, mentors and clinical staff who are not teaching oriented, lack of awareness regarding learning opportunities, work structure, and arrangement of clinical schedule were the main issues.

This study showed that students missed a number of clinical learning opportunities due to being given to measure vital signs of the whole ward. Previous studies have also identified that being used as a pair of hands lead to lack of learning opportunity for students (Bradbury-Jones et al., 2011). Due to taking vital signs of many patients, participants of current study missed ward rounds, which they considered an important part of their learning. Ward rounds have been found to be a good opportunity for students to gain in-depth knowledge (Awuah-Peasah et al., 2013).

Another obstacle to learning identified by previous studies was lack of opportunity to work independently (Bisholt et al., 2014). This corroborates with findings of current study, as students identified opportunity for independent practice as an important learning factor that led to increased level of confidence.

Similar to current study, previous studies have also identified that relationships with other members in clinical care team also affected learning. A Canadian study using focus groups showed that students percieived the CLE to be challenging due to relationships with clinical staff, and felt unwelcomed to the clinical area (O'Mara et al., 2014).

The curriculum delivery also contributed to difficulties faced by students. In the current study, students identified a number of issues related to curriculum delivery that had a negative impact on learning: students posted to clinical area before covering related theory component or laboratory demonstrations, and inadequate duration of clinical. Nursing students from Nigeria also believed that incomplete classroom instructions, and inadequate practical demonstrations before clinical experience, can hinder clinical learning (Anarado, Agu & Nwonu, 2016).

Communication between faculty instructors and hospital staff can affect learning of students (Serçekus & Baskale, 2016). Bisholt et al (2014) recommendsclose cooperation between clinical staff and educational staff in order to ensure conducive clinical learning experiences. Participants of current study also reiterated this view when they proposed closer communication between faculty and clinical staff in order to ensure clinical staff are aware of clinical requirements of students.

Students feelings

Participants described a number of fears in addition to positive and negative feelings that resulted from their CLE. These resulted from students' interactions with mentors and other clinical staff, and played an important role in student motivation and learning.

The current study showed that being new to the clinical, or new to a specific area of the clinical made the students more anxious and affected their learning. A number of researches conducted to explore the experiences of the new student resulted in similar conclusions. Sun et al. (2016) found self-doubt, worry and difficulty coping as reasons for anxiety in students new to the clinical area. Studies have shown that good mentors who are visible to students and an atmosphere that promoted learning were positive experiences that encouraged learning for new students (Moonaghi et al., 2015; Jonsén et al., 2013).

When students were not allowed to participate in clinical care, their confidence decreased (Moonaghi et al., 2015). Similarly, when the preceptor was not interested in students or they did not have skills of supervision, the students felt insecure, foolish, and abandoned. In contrast, students felt comfortable and their confidence increased when they are provided with adequate support (Jonsén et al., 2013).

Students felt happy and satisfied when they had opportunity to practice skills and gain knowledge, in addition to being appreciated. Previous studies also have found a positive relationship between appreciation, participation in care, and satisfaction of student nurses (D'Souza et al., 2015; Bradbury-Jones et al., 2011). Lack of encouragement and not being made responsible had a negative impact on knowledge and confidence of students (Bradbury-Jones et al., 2011).

Participants of current study experienced a number of negative feelings that resulted from lack of communication and actions of mentors and clinical staff that led to humiliation for students. These led to feelings of being fed up with clinicals. A study carried out to study nursing students' attitude towards clinical practice showed that students became dissatisfied with clinical practice when they were stressed and frustrated, and when nursing staff were not interested in teaching students and building relationships (Ha, 2015). Unsupportive staff also led to unpleasant experiences that retracted from effective clinical learning.

When the mentor was not visible, students felt abandoned, powerless, and discouraged to learn. On the other hand, visible mentors who involved students in patient care made students feel safe, secure, and respected. However, a Turkish study resulted in mixed views. Some students found the constant presence of instructors a source of comfort, while other students found it to be a source of stress (Serçekus & Baskale, 2016). Nevertheless, the study concluded that learning was positively affected when instructors provided information, demonstrated skills, and gave support.

Even though it can be argued that a moderate amount of anxiety is necessary for learning to occur, research has shown that a high level of anxiety, and a negative attitude towards learning might prevent adequate clinical learning from taking place (Awuah-Peasah et al., 2013). The current study participants believed that one reason for stress and anxiety was stories of other students. Other studies have resulted in similar views (O'Mara et al., 2014; Jonsén et al., 2013).Participants in current study stated that with experience they gained more confidence and felt less stressed with clinical. Previous studies have also shown that positive

One of the main causes of fear for participants of current study was their fear of not completing their clinical requirements and objectives by the end of placement. Their clinical requirements included gaining signatures for procedures and completion of evaluation form. Many times students felt difficulties in obtaining the signatures and getting the form filled by mentors. Although this has not been widely discussed in literature, signing the procedure book was found to be a difficult work for students (Foster et al., 2015). Furthermore, other studies have also shown that failure to achieve learning objectives led to dissatisfaction with the CLE (Bisholt et al., 2014).

Clinical evaluation

Participants in current study found clinical evaluation to be an important part of their learning. They found a number of issues related to evaluation that affected their learning and subject grades. They experienced difficulties in getting evaluation forms signed by mentors, and believed that the marks did not demonstrate their skills and abilities. Literature shows few studies that discussed clinical evaluation as a part of clinical learning. However, the few studies that explored evaluation found similar results. There is consensus that evaluation is an important part of clinical learning. Even though students believed clinical evaluation should be a fair process (Moonaghi et al., 2015), many students do not believe that mentors are conducting evaluation fairly (Shoqirat & Abu-Qamar, 2013). Current study participants believed that there were discrepancies between mentors when filling the forms. Some mentors asked questions from students while others, just filled the form. This was found to be a source of concern for students, as the marks obtained in these forms could influence the overall subject and course results.

Implications for Nursing Education

The CLE is an integral part of nursing education. Measures need to be taken to make students feel comfortable and cared for in the CLE. Similarly, steps need to be taken to ensure that discomforts are minimized. When choosing mentors for students, it is important that registered nurses who are interested in mentoring be chosen. In addition, mentoring guidance need to be provided for those who are interested in mentoring. The clinical placement timings and structure need to be evaluated to identify how the time spent in clinical could be of maximum benefit for students.

Further studies need to be conducted to explore the issues from the perspective of mentors, in order to provide further support to them.

Limitations

The study has used participants from one campus of the only faculty of nursing in a small Asian country. Hence, generalization to other populations should be made with caution. Inclusion of mentors and students from other campuses might have provided a wider and balanced look.

As the focus groups were arranged and conducted by one of the researchers, and the researcher was a faculty teacher, this might have influenced the answers provided by participants. However, students were made fully aware that the answer they provided would not affect their studies in any way.

Conclusion

This study has focused on understanding students experiences of the CLE in a Maldivian culture. Mentors, clinical learning opportunities, clinical evaluation, and student feelings were found to be important components of the CLE. There

were many situations in the CLE which made it an anxiety provoking situation for students. It is important that nurse educators identify ways to decrease this anxiety and endeavour to improve the effectiveness of the CLE.

The data presented will provide an understanding of how the higher education provider can make the clinical learning experience a better one, not only for the students, but also for the mentors. Findings from the research could be utilized to improve the mentor-training programme, and align the programme with students' needs. Most of the findings of the study were supported by existing literature, while other findings have not been widely discussed in the literature.

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