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**An exploration of tutors' experiences of facilitating problem-based learning.  
Part 1  
– an educational research methodology combining innovation and  
philosophical tradition**

The use of problem-based learning (PBL) in Health Professional curricula is becoming more wide spread. Although the way in which the tutor facilitates PBL can have a major impact on students' learning (Andrews and Jones 1996), the literature provides little consistency as to how the tutor can effectively facilitate PBL (Haith-Cooper 2000). It is therefore important to examine the facilitation role to promote effective learning through the use of PBL. This article is the first of two parts exploring a study that was undertaken to investigate tutors' experiences of facilitating PBL. This part focuses on the methodology and the combining of innovative processes with traditional philosophical traditions to develop a systematic educational research methodology. The study was undertaken respecting the philosophy of hermeneutic phenomenology but utilised alternative data collection and analysis technique. Video conferencing and e-mail were used in conjunction with more traditional processes to access a worldwide sample. This paper explores some of the issues that arose when undertaking such a study. The second article then focuses on exploring the findings of the study and their implications for the facilitation of PBL.

**Introduction and literature review**

As problem based learning (PBL) in Health Professional curricula becomes more widely adopted, it is important to address the role of the lecturer as a PBL tutor. The way in which PBL is facilitated has been found to be of fundamental importance to the success of the teaching methodology. It is therefore essential that the tutor facilitates PBL in a way that is conducive to student learning. Difficulties have been highlighted when reviewing the literature examining the facilitation role (Haith-Cooper 2000). There is a distinct lack of available research. Information is mainly conflicting, opinions on to how to facilitate effectively ranging from active involvement in, to silent observer of the PBL process (Haith-Cooper 2000). Tutor instruments have been developed including Barrows (1994). However, these provide little detail of specific tutor intervention in particular situations (De Grave et al. 1998).

Of the available research, the focus has mainly been on students' perspectives of the role of the PBL tutor. Likert scale questionnaires have been used to collect data examining students' experiences of effective facilitation (Dolmans & Schmidt 1994, Kalaaian & Mullan 1996, Schmidt & Moust 1995). Consequently, closed response schedules allowed little exploration of what "way" facilitation was felt to be effective and how facilitation techniques influence learning. As the students' role in PBL is to learn, not assess facilitation, the value of their interpretation of their tutors' role is argued as being limited (Schmidt & Moust 1995).

Little research examines tutors perspectives of effective facilitation. Most studies are quantitative, examining only opinions of tutors with no depth of exploration of reasons for these opinions. Doring et al. (1995) identified that some tutors feel discomfort when facilitating PBL, however there was no further exploration of the reasons for this discomfort. Kaufman and Holmes (1996) found that tutors' were

mainly satisfied with their role, but did not explore the source of this satisfaction. Only Ambury (1992) explored experiences of tutors in any depth. He examined the difficulties that novice tutors had facilitating PBL. However, due to their inexperience, they had little to discuss with regards to effective facilitation techniques. No research could be found around this issue.

Consequently, it is essential that further research be undertaken to increase the body of knowledge about effective facilitation of PBL.

This could be achieved by undertaking a more in depth examination of established tutors' experiences of effective facilitation. This paper describes the development of the methodology to undertake such research. The aims of the study are twofold, first to describe the essential structure of the experience of facilitating to increase understanding about the meaning of effective facilitation. Second, to assess the feasibility of using traditional philosophical underpinnings coupled with innovative methods to collect worldwide data. Ultimately, these could be used to increase the depth and breadth of data to inform the role of the PBL tutor in health professional education

### **Traditional philosophical underpinnings**

Van Manen's (1990) Human Science approach was adopted as both a philosophical and methodological framework for the study. Adapted from the tradition of hermeneutic phenomenology, Van Manen believes that knowledge can be increased through exploring lived experience, in this case tutors' lived experience of facilitating PBL. Phenomenology is the systematic attempt to uncover and describe the internal meaning structures of a lived experience (Van Manen 1990). This allows for a deeper understanding of the essence of the experience. Consciousness cannot be studied directly but people (in this case experienced PBL tutors) can be encouraged to reflect on their lived experiences, which can then be described and interpreted.

Van Manen (1990) recognises the subjective nature of the knowledge developed through hermeneutic phenomenology. The hermeneutic circle is central to the methodological process. Existential factors influence the interpretation of experiences and these should be recognised, for example tutors' (including the researcher's) experiences of facilitation are influenced by personal pedagogical beliefs (Doring et al. 1995). However, Van Manen (1990) believes that the researcher's pre-understandings and assumptions can distort the process of interpreting the phenomenon. He suggests specific methodological techniques to increase the credibility of the study. "Doing it yourself first" is one technique which was previously undertaken (see Haith-Cooper 2000). This involved describing personal experiences of facilitation and considering how they may distort the data. Another technique is maintaining a reflexive journal throughout the research process. This allows the explicit exploration of personal values (Koch 1995). Developing an understanding of how these may influence the research process can increase the credibility of the data (Streubert & Carpenter 1995).

Drauker (1999) believes that researchers often mismatch the philosophical traditions and methodological procedures of a study. Although some researchers claim to be using hermeneutic phenomenology, in reality their methodology bears no resemblance to the writing of Heidegger. Another argument is that the method of phenomenology does not exist. This is demonstrated by the fact that researchers fail

to offer clear methodological guidelines when undertaking phenomenological studies (Hallet 1995, Paley 1997). Van Manen (1990) has developed a research process that embraces phenomenological traditions. He argues that his human science approach is methodologically systematic. However, he does not advocate procedures but describes a number of techniques that follow the tradition of hermeneutic phenomenology. Indeed, Patton (1990) argues that a phenomenological methodology should not involve a restrictive set of steps but be led by the experience. More structure could be constricting when little is known about the experiences that may surface.

This article will proceed to describe the development of a research process that embraces phenomenological traditions through Van Manen's (1990) work but also explores the use of modern technology as tools within the research process.

### **Sampling**

Phenomenological sampling aims to obtain a high quality sample that provides a thick and rich description of the experience (Hammond et al. 1990). Purposive sampling is most commonly used, individuals being selected because they have lived the experience which one can learn from (Baker et al. 1992, Coyne 1997). Phenomenological methods utilise small sample sizes due to the depth of the data being studied and the possibility of revisiting the sample to collect further data (Baker et al. 1992, Beck 1994; Benner 1994). For this study, the sample had to be selected for their vast range and depth of experience of facilitating PBL, providing them with the opportunity to reflect on their experiences of effective facilitation.

A worldwide sample was selected to represent the many institutions that have been using PBL for a number of years in different disciplines. The sample consisted of 12 lecturers, with a minimum of 3 years experience of facilitating PBL, working in any institution and discipline around the world to maximise the variation of experience. Selected tutors used a model of PBL reflecting the seven jumps (Schmidt 1983, see Fig. 1) or an adapted version (PBL could be a loosely defined term for a number of variations and experiences of facilitation may vary with different models of PBL). E-mail provides easy access to a worldwide sample. Although its use can be constrained to specific populations, two thirds of people "on line" are involved in higher education (Kenway 1996). It is less intrusive than the telephone and quicker and cheaper than international postal systems. One difficulty encountered was in accessing e-mail addresses of potential participants. Initially e-mails were sent to all institutions with a worldwide web address related to PBL. The gatekeeper was requested to forward the e-mail to potential participants. However, recipients can delete messages at the touch of a button (Selwyn & Robson 1998) and non-response was a problem, only one participant being accessed in this way.

E-mails were then sent to any PBL tutor whose e-mail address could be found from different sources including journal articles, PBL conference delegate lists, and word of mouth. Although participants may not respond to e-mail questionnaires, preliminary data suggests that response rates are better than postal questionnaires (Selwyn & Robson 1998). Indeed there was a large response. On receiving replies, 10 participants were selected and e-mailed to arrange dates and times for the interviews. The remaining two participants volunteered at an international PBL conference.

The final sample originated from different Universities in England, Wales, Australia, Canada, USA, and Sweden and different disciplines (nursing, medicine, physiotherapy, radiography, veterinary science, and pharmacology). The length of time that the participants had been PBL tutors ranged from 3 to 20 years, the mean being 7.5 years.

### **Data collection**

Van Manen (1990) describes phenomenology as the study of lived experience (description) in the attempt to enrich the experience by uncovering its meaning (hermeneutics). His methodology reflects this by involving interpretation at two levels. First pointing to something to highlight the description then pointing out the meaning of something within the lived experience. To encompass this he suggests the use of two phases of data collection. Observation and in depth conversational interviews are most commonly used to collect descriptions of experiences (Crotty 1996, Fielding 1994). Interviews were selected for this study, as it was the tutors' lived experiences of facilitation and what it meant to them that was required rather than studying their behaviour within a group situation.

The initial interviews were undertaken and tape recorded either face to face or using video conferencing facilities. Initially an unstructured approach was used. However, once the experiences were described, more structured questioning was required to conform to time constraints and reduce the amount of dross, which is common with unstructured approaches (Holloway & Wheeler 1996, Smith 1997). After collecting demographic, an open statement was used to encourage the tutors to describe a recent experience of facilitating an effective PBL tutorial. Specific examples of instances were encouraged to distract the interviewee from causal explanations, generalisations, and abstract interpretations (Van Manen 1990). A list of probes developed from previous literature was used to guide the process for when the participant "dried up" (Patton 1990).

Due to geographical constraints and cost implications, rather than repeating the interview process, the second phase of data collection was undertaken using e-mail. Participants were asked for further depth of description where it was felt necessary. They were also asked to reflect on their recall of the experiences they described to consider if the researcher's interpretation summarised what the experience meant to them.

### **Data analysis**

After transcribing the data, Van Manen's (1990) three steps to isolating thematic aspects were followed. He suggests first reading the text and using a phrase that captures the fundamental meaning. He then suggests highlighting any statements or phrases that reveal the meaning, then examining every sentence and considering how it contributes to the meaning of the phenomenon. This assisted the process of theme identification within the context of a holistic experience. Van Manen (1990) highlighted the difficulty of differentiating between incidental and essential themes. Incidental themes are only incidentally related to the phenomenon where as without an essential theme, the experience would not be what it is. Whether the phenomenon would change without each theme was considered before deciding on the final themes. Eventually 15 working themes were developed which were merged into six essential and one incidental theme (see Fig. 2). These will be explored in the

second article. Descriptions that illuminated these themes were cut and pasted. Van Manen (1990) discusses the importance of using only relevant parts of the descriptions, omitting extraneous aspects. However, he also stresses the importance of capturing the holistic nature of the experience and avoiding conceptual abstractions. Within each theme, the relevant descriptions were left intact. Consequently full descriptions often appeared in more than one theme, adding extra work for the researcher but providing the context of the relevant part of the description.

Cutting and pasting can influence the credibility of findings (Burnard 1991). Extracting significant statements then reducing them to an essential structure could result in the omission of vital areas or taking statements out of context. To avoid systematic bias it is important to involve participants and neutral colleagues in reviewing the process and the themes that emerge (Burnard 1991). However, Guba and Lincoln (1989) criticise this believing that it undermines the philosophy of qualitative research and multiple truths, attaching positivist values of one truth to the process. They suggest that leaving an audit trail allows others to check decision-making Benner (1994) however suggests that much of qualitative data analysis is based on hunches and it would be difficult to establish an audit trail for this. I would argue that if the process is systematic then a method develops rather than a series of hunches. An external verifier can be used to ensure that the procedure remains systematic rather than agreeing or disagreeing the specific content of the themes.

## **Discussion**

Although using traditional phenomenological underpinnings coupled with modern technology appeared to provide the opportunity to explore lived experience in some depth, issues arose which negatively influenced the research process. Sampling using e-mail allowed a more diverse selection of participants, the most suitable being selected. The main problem in the sampling process was a lack of access to tutors' e-mail addresses. This limited the availability of participants. Although there was an attempt to select participants for their varied experiences of facilitation, in reality, cost and convenience did influence selection. Patton (1990) identified that these are real issues that can distort the sampling process.

It was discovered that many institutions do not have video conferencing facilities and any potential participant who could not be accessed for a face to face interview and had no such facilities had to be excluded from the study. However, with the development of technology, it is assumed that such facilities will become more widespread with time, providing scope for accessing more diverse samples. Using interviews via video conferencing provided an opportunity to explore experiences in great depth. However, it did have its disadvantages. During the interview process, it was found to be very distracting. Non-verbal communication was distorted, for example, not being able to see the seating position of the participant. Also, to maintain eye contact with the participant, the camera above the monitor needed to be looked into. This made it difficult for the researcher to observe facial expressions on the screen, which are useful for validating verbal responses (Fielding 1994). A concern with concentrating on the functioning of the conferencing equipment distracted from the content of the interview. With more practice, this issue may become less important.

For the second phase of data collection, e-mail had its limitations in the same way as questionnaires would with traditional data collection methods. The data collected were only of a superficial quality due to the fact that it had to be written, and instant probing was not available. However, it was useful for data analysis and verifying themes with participants. Re-interviewing participants as Van Manen (1990) suggests would have provided more opportunity for adding further depth to many points of discussion.

Using modern technology in the research process raised different ethical issues. Confidentiality and anonymity could not be assured for all aspects of the study because the data collected via e-mail had the respondent's name on the reply and it was possible that other people could access the e-mail. However, this was explained to the participants within the questionnaire. Because the research sample was international, it was easier to maintain anonymity when reporting the research than would have been the case if a smaller, local sample had been used.

### **Conclusions**

This paper aimed to discuss the development of a research methodology to undertake educational research that encompasses traditional philosophical underpinnings together with innovative data collection methods. Using Van Manen (1990) as both a philosophical and methodological process helps to overcome some of the issues concerned with mis-matching philosophy and research methods. Using e-mail and video conferencing facilities in the research process, the paper has demonstrated how technological development can be combined with tradition. However, further expertise and availability of video conferencing is needed to add to the credibility of using such methods.

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