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Link to original published version: <http://dx.doi.org/10.1054/nedt.1999.0397>

Citation: Haith-Cooper, M. (2000) Problem-Based Learning within Health Professional Education. What is the Role of the Lecturer? A review of the literature. *Nurse Education Today*, 4 (20) 267-273

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Problem-based learning within health professional education. What is the role of the lecturer? A review of the literature

...The profile of an effective facilitator has been likened to that of a saint, unfazed by ambiguity, undaunted by student irritation or personal frustration ... (Katz 1995, p 52).

With the increasing popularity of using problem-based learning (PBL) within health professional curricula, it could be argued that the health lecturer's role in education is changing. As a lecturer, I have only recently become involved in using PBL. With increasing exposure to the process and through reviewing the literature, I have come to realise that the role of the lecturer is fraught with difficulty. The literature is often conflicting with PBL meaning different things to different people (Barrows 1986). It provides no consistent guidelines as to how the lecturer should adapt to undertake this new role. This article explores the issues around the role of the lecturer within PBL and through reviewing the literature, investigates the level of intervention the lecturer should provide when students are undertaking the PBL process. Suggestions will be made to 'facilitate' the lecturer into facilitating an effective teaching strategy.

Introduction

Problem-based learning (PBL) is a student centred educational learning process. It focuses on confronting students with 'problems' to provide the stimulus and motivation for learning. However, it is different to problem solving in that this usually takes place after a period of instruction to consolidate new knowledge (Alavi 1995). The perceived learning benefits derived from PBL are well-documented (Alavi 1995, Bevis & Watson 1989, Frost 1996, Hughes & Lucas 1997, Pansini-Murrell 1996, Schmidt 1990). PBL is based on cognitive learning psychology (Creedy et al. 1992) and assumes that learners are active processors of information rather than passive recipients of knowledge. Students elaborate on prior knowledge in a meaningful context for future application of the information. This is believed to assist in easier retrieval of knowledge once in practice (Charlin et al. 1998). In addition to this, it is believed that PBL assists in integrating theory and practice (Creedy et al. 1992) and develops skills that can be transferred into clinical practice such as team working (Bernstein et al. 1995) and lifelong learning skills (Neufield et al. 1989).

The lecturer plays an important role as a tutor in the PBL process (Alavi 1995). However, research has highlighted that lecturers have concerns regarding the level of preparation they receive for their role (Doring et al. 1995). The effectiveness of this role can have a major impact upon the success of the teaching strategy and therefore the outcome of the students' learning (Andrews & Jones 1996, Caplow et al. 1997, Hughes & Lucas 1997, Schmidt et al. 1993). It is vital therefore that the lecturer functions in the PBL process in a way which is effective to learning.

The term 'facilitator' is generally accepted as the role of the lecturer in the PBL process. In a small group (usually between 6 and 10 students), the lecturer facilitates the students to work through the PBL process. This is a process of discussing and analysing the 'problem' a set of phenomena in need of explanation (Dolmans &

Schmidt 1994). Building on their existing knowledge, the students formulate learning objectives to find out what they do not know to explain this phenomena, thus resolving the problem. The whole essence of PBL is that it is student centred, students being free to choose their own learning objectives (Frost 1996). However, many authors have highlighted that there are difficulties with lecturers actually facilitating this. The skills used in facilitation need to be learned, as they are not used commonly in traditional didactic techniques in education (Katz 1995, Wetzel 1996). However, the definition of the term facilitator appears to be used interchangeably within the literature. Individual facilitation styles vary considerably and this variation has profound implications on the outcome of PBL (Biley & Smith 1998). This inconsistency within the literature therefore creates difficulties in learning effective facilitation skills.

In order to address this, I have identified the need to undertake research, which examines the experiences of effective PBL facilitators in order to define how a lecturer can be effective when using PBL. Therefore, a systematic literature review was undertaken prior to proposing to undertake a phenomenological study. Van Manen (1990) suggests that researchers should describe their own lived experiences before asking others to share their lived experiences of a phenomenon. Consequently, my experiences as a PBL facilitator are shared within the context of this article.

According to the Awards dictionary, to facilitate means 'to make easy, to clear away difficulties and lessen labour' (Awards 1993, p 158). Within PBL, this suggests therefore that the facilitator's role is to intervene in the process to make it easier for the students. Intervention to some degree is generally agreed as the role of the facilitator in the PBL process. However, there appear to be conflicting opinions as to the level of intervention and the time when intervention is required. Indeed there is a fine balance between not intervening enough and taking control over the learning situation. Achieving this balance has been found to be difficult (Andrews & Jones 1996, Pansini-Murrell 1996). My experience as a tutor is that failure to achieve this balance can lead to student and tutor frustration, particularly when there is not enough intervention. Students can become angry and confused when the facilitator does not provide enough information (Alavi 1995). Alternatively, too much intervention can be stifling for the students, leading to discrepancies between the learning objectives identified by students and the recommendations made by the tutor (Dolmans et al. 1993).

The facilitator's role

Frost (1996) outlined the role of the facilitator in the tutorial group to encourage the students to explore and reflect on existing knowledge to develop learning objectives. This can be achieved through effective questioning and challenging to draw out discussion (Katz 1995). Schmidt (1990, p 8) would agree with this believing that the role of the facilitator is to 'use all means available', intervening with questions, suggestions and information to stimulate discussion and thus assist the process of identifying learning needs. Although his later work discourages active involvement by the facilitator, considering the role as 'a safeguard not a guide' (Schmidt et al. 1993, p 790) in order not to take control of discussion. Contrary to Schmidt et al. (1993) some authors believe that the facilitator's role is indeed that of a

guide (Biley & Smith 1998, Frost 1996, Southern Illinois University 1998, Wetzel 1996). Students should be led through the process, helping them to access their own existing knowledge and identifying the limitations of this knowledge (Southern Illinois University 1998). Adopting the role of 'guide only' will help to control the desire of the tutor to direct the process (Frost 1996). Indeed guiding the process may help to decrease frustration by minimizing digression from the steps and reassuring the students of their correct direction. Caution is needed to prevent too much input by the facilitator who can actually inhibit the process. Glick (1993) offers guidelines that the lecturer should talk for roughly the same amount of time as each student for effective facilitation to take place. However, other authors believe that the facilitator must remain silent, often for long periods to promote student thinking and discussion (Queen's University 1998, Wilkerson & Maxwell 1988). The facilitator should not merely be a passive observer (Queen's University 1998) but intervention should only occur if the process loses direction (Pansini-Murrell 1996). This may involve calling time out to encourage the group to refocus, which is essential to maintain the students on the right track (Andrews & Jones 1996, Katz 1995). Indeed, facilitators who intervene at the wrong time upset the PBL process (Ambury 1992). The best PBL facilitators are those, who intervene just at the right moment to facilitate group discussion (Schon 1987). However, many lecturers are unsure of when this moment should be (Kaufman & Holmes 1996).

Novice students

It is generally agreed that novice students require more intervention by the facilitator. Some authors believe however, that as the group matures and becomes skilled in the PBL process, the level of intervention should be withdrawn (Barrows 1988, Dolmans & Schmidt 1994, Kalaian & Mullan 1996, Pansini-Murrell 1996). With novice groups, the lecturer's role is to 'model' the students thinking processes around the stages of PBL. With the students' increasing experience, the ability to follow the process becomes a learned behaviour and less intervention is required (Barrows 1988). Withdrawing intervention with student's increasing PBL experience supports Heron's (1989) work around facilitating groups in any educational context. With increasing exposure to small group work, students become more experienced in group functioning. They develop skills in becoming self-directed in their learning. As this occurs, the lecturer withdraws intervention from a co-operative mode of facilitation. Students develop increasing autonomy in the process of self-directed learning. Within PBL, experience in undertaking the process and identifying learning needs would lead to a withdrawal of intervention from the PBL facilitator.

Changing pedagogical philosophy

As can be seen, opinions vary as to the desirable level of intervention by the PBL facilitator, ranging from active involvement in, to silent observer of, the process. As a novice facilitator, this dichotomy can lead to confusion when trying to grasp the fundamental principles of PBL. Research to agree a more consistent definition of facilitation is essential. In addition to this many authors (identified below) believe that the lecturers' underlying philosophical pedagogical beliefs about education will influence their opinions about levels of intervention and participation in the PBL process.

PBL supports the constructivist educational philosophy. The students themselves construct knowledge, rather than it being transferred from one individual to another.

Therefore students are active participants in, rather than passive recipients of, the learning process (Creedy et al. 1992). PBL assumes that students become self directed in their learning, which builds on their existing knowledge and results in their self development (Doring et al. 1995). This leads to a more equal educator/student power relationship (Alavi 1995, Frost 1996). However, Creedy and Hand (1994) stressed that this change of educational beliefs is difficult and if lecturers do not believe in this power shift (Boud & Feletti 1991, Creedy et al. 1992) then they will not change their role from that of a lecturer to facilitator. They will continue to undertake a didactic approach to teaching, negatively influencing the student led PBL process. Facilitators allowing their point of view to infringe on the process will discourage students from searching their own existing knowledge. This in turn will prevent them from identifying their own learning needs, and ultimately, the PBL process will break down (Dolmans & Schmidt 1994).

It has been identified that lecturers who do not change their pedagogical attitudes may fear that students will not learn what they need to know when using PBL (Ambury 1992, Doring et al. 1995, Margetson 1991, Pansini-Murrell 1996, Wetzel 1996). Consequently the level of intervention remains high, taking a more directive approach in the PBL process (Andrews & Jones 1996, Boud & Feletti 1991), shifting the power base back to the lecturer (Andrews & Jones 1996). This in turn leads to feelings of discomfort in becoming a PBL facilitator (McMillan & Dwyer 1989). Ultimately this will negatively influence the student led PBL process.

Facilitator training

Many authors stress the need for lecturers to be trained effectively for the success of PBL (Alavi 1995, Feletti et al. 1982, Queen's University 1998, Wetzel 1996). Hughes and Lucas (1997) found that the best PBL facilitators are those who had received professional development in the process. It is suggested that lecturer preparation and continued support is vital to change pedagogical attitudes and overcome lecturer discomfort. This will lead to the successful facilitation of the strategy (Feletti 1990, Andrews & Jones 1996). However, Ambury (1992) believes that only experiencing successful facilitation and meaningful learning from using PBL will bring about changes in attitudes. No amount of lecturer training and support will change underlying philosophical beliefs. One could argue that in receiving training of facilitation skills, one will be more likely to observe effective outcomes from PBL and therefore, attitudes will slowly begin to change. Until this occurs, excessive intervention when facilitating the process will be more likely to result. However, when considering the dichotomy of opinion as to the level of intervention required for successful facilitation, then one could question how consistency in PBL training could actually be achieved.

Group dynamics

Wetzel (1996) found that lecturers' most common concerns when facilitating PBL groups were related to difficulties with group dynamics. Specifically, the issue of facilitating groups with students who would not participate in the process was found to be a major concern. Similarly, groups with overly aggressive students and those groups, which were completely unmotivated, led to difficulties in facilitating the PBL process. Kaufman and Holmes (1996) work supports this. They found that the 'difficult' situations experienced by lecturers in PBL groups concerned disruptive students. Satisfaction with their facilitation role was lower with these groups. The

less experienced lecturer struggled to assess how much intervention was required in the situation to resolve effective group functioning. Ambury (1992) and Hughes and Lucas (1997) both highlighted that in order to ensure an environment conducive to PBL, the facilitator should focus concentration on perceiving the dynamics of the particular group in question. Intervention should only occur in a dysfunctional group, when group conflict interferes with the PBL process (Wilkinson et al. 1992). Then, facilitation should concentrate on improving the group's dynamics to resolve the conflict (Ambury 1992, Hughes & Lucas 1997). This in turn will facilitate the PBL process. Through my experiences of facilitating PBL groups, it is apparent that each PBL group is made up of individual students with different strengths and weaknesses, who will interact with peers in unique ways. Each group will manifest different levels of maturity and modes of group interaction and should be treated individually with very different needs. By focusing on group interaction intervention levels will be individual to the group's needs. This would resolve the difficulties highlighted earlier concerning the inconsistency of level of interventions. I would argue that if intervention levels were led by the dynamics of the group then they would be appropriate to that particular group whether it is a novice or mature tutorial group. However, during the phenomenological process, which I will be conducting, it is essential that personal experience is not only described but backed up by data collection.

When reviewing the literature, it appears that this is also what students want in their PBL groups. Several studies have evaluated students' experiences of PBL within their curricula. Students generally perceive that an effective facilitator is one who is skilled in knowing just when to intervene (Kaufman & Holmes 1996). This should involve encouraging equal participation by students. I would argue that monitoring student participation should be a central component when focussing on the dynamics of the group. Schmidt and Moust (1995) found that students believe that the best facilitators are those who create an atmosphere conducive to discussion. Positive group interaction is important to students to stimulate learning (Dolmans & Schmidt 1994). Again, if focusing on group dynamics, one could argue that a manifestation of group conflict would be poor group interaction, which would negatively influence the learning environment. Using these as the cues would assist the inexperienced facilitator to decide when increased intervention in the process is necessary, whether this was a novice group or not. When considering the training and support of lecturers therefore, perhaps it is knowledge about group processes, which should be a central component of the training course (Queen's University 1998), rather than focusing on the level of intervention.

The way forward

Not only is there a dearth of research around the facilitator's role in PBL but this article has also highlighted inconsistencies in the literature when examining the level of intervention of the facilitator. I believe that the facilitator should focus attention on the dynamics of the group, intervening only when difficulties with the group processes interfere with the PBL process. The main role of the facilitator should be to develop an awareness of these intrinsic problems responding proactively to the groups' needs. To achieve this it is essential that lecturer training and support is both appropriate and consistent. It has been highlighted that there is concern about the level of support and training received by lecturers and this must be improved to facilitate an increasingly popular teaching strategy within health professional

education. I suggest that programmes that focus on training facilitators to interpret group dynamics rather than focusing on general levels of intervention will assist in assessing the need for intervention of individual tutorial groups. It is vital therefore that time for group dynamics training and support is offered to the lecturers with the continuing use of PBL in health professional education. However, it is essential that research is able to define a more consistent definition of the role of the facilitator. A phenomenological study will allow the experiences of PBL facilitator's to be explored and common essences for the meaning of the role to be developed.

Conclusions

This article has demonstrated that the facilitation of PBL groups is no easy task. This is further compounded by the lack of consistency within the literature regarding the appropriate level of intervention required within tutorial groups. However, one must not underestimate the role of the lecturer in facilitating effective PBL. Evidence suggests that there is a very fine balance between tactical intervention and a heavy-handed overly didactic approach. Guidance at key junctures is necessary in order to avoid frustration, maintain group dynamics and to formulate concise learning objectives. For this to occur, an effective combination of appropriate pedagogical beliefs and facilitation skills is required.

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