STUDENT EXPERIENCES OF A PROBLEM-BASED LEARNING NURSING CURRICULUM

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ABSTRACT

Describes the process of Problem-based learning (PBL) as it is used within the nursing programmes delivered by the School of Nursing and Midwifery, University of Dundee, Scotland and outlines the experience of the curriculum from students’ perspective. An outline of the particular approach adopted by the School and some of the issues associated with the integration and integrity of subjects across the curriculum is presented. The study is based upon a questionnaire given to all students undertaking the programme with a response rate of 74% (n=145). This is followed by interviews with a randomly sampled group of 5% (N=8). Evidence from these interviews is presented to highlight some of the strengths and weaknesses of this approach and to highlight some areas that require further research. The various curricula, which were developed in Scotland in response to Project 2000, highlighted the importance of producing nurses who were critical thinkers and able to engage in self-directed learning. The notion that students would develop to be reflective practitioners with skills for lifelong learning was also expressed as a fundamental principle underpinning the delivery of these programmes. The programmes that were developed tended to be subject orientated as opposed to demonstrating integration of themes.

Keywords: PBL; Nursing Curricula; Student Experiences; Scotland.

INTRODUCTION

The School of Nursing and Midwifery at the University of Dundee, Scotland has two student intakes per year each of approximately 200 nursing students, giving it a total pre-registration student population in excess of 1200. These students are studying a three-year programme, which leads to the award of a Diploma in Higher Education in Nursing plus registration with the Nursing and Midwifery Council. The introduction of Problem-based learning (PBL) on this scale was a major innovation in UK nurses education. PBL may offer some solutions to the problem of students’ failure to adequately integrate theory with practice and develop the lifelong enquiry and
learning skills that are required of nurses in today’s ever changing health care environment.

The curriculum that was introduced in 1997 utilizes PBL by placing Nursing at the center of the curriculum with supporting subjects delivered in a manner that enhances the learning of nursing knowledge and skills. PBL can be characterised as ‘a collection of carefully constructed problems that are presented to small groups of students…the problems usually consist of descriptions of sets of observable phenomena or events that need explanation’ (Norman and Schmidt, 1992, p.557).

The traditional subject based approach previously adopted within the School followed a knowledge > problem > solution, an approach which, according to Ramsden (1992), fosters a form of surface learning where the students seeks to gain knowledge for the purpose of gaining credit in the form of passing assessment such as examinations. A potential problem with this is that the student does not see the skill of gaining knowledge as the fundamental skill that needs to be acquired. The PBL elements of the curriculum, on the other hand, have a problem >knowledge>solution structure where students utilize scenarios generated from the reality of clinical practice to develop their understanding of the discipline. The evidence suggests that PBL can significantly enhance the quality of learning by facilitating the deep processing of information (Sadlo 1995).

THE PBL PROCESS IN THE NURSING CURRICULUM

PBL within the nursing curriculum is a three-stage process; the first stage consists of a two/three hour introductory session where the problem/situation is presented and explored within the group with the subsequent development of group and individual learning goals are established. This is followed by a one-hour review session a few days later and finally a two/three hour introductory session where the group engage in feeding back their individual findings and undertake a review of their learning. One problem/situation will usually extend over a period of seven to ten days. PBL problems/situations are referred to as ‘triggers’ and are used to stimulate the student’s interest in resolving the problems presented. Students work on the triggers in teams of approximately ten and interact with the trigger to identify their individual learning needs. A nurse lecturer who has undertaken a minimum of three days PBL facilitator training facilitates each group. The preparation of facilitators is seen as crucial in developing a sense of consistency across what emerged to be a large group of facilitators, Murray and Savin-Baden (2000). The facilitator’s role is to encourage wide debate around the issues raised by the trigger and to assist the group to identify individual and group learning needs. The supporting lectures and tutorials, which are timetabled between the PBL sessions, are referred to as fixed learning resources. Students access these along with many other learning resources such as journals, texts, open learning materials, videos, etc., on a directed of self-directed basis.
The common denominator is the use of problems in the instructional sequence, (Barrows, 1986). The evidence suggests that PBL can significantly enhance the quality of learning by facilitating the deep processing of information, (Margetson 1991, Sadlo 1995). The key issue seems to be that the students need to learn more about how, and less about what, if they are to develop the lifelong skills that enable them to manage the amount of information that they will encounter during their basic studies and beyond. This is particularly important within a packed nursing curriculum that is ‘bursting at the seams’ due to the current knowledge explosion affecting health care disciplines. Norman and Schmidt (1992) identify that an objective of PBL is to enhance acquisition, retention and use of knowledge. The critical review undertaken within the School identified that these areas were also of concern to teaching staff (Murray and Bruce 1997). The development of subject specialisation that arose from the organizational changes affecting the School articulated well with a PBL approach as such an approach is highly dependent on subject expertise.

**MODULAR DESIGN OF THE PROGRAMME**

The programme is modular in design. Each module in a pre-registration pathway is an integrated module. It is not the case that discrete cognate areas form the content of whole modules, rather modules are comprised of units where a unit consists of a range of cognate areas, for example applied biological sciences, nursing, health care ethics, and others. In this way all the units of a module will contribute to the main topic or theme. Normally, this key theme is nursing with the other cognate areas supporting nursing. If not nursing in the clinical sense, it will be nursing in relation to the other roles of the nurse such as the educator, the manager and the enquirer. In this manner, each cognate area is less content-driven but contributes to the theme of a given module. This integrative process is further facilitated by PBL within the main nursing modules.

Members of the Nursing cognitive group have undertaken an exercise whereby they identified the range of nursing knowledge and skills that was considered appropriate to teach within a given term and in turn a given year of the course. Once this list was developed, initially through ‘brainstorming’ and ultimately by consensus, it was ordered into a chronological order identifying the time scale and order in which the student would need to learn such knowledge and skills. This was particularly important to link theory with practice. It was also important to recognize that the skills would fall into both the psychomotor and interpersonal/communication domains. Once this list was developed the Nursing cognitive group consulted with the other relevant cognitive groups to arrange the delivery of the supporting lectures and tutorials in such an order that they complimented the development of the knowledge and skills as delivered by the Nursing group. Criticism that the students would not engage in the appropriate activities or attend the relevant lectures can be countered by evidence from other centres that have adopted PBL. The suggestion being that
students are more highly motivated to learn, particularly if the triggers are relevant and realistic (Sadlo 1994, Creedy et al. 1994). PBL sessions do not necessarily involve an actual ‘problem’ it may just be a simple description of a situation that requires improvement. The fundamental principle that underpins this approach is that Nursing is the core theme of the programme and that the other cognitive groups deliver their material in an integrated and complimentary fashion. One example of this approach is to take the skill of assessment. This is one of the early skills that the Nursing cognitive group wished to develop and the triggers involve a scenario whereby a patient is to be admitted to hospital for elective surgery. The problem/situation is one that most students could relate to and would be able to interact with without too much prior knowledge. The supporting input from other cognitive groups is arranged as outlined in Figure 1.

![Diagram](image)

**Figure 1. Subject Integration around the Nursing Skill of Assessment**

This example demonstrates the way cognitive groups, and topics within cognitive groups, are identified as being relevant to the appropriate skill. The list of supporting subjects is not exhaustive and would vary depending of the issue or skills at the core.

The supporting material is delivered in a variety of ways utilizing the full resources of the School such as the library, open learning materials, clinical skill’s laboratory, etc. The curriculum is therefore driven by the students need to develop relevant nursing knowledge and skills. The programme is less subject led and less focused on the students’ need to absorb large quantities of subject-oriented material. The students’ learning is more focused on their need to acquire problem-solving skills: the skills of research and enquiry that enable them to seek out solutions and apply them in a variety of diverse settings. In other words this is preparing students for lifelong
learning as opposed to jumping through the many hoops of an assessment assault course.

**STUDENT EVALUATIONS**

The data presented reflects the evaluation of two modules by the first cohort to undertake the programme. The following questions were asked with the corresponding results presented. A total of 145 questionnaires were returned, which represented a response rate of 74%. The student experience was largely positive and research into their experience is ongoing. More detailed interviews were carried out with 7 randomly selected students (5%) and a selection of their comments is presented to support the quantitative data collected (Table 1).

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The PBL trigger prompted necessary learning</td>
<td>30%</td>
<td>60%</td>
<td>7%</td>
<td>3%</td>
</tr>
<tr>
<td>2. There was adequate time for discovery learning associated with the PBL trigger</td>
<td>25%</td>
<td>55%</td>
<td>15%</td>
<td>5%</td>
</tr>
<tr>
<td>3. The feedback sessions for PBL were adequate</td>
<td>25%</td>
<td>55%</td>
<td>15%</td>
<td>5%</td>
</tr>
<tr>
<td>4. The PBL session encouraged student participation</td>
<td>40%</td>
<td>55%</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>5. There was sufficient lecturer support associated with the PBL exercise</td>
<td>38%</td>
<td>50%</td>
<td>12%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Preliminary results suggest that students find the PBL experience enjoyable, which is, supported both by formal and informal evaluation. Negative comments are often associated with the feeling that the students are doing a “D.I.Y.” course and that the students do all the work not the teachers. This may well reflect their prior learning experiences. Some students have expressed concern that some members of their group are not ‘pulling their weight’ and contributing equally to the group task. Some students don’t see PBL influencing their practice significantly and comment negatively on their clinical skill development due to the perception of incomplete learning as previously highlighted ‘my confidence in actually performing certain
skills is not what I feel it should be due to patchy/ incomplete learning’. Where this has happened the facilitators have assisted the group to deal with this by using peer group pressure. This has been successful in most cases but is still an area for concern for the future.

The data above clearly indicates a positive feeling towards PBL (86%). Despite this apparent positive perception of the experience students did express concerns about PBL that warrant further exploration.

SELECTED STUDENT COMMENTS

The correspondents have given revealing comment about their positive feelings towards PBL such as; ‘It promoted individual learning as well as working together’....‘good way to learn’....‘helped to encourage you to read more and investigate problems by yourself’....‘enjoyed the PBL session as I began to gain confidence in myself’....‘encouraged student participation and research’....‘particularly helpful when on placement’....‘enabled the group to research information thus doing the work ourselves’....‘learning to do teamwork’

DETAILED STUDENT PERCEPTIONS

Students perceived PBL helps them achieve the following abilities:

(a) Able to analyse problems
When challenged to state how PBL has influenced their learning, students describe how PBL sessions have facilitated their ability to decipher a problem; holistically, practically and analytically utilising a variety of resource networks. Responsibility for individual and group learning appears to be enhanced, as well as the ability to present information to peers as a result of engaging in feedback sessions. One student commented, ‘it has encouraged me to investigate things for myself and become more familiar with information sources’.

(b) Able to work in a team
Other students describe how PBL assist them in their ability to work as a member of a team and that this is transferable to the clinical setting as well as the classroom. An example of a comment that shows how the PBL experience in the classroom has enhanced the ability to work in teams is ‘I developed skills for working with and depending on and trusting other people/colleagues’.

(c) Able to think critically
The ability to think critically is an area where students feel that PBL is beneficial, one student elaborated; ‘PBL enabled me to become a more critical thinker and come up with my own ideas and also give me the
confidence to express those within my peer group’…….‘I feel more able, and willing to, acknowledge my limitations’. PBL appears to encourage students to think beyond the obvious and fosters a critical way of engaging with information, which they find stimulating as a method of learning but also highly significant to the way of working within a team in the clinical setting.

One criticism form students is that they feel that some of the ‘foundational’ knowledge that they are required to access later in the course is incomplete and patchy.

(d) Able to seek out information
When asked to discuss how PBL has influenced their experience of the assessment element of the programme students’ highlight how the PBL process assists them in seeking out information required for essays and projects, one student highlighted; ‘the research skills involved in finding information during the PBL sessions has been helpful for essays preparation’, ‘I have increased confidence is using library and Internet resources…’, ‘PBL has furnished me with transferable skills that can be used in assessments’

Students also describe how the PBL process assists them to structure and organize essay and project presentations.

(e) Able to prioritise work
When discussing the impact of PBL on the students’ experiences on clinical placement, they often highlight the way in which it helps with the prioritizing of workloads.

(f) Effectiveness is Facilitator Dependent
When asked to consider if the delivery of PBL has remained consistent as the programme progressed students highlighted that during the Common Foundation Programme (CFP) the named facilitator was largely consistent but that as the Branch programme commenced this was less so. The three-year programme was divided into two parts; 18 months of common, shared curriculum and 18 months of branch specific curriculum, that is adult nursing, mental health nursing etc. This highlighted variations in the way different facilitators operated with a feeling that the process was less well organized when compared to the CFP. Branch PBL groups were perceived to be better in some respects due to students’ being more familiar with the process. Whilst some experienced frequent changes of facilitator over the course of the Branch programme it was felt that the group were moving towards more independence and that often they did not really require the facilitator to be present; ‘the group I was in was strong, enthusiastic and
worked well in a self-led fashion….and at times we did not need a facilitator.’

On the whole students appear to support PBL as an approach to teaching and learning, but some real concerns have been raised within this small study. Some students feel that there are areas of nursing that they have missed out on due to the narrow focus of some of the scenarios used. Those who experienced facilitator consistency tended to be more satisfied than those whose facilitator had changed due to a variety of reasons. One such comment highlights this feeling, ‘At the end of the day, PBL is only as strong as the group…it soon becomes apparent who are the workers and who are the passengers.’

Some comments reflected the opinion that some academic credit should be awarded for the effort that goes into producing the work required within the PBL scenarios, ‘I consider PBL to be a valuable teaching strategy, enabling and delegating responsibility for personal and group learning to students’.

CONCLUSION

PBL may offer solutions to a number of concerns. It encourages a cognitive style in students, which is conducive to studying at diploma level. PBL seems to encourage the deep processing of information and facilitates the integration of subjects allowing students to learn topics together and to develop greater understanding and enhancing their self-confidence. The process of teaching using a PBL approach has involved a significant change for some nurse lecturers who found the freeing up of the educative process very challenging whilst others considered it to be part of their current repertoire of skills and found it much easier to adapt. It is vitally important that any attempt to introduce PBL is supported by appropriate staff development. To address this issue the School has developed a specific programme of PBL workshops, which have been well supported by staff (Murray and Savin-Baden, 2000). A major element of the PBL approach is to develop trust in the student and to have confidence that the process will facilitate the learning of the necessary subjects and that this learning will be much more meaningful for the student. Some of the concerns raised regarding incomplete learning and gaps in what students’ perceive to be foundational material requires further exploration, particularly given the important need to ensure fitness for practice as an end point of this programme. Michele Don (1995) highlights the importance of ensuring that the teaching of science content is closely integrated within a PBL curriculum, both at the trigger design and the delivery stage. The evidence presented here might suggest that closer integration of science foundational material might be required to enhance the students’ experience of the curriculum.

The PBL approach does not appeal to all students or teachers and a minority finds it challenging which highlights the need for ongoing research into the impact of PBL on student learning both in the short-term and through the post qualifying years.
REFERENCES


