

Problem-based learning in a large pharmacy law class

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Abstract

Introduction: Problem-based learning (PBL) has been shown to be an effective learning method for students to integrate and apply knowledge and can increase levels of student satisfaction. Due to resource demands on programmes with high student numbers, adaptations of PBL to suit large lecture settings have previously been investigated. This pilot explores whether PBL in large classes can provide a satisfying learning experience and stimulate interest in a pharmacy legislation subject.

Description: An advanced pharmacy law and ethics module delivered to a joint cohort of final year undergraduate MPharm and postgraduate Overseas Pharmacists Assessment Programme (OSPAP) students.

Methodology: Student satisfaction questionnaires using Likert scale ratings were completed following two PBL sessions.

Evaluation: Overall students responded positively to PBL in preference to a traditional lecture, however the results were limited by the small sample size and single use of PBL in this way.

Future plans: Based on this pilot, more PBL should be incorporated into this module. Student satisfaction can then be investigated on a larger scale to determine whether it provides an improved learning experience and stimulates interest.

Keywords: *Education, law, legislation, pharmacy, problem-based learning*

Introduction

Problem-based learning (PBL) is a learning method where students are faced with real-life problems without prior teaching, in order to work through a process of self-learning and problem-solving. The origins of PBL lie in medical education dating back to the 1960s, where the primary aims were to enable the development of self-direction, clinical reasoning skills and retention of a body of knowledge (Barrows, 1983). There has been much debate in the literature regarding the effectiveness of PBL over the years, and a meta-synthesis of meta-analyses conducted in 2009 would suggest PBL is likely to be an effective means for acquisition of clinical skills, ability to integrate and apply knowledge and ability to retain knowledge in the longer term (Strobel & Van Barneveld, 2009). Owing to the interactive nature of PBL, it can enhance levels of student engagement and satisfaction (Ahlfeldt *et al.*, 2005; Annerstedt *et al.*, 2010; Wijnia *et al.*, 2011). The traditional format of PBL outlined by Barrows involves students working in small tutorial groups led by a tutor who will guide them through the problem, students define their own learning objectives which they will subsequently meet through self-study and group work (Wood, 2003). This can pose significant resource problems for courses with large student numbers and as a consequence attempts have been made to apply PBL techniques to large class teaching (Rangachari,

1996; Bledsoe, 2011). In one adapted method, the class takes place in a traditional lecture theatre environment with a sole lecturer applying the principles of PBL, but with students seated in allocated small groups within the room. In some pharmacy schools where traditional PBL is not feasible due to large class sizes, this adapted form of PBL could prove useful in professional practice subjects and might enhance the learning experience for students.

Description of the module

The context for this research was based in an advanced pharmacy law and ethics module, jointly delivered for final year undergraduate MPharm students and non-EU pharmacists undertaking the Overseas Pharmacists Assessment Programme (OSPAP) postgraduate diploma. The current module exclusively consists of weekly didactic lectures which are poorly attended; students have fed back a lack of interest in the subject matter and expressed desire for more interactive sessions. Since the ethical components often involve discussion and debate, the lectures occasionally include the use of scenario-based dilemmas to highlight professional decision-making and students have responded more positively to these. Replacing some of the didactic lectures with large class PBL could potentially provide a more satisfying learning experience and increase student interest.

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Methodology

The purpose of this research was to explore whether PBL adapted for a class of 130 students would provide a satisfying learning experience and stimulate interest in a subject relating to pharmacy legislation. Questionnaires were designed asking students to rate against a series of statements relating to satisfaction and experience of PBL, using a 5-point Likert scale from “strongly disagree” to “strongly agree”. Evaluations took place after each of a set of two lecture theatre based PBL sessions.

The topic chosen for investigation was Responsible Pharmacist (RP) legislation and its application in practice. Student representatives were consulted to assist with design of a group work task and make suggestions on best use of the second (follow-up) session. Verbal information on PBL was given to the whole cohort then followed up with various blog announcements prior to the first session. For both contact sessions the lecture theatre was signposted for students to sit in their allocated groups. The first session introduced students to the problem and provided an opportunity to further clarify PBL as a learning method. Students were guided through the problem in a structured way to assist identification of learning objectives, and were allocated time to plan completion of the written group task, which was a written assignment outlining what they had learnt and what action they would take to ‘solve’ the problem. Students had several weeks to submit their written work before the follow-up session, which involved feedback and debate on the groups’ solutions to the problems. This also provided an opportunity to consolidate learning and address any further questions.

Evaluation

Out of a potential 139 students, 68 gave consent to participate. Of these, 61 evaluated session 1 (10 OSPAP, 51 MPharm) and 36 evaluated session 2 (12 OSPAP, 23 MPharm). Fourteen groups were formed, all groups submitted written responses to the task, however only 27 students actually participated in this activity. The evaluation form statements and key results from responders are summarised in Table I. Evaluations were submitted anonymously so it was not possible to compare individual responses across the sessions. Overall the students responded positively to PBL; the majority found it to be an enjoyable experience and felt it stimulated their interest in the subject matter. Students felt able to identify and meet learning objectives and commented on the value of peer learning. Even so, many stated they would prefer a traditional lecture. Others made comments on difficulties experienced through lack of participation in the group work from peers. As this was a single introduction to PBL it was not possible for groups to ‘gel’ together and levels of participation were low, making it difficult to draw firm conclusions. Nonetheless, adapting PBL in this way provided a more favourable learning experience than a traditional lecture without impacting on resources.

Future plans

This pilot study was limited due to small response numbers, however there is scope for further research. The methodology could be improved by embedding a series of PBL sessions into the module to create a hybrid curricula and formalised PBL programme. Students would need to be coached on the PBL format prior to reviewing their first problem, and a series of planned group activities underpinning the contact time would enable students to settle better into their groups. Evaluations would therefore be based on repeated experience of PBL and a better understanding of this learning method. Additionally, responders could be followed individually across the sessions to compare satisfaction levels over time. The module assessment method would require alignment with PBL, to ensure appropriate assessment of skills alongside the traditional assessment of knowledge. Taking advantage of an interactive, student-focused learning method such as PBL could prove very useful for subjects that students find less appealing, such as pharmacy legislation. Moreover, use of real-life scenarios as stimulus for learning and problem-solving in this final pre-practice stage mirrors the ethos of the pre-registration programme, and could invest in the skills required for this important stage of pharmacist training.

Table I: Evaluation responses following sessions 1 & 2

Columns 1 & 2 show session 1 evaluation statements and numbers of respondents who agreed or strongly agreed respectively. Columns 3 & 4 show session 2 evaluation statements and numbers of respondents who agreed or strongly agreed respectively. Numbers in brackets represent percentages. The total number of responders following each session can be seen at the top.

Session 1 statements	No. agreed (total 61)	Session 2 statements	No. agreed (total 36)
I enjoyed the PBL session today	37 (61)	I enjoyed the PBL sessions overall	26 (72)
I was able to identify knowledge gaps and form some learning outcomes	56 (92)	I was able to address knowledge gaps and meet my learning outcomes	31 (86)
I was able to learn from my peers, or help them learn	51 (84)	I was able to learn from my peers, or help them learn	22 (61)
I would have preferred a traditional lecture today	25 (41)	I would have preferred a traditional lecture about RP legislation	14 (39)
PBL has stimulated my interest to learn more about RP legislation	54 (88)	I found PBL an effective way to learn about RP legislation	16 (44)

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