The implementation of problem-based learning in health service management training programs Experience from Lithuanian University of Health Sciences

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Mindaugas Stankunas, Katarzyna Czabanowska, Mark Avery, Ramune Kalediene and Suzanne Marie Babich
(Author affiliations can be found at the end of the article)

Abstract

Purpose – Strengthening management capacity within the health care sector could have a significant impact on population health. However, many training programs in this area are still delivered using a classic lecture-based approach. The purpose of this paper is to evaluate and better understand the feasibility of using a problem-based learning (PBL) approach in health services management training programs.

Design/methodology/approach – A PBL teaching approach (based on the Maastricht University model) was tested with second-year postgraduate students from the Master in Public Health Management program at the Lithuanian University of Health Sciences. Students' opinions about PBL were investigated using a questionnaire with eight open-ended questions. Thematic content analysis was chosen to reflect the search for patterns across the data.

Findings – Respondents stated that the main advantage of PBL was that it was a more interesting and effective way of learning: "It is easier to remember, when you study by yourself and discuss with all peers". In addition, it was mentioned that PBL initiated a rapid exchange of ideas and sharing of personal experience. Students stressed that PBL was a good tool for developing other skills as well, such as "public speaking, communication, logic thinking". All students recommended delivering all other courses in the health services management program using PBL methodologies.

Originality/value – Findings from our study suggest that PBL may be an effective approach to teaching health services management. Potential problems in implementation are noted.

Keywords Public health, Human resource management, Learning, Education, Health services, Health education, Capacity development, Problem-based learning, Health services management

Paper type Case study

Introduction

International organizations, health policy makers and researchers agree that health systems need effective managers and leaders (Czabanowska *et al.*, 2014a; Hobbs *et al.*, 2013; Future Hospital Commission, 2013; WHO, 1999). Many attempts have been made to identify competences needed by these specialists (Czabanowska *et al.*, 2014b; Wright

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et al., 2000). Moreover, multiple studies have focused on the essential "ingredients" of these competencies (Leggat, 2007). This suggests that developing management and leadership knowledge and skills related to health care systems is a complex and crucial issue. It is especially important for countries such as Lithuania, which is undergoing rapid social, economic and political transitions, as well as continuous and complex health reforms.

In 1991, the Lithuanian Parliament (Seimas) approved the "National Concept of Health for Lithuania" (Seimas of the Republic of Lithuania, 1991). This document could be considered as a starting point for reforms in the Lithuanian health system. Changes that are challenging to the health system have created an urgent need for health managers who are able to adapt and respond as well as to work through ambiguous situations and times (Kalediene, 2002). Lithuanian University of Health Sciences (LUHS) was the first tertiary education institution in Lithuania to offer a postgraduate program focused on training managers for the health care sector.

The Master in Public Health Management (MPHM) program was launched at LUHS in 1997 with international collaboration between the French National School of Public Health, the Nordic School of Public Health (Sweden), Tampere University School of Public Health (Finland), Kaunas University of Technology (Lithuania) and the University Hospital of LUHS Trans-European Mobility Programme for University Studies (TEMPUS) project. It was the first program of its kind not only in Lithuania but also in any of the former Soviet Union countries.

The main academic structure of the MPHM has been stable since 1997, though some new study areas (leadership in health care, patient safety and risk management) have been introduced. No significant changes in teaching approach have taken place. A traditional teacher-centered, lecture-based learning (LBL) educational style dominates, as it did 20 years ago (Moore and Dixon, 1993). Research in the area of teaching and learning has suggested that this teaching method may not be the most effective (Vernon and Blake, 1993). Instead, a problem-based learning (PBL) approach may be a more suitable learning method and provide for enhanced learning outcomes in undergraduate and postgraduate studies.

LUHS began implementing a PBL methodology in 2007. Only the Faculty of Medicine decided to use it for training future medical doctors. Some papers, which present the theoretical background of this training and teachers' opinions regarding PBL use in LUHS, have been recently published (Kirikova *et al.*, 2013; Sveikauskas, 2005). Other programs (including MPHM) continued to be delivered in a traditional way. Thus, the aim of this paper is to evaluate and better understand the feasibility of using a PBL approach in health services management training programs.

Materials and methods

The PBL teaching approach used by Maastricht University (The Netherlands) was tested at the Faculty of Public Health LUHS. There are many ways in which the PBL approach has been translated into curricula and courses. Maastricht University has distinguished itself both nationally and internationally for its research on PBL and the consistent implementation of PBL in undergraduate programs. In traditional PBL at Maastricht University, students work on tasks in small groups using the seven-step approach (Figure 1). The tasks are usually presented in the form of problems, which are worked through in a fixed order in which three main phases can be distinguished:

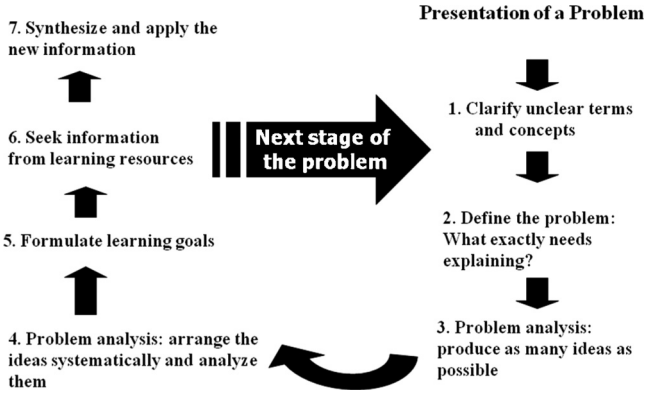

Figure 1.
Problem-based learning cycle

(1) preliminary discussion;
(2) self-study; and
(3) reporting.

During the preliminary discussion stage, the first five steps are completed: (Step 1) clarifying concepts, (Step 2) defining the key problem of the task, (Step 3) analyzing the problem/brainstorming, (Step 4) problem analysis/systematic classification and (Step 5) formulating learning objectives. Explanations for and/or opportunities to define the problem using the prior knowledge that is already present within the group are provided, and an inventory is made of gaps in the group's knowledge that need to be filled to enable the group to address the problem satisfactorily. Learning in PBL is a collaborative process in which students have a common goal, share responsibilities, are mutually dependent on each other for their learning needs and are able to reach agreement through open interaction (Dolmans *et al.*, 2005). PBL nurtures the ability of learners to solve real-life problems whilst fostering communication and cooperation (Dolmans, 1998). PBL has the potential to have a great impact on lifelong learning, as it is constructive and the students can regulate their own learning (Dolmans, 1998).

A pilot group consisted of nine second-year postgraduate students from the MPHM program, where the study program runs in a classical LBL format. The Dean of the Faculty agreed to pilot one course in the PBL format, and "Human resource management" was selected. The main reasons for this choice included:

- teachers of this course were familiar with PBL methodology and had experience with it; and
- the size of the student group was appropriate for PBL tutorials.

The course was divided into two parts. The first part was delivered during May 5-9, 2014; the second part was delivered during June 9-13, 2014, with the same cohort. The students were given nine days for studies and one day to complete an assignment. The outline of the course is presented in Table I. Every study day had a similar structure and started with 2 h of lecture (Table II). That was followed by a pre-discussion session, which typically lasted for half an hour and was dedicated to the analysis of a PBL case (the first five steps). An example of a PBL case, an example of a problem which was used

Course day	Topics of sessions
Week 1	
Day 1	Main concepts and theories in human resource management
Day 2	Strategic human resource management
Day 3	Planning of human resources in health care system
Day 4	Analyzing and identifying jobs
Day 5	Recruiting and selection of personnel
Week 2	
Day 1	Placement and induction of personnel
Day 2	Development, training, career planning, performance management, appraisal and ending of the contract
Day 3	Motivation in human resource management
Day 4	Main principles in human resource management and role of executives
Day 5	Presentation of group work and exam

Table I. The outline of the "Human resource management" course

Step	Duration	Content
Step 1	2 h	Lecture and discussion
Step 2	30 min	Pre-discussion session: Presentation of a problem Clarification of unclear terms and concepts Definition of the problem (What exactly needs explaining?) Problem analysis 1: brainstorm Problem analysis 2: arrange the ideas systematically and analyze them Formulation learning goals
Step 3	3 h	Self-study/group work (look for information)
Step 4	90 min	Post-discussion session: Synthesize and apply new information. Presentation and discussion on learning outcomes

Table II. The structure of a study day in the "Human resource management" course

in "Human resource management" course (this case study was used for Session 6 "Placement and induction of personnel"), is presented as follows:

> One hospital has employed two nurses. They have been placed in different departments. For one nurse the appointment was at the start of her professional career. The second nurse had a more than 20 years' of experience in this field. Surprisingly, the young nurse has resigned from this position after seven months. The Deputy Director for nursing was informed that this decision to leave was not because of better job offer. The chief nurse of that department mentioned that she thinks that the main reason of young nurse for leaving this position was because of poor adaptation.

The pre-discussion sessions ended with identification by students of two or three main learning goals, followed by self-study or group work time. This time, students worked in small groups or individually (there were no strict instructions). Study days ended with a post-discussion session that summed up learning results and previous discussions. All PBL steps were supervised by the tutor, who was a teacher in the course. Each pre- and

post-discussion session had a chair and note-taker selected from among the group of students (Table III).

A descriptive case study methodology was followed (Yin, 2014). This methodology is suitable for evaluating the contemporary phenomena and research questions that seek to explain questions about "how" and "why". The unit of analysis or "case" for this study is a PBL "Human resource management" course introduced at LUHS. The PBL seven-step theoretical approach was used as a basis for assessing the educational process. This theoretical background is used for enhancing the study findings, as the aim is to expand and generalize theory and knowledge, rather than enumerating frequencies as in statistical generalization (Yin, 2014). We used multiple methods: assessment and observation of the study results, open-ended evaluation questionnaire and thematic content analysis for the inductive explanation building. In explanation building, case study data are analyzed by building an explanation around the case (Yin, 2014). The segregation of the research purpose and questions into multiple specific questions was the main step taken to allow different information to be merged to facilitate a more in-depth understanding and narrative explanations of the "how" and "why" questions that the study stipulates. The research questions could then be put in perspective with the theory and results, to reach a narrative explanation building (Yin, 2014).

Students' opinions about PBL were investigated using an anonymous questionnaire with eight open-ended questions based on the work of Konings and van Merrienboer (2012). Questionnaires were distributed to all students after the completion of the course ($N = 9$). Thematic content analysis was conducted to reflect the patterns found in the data (Simons *et al.*, 2008). Permission from the Kaunas Regional Research Ethics Committee was not required, as this study did not fall into the category of biomedical studies. Informed consent was obtained from the participants, however, and they were assured of the anonymity and full confidentiality of their responses.

Results

All students stated that they had no prior experience with learning through using PBL. This suggests that their responses were based only on this course. Respondents stated that the main advantage of PBL is that it is a more interesting and effective way of learning. According to one respondent, "It is easier to remember, than when you study by yourself and discuss with all peers". In addition, it was mentioned that PBL initiates

Table III. Questions used in this survey

No.	Questions
1	Do you have any previous experience with PBL? If so, how would you compare this experience with the previous one?
2	What are your most remarkable positive experiences with PBL?
3	What are your most remarkable negative experiences with PBL?
4	What would be some recommendations you would give to the teachers?
5	What would be some recommendations you would give to the next students?
6	How in general did you like learning this course in PBL approach?
7	If you have the chance repeating this course, in which approach (PBL or LBL) would you like to have it?
8	Would you recommend using PBL in other courses?

a rapid exchange of ideas and sharing of personal experience. Students stressed that PBL is a good tool for developing other skills as well, such as "public speaking, communication, logic thinking".

Four out of nine students mentioned some negative elements. However, these negative elements were more related to the organization of their studies rather than to PBL itself. Some students expressed desires related to the duration of the course and time allocated to self-study. It was suggested that facilities were not prepared for PBL: "All students had to work in the same classroom. It was too noisy for self-studies/group work studies".

Students were asked to provide recommendations for teachers and other students who would take PBL courses in the future. Results were inconclusive. Some students expressed a wish to have more active engagement of the tutor during pre- and post-discussion sessions. Other respondents suggested giving "more freedom for students". "Closer to real life practice" PBL cases would be welcome by students. Recommendations for future students were few and similar. Students invited classmates to be "more engaged in the subject", "be more active", "to give more ideas during brainstorm sessions" and to "share ideas".

Respondents were satisfied with this teaching method. The main reasons stated for satisfaction included: "It's new way of teaching for us, and it is easier to remember information" and "more active role in learning process, not a boring listening of theories". All students would choose the PBL approach for studying this course if they had to do it once again. All of them would recommend delivering all other courses in the MMPH program using PBL methodologies.

Discussion

This pilot study revealed that students preferred a PBL approach to learning to LBL courses. We could not find any published studies about the use of PBL in health services management training programs. Nevertheless, there is solid evidence of PBL effectiveness in other health-related disciplines such as medicine, nursing, pharmacy and health education. Many of these studies emphasize the positive impact of PBL on learning outcomes (Ding *et al.*, 2014). Our study cannot support or refute this, as we did not measure learning outcomes (exam marks are not comparable, as the examination system was changed). Our personal observations suggest that students better remembered the material presented in PBL style. However, the success of a teaching method should not be evaluated by exam marks alone. Characteristics such as satisfaction of students and teachers should be taken into consideration as well (Dolmans and Schmidt, 2010). PBL is an approach in which participants are viewed as active participants in their learning: "active" in the sense that learners activate their prior knowledge and construct knowledge by integrating new information into their existing knowledge. The learners engage in a constructive, collaborative and contextual process of knowledge building (Dolmans and Schmidt, 2010). In PBL, participants also play an active role in planning, monitoring and evaluating their own learning processes, with reflection playing a prominent role in this self-directed or self-regulated learning. This shows that being able to direct one's own learning process is a key competency for self-directed learners, which is especially relevant in a health care field where professionals have to cope with rapid and continuing dynamic developments. The learners are exposed to problems that are relevant to their professional work, because

this stimulates the transfer of knowledge (Dolmans *et al.*, 2005). Contextual learning can be implemented in a course for public health professionals by inviting participants to contribute authentic cases from their day-to-day practice and by stimulating them to analyze these cases collaboratively and from multiple perspectives.

Application of evidence-gathering and application of strategies to healthcare systems and operations provide a real-world situation that current and prospective students will be working within. Problem identification, development of alternatives and action implementation in these real-world scenarios and situations are important development points for student knowledge development and retention. These approaches reinforce the concepts and importance of evidence-based decision-making and practice in the health system.

The authors have professional experience with both PBL- and LBL-style teaching and learning. These study findings validate our subjective findings from practical experiences in the classroom. Though our study does not provide definitive "proof" that PBL is a better method for teaching students in health services management, the experience is supported by other studies that have found that students prefer a PBL approach (Baker *et al.*, 2007). The complex environments in health care delivery require unique applications of leadership and management knowledge, and this is optimally developed using problem-solving methods and scenarios. This offers an opportunity for more schools to test the use of PBL and other interactive ways of teaching as alternatives to more traditional LBL approaches.

Teaching using PBL is demanding. Success in using this teaching method depends on adequate and appropriate support facilities and human resources at the school. Providing students with the opportunity to work on (de-identified/anonymized) problems and scenarios requires experienced teaching staff who can support students in making connections between healthcare management situations and research and theory as well as in identifying the subtle variations found in problem applications from the healthcare workplace.

The core of PBL is student self-study. To support this, schools must provide fast Wi-Fi internet connections and access to major online journals. Students must have adequate library facilities and small group workrooms. In addition, staff should be engaged and competent in the use of PBL, and schools should ensure that there is an adequate number of tutors. Most of these requirements are not a problem for many Western European, North American and Australian schools. However, for countries in Eastern–Central Europe and other low and middle-income countries, expenses related to training faculty and ensuring adequate resources to properly administer a PBL-based curriculum may be a challenge. Motivation of the staff to be trained for PBL and willingness to accept this new approach might also be problematic, as many of the teachers used to the LBL approach may not have an adequate understanding of their new roles.

We suggest that a PBL-based curriculum for training health managers could have additional implications for practice. The experiential nature of PBL may prepare graduates for a more open, collaborative approach to problem-solving, resulting in a more cooperative workplace culture. It models an approach for joint responsibility for common decisions among stakeholders in health services delivery and may offer potential improvements in the complex and often painful decisions required in restructuring the health care sector in the country.

Conclusions

Findings from our study suggest that PBL may be an effective approach to teaching health services management and related disciplines. However, some schools may face challenges implementing it. In an organizational culture that supports a change in teaching paradigm, shared values and beliefs are also crucial for successful implementation of this innovation. Using PBL can support the identification of skill and knowledge gaps and thus help better prepare future lifelong learners. The PBL learning process is more demanding and self-directed, which facilitates independent and creative thinking. This approach also motivates seeking behaviors for alternative solutions to unprecedented health problems, and this is an important skill for the health care managers of the twenty-first century. It will be advisable to carry out evaluation studies following the impact on practice which the graduates of PBL health care management courses will make. We believe that this approach in training health managers will enable the development of new competences and skills essential for success in the dynamic process of health reform in Lithuania and other countries.

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Author affiliations

Mindaugas Stankunas, Department of Health Management, Lithuanian University of Health Sciences, Kaunas, Lithuania and Health Service Management Department, Health Service Management, School of Medicine, Griffith University, Southport, Australia

Katarzyna Czabanowska, Department of International Health, CAPHRI, Faculty of Health, Medicine and Life Sciences, Maastricht University, Maastricht, The Netherlands and Institute of Public Health, Faculty of Health Sciences, Jagiellonian University, Medical College, Krakow, Poland

Mark Avery, Health Service Management Department, School of Medicine, Griffith University, Southport, Australia

Ramune Kalediene, Department of Health Management, Lithuanian University of Health Sciences, Kaunas, Lithuania, and

Suzanne Marie Babich, Richard M. Fairbanks School of Public Health, Indiana University, Indianapolis, Indiana, USA

About the authors

Mindaugas Stankunas, MPH, PhD, is a full-time Professor at the Department of Health Management, LUHS (Lithuania), and an Adjunct Professor at Health Service Management Department, Centre for Health Innovation, School of Medicine, Griffith University (Australia). He was involved in and coordinated a number of research projects financed by the Open Society Institute, European Commission, World Health Organization and Norway Grants. Professor

Stankunas has published a large number of peer-review papers on leadership in health services, health care accessibility and health inequalities. He is a co-author of the textbook "Leading and Managing Health Services: an Australian perspective", published by Cambridge University Press, 2015. Mindaugas Stankunas is the corresponding author and can be contacted at: mindstan@gmail.com

Katarzyna Czabanowska, MA, PhD, is an Associate Professor at the Department of International Health, Maastricht University. She is a Director of the Governance and Leadership in European Public Health Master. She has expertise in EU-funded research projects, published in the area of public health leadership and education. She is a Visiting Professor at the Institute of Public Health Jagiellonian University, an Honorary Research Fellow at the University of Sheffield and the President of the Working Group on Public Health Leadership at EUPHA. She is a WHO expert in the area of public health leadership.

Mark Avery, BHA, MBus (Res), is Discipline Head, Program Director and Senior Lecturer at the Health Services Management Department, School of Medicine at Griffith University (Australia). His research interest and publication areas include leadership and management in health services, patient safety and quality care and community information in health services. Mark has over 30 years of experience in leadership, management and corporate roles in both the public and private health care sectors in Australia and the UK. His career and experience have been at academic, senior executive, chief executive, consultant and board director levels in hospitals, community health and regulation.

Ramune Kalediene, MD, MPH, PhD, Habilitated Doctor, is the Dean of the Faculty of Public Health and Head of the Department of Health Management at LUHS. She is also the President of Lithuanian Public Health Association, Vice-President of Lithuanian Society of Health Management and Member of the Board of Accreditation of the European Agency for Public Health Education Accreditation (APHEA). Kalediene is an author or co-author of several textbooks and more than 300 scientific publications on social and demographic inequalities in health and health care, epidemiology of suicides and external causes of death in Lithuania.

Suzanne Marie Babich is a practitioner scholar dedicated to leading and supporting change to improve the public's health. She is an Associate Dean of Global Health and a Professor, Health Policy and Management, at the Richard M. Fairbanks School of Public Health, Indiana University, USA. There she works across the school and campus and around the world to advance teaching, research and service in public and global health. She has a special interest in interdisciplinary education and applications of technology for innovative approaches to programming. An award-winning educator, she has extensive experience in online education and competency-based curricula.