Problem-Based Learning in Counsellor Education

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Abstract

In this article, the author discusses the principles of problem-based learning and their application to graduate level counsellor education. Problem-based learning is an educational approach using a problem statement, around which new information and skill development is initiated via a process which utilizes professional critical thinking and reasoning skills. Using this approach, counsellor education programs can be conceptualized around three phases: an essential theory and skills phase accenting broad theoretical parameters and skill development; a problem-based learning phase integrating additional information using critical thinking and reasoning skills; and an internship phase where students apply their learning in a professional context.

Résumé

Dans cet article, l'auteur étudie les principes de l'apprentissage par problèmes ainsi que l'application de ces principes à la formation universitaire en counseling. Cette approche éducative est basée sur l'énoncé d'un problème dont la résolution engendre—à l'aide du raisonnement et de la pensée critique professionnelle—des habiletés et des informations nouvelles. Les programmes de formation universitaire en counseling utilisant cette approche peuvent être divisés en trois parties: 1) la théorie, partie essentielle favorisant les paramètres théoriques généraux et l'acquisition d'habiletés; 2) l'apprentissage par problèmes, intégrant de nouvelles informations par un processus de pensée critique et de raisonnement; et 3) la pratique, permettant aux étudiants de mettre en pratique leur formation lors d'un stage professionnel.

University level educators who teach in professional faculties have indicated a number of curricular and instructional concerns. One concern centres around the transfer of learning (Gijselaers, 1996). Students appear to understand and articulate theory and research well but experience difficulty in transferring this knowledge to the applied setting. Further, they often do not relate or think to apply information learned in one course to the subject matter of another course. Another concern focuses on disseminating information (Gijselaers, 1996). Faculty members put a great deal of time into preparing their lectures/seminars and often deliver them using one-way communication. Often, students do not meaningfully engage the subject matter and sometimes resort to learning approaches characterized by memory and comprehension without engaging in higher levels of thinking such as analysis or evaluation. Further, students tend not to access their prior learning and integrate new learning with it. A third concern centers around the development of reasoning and thinking skills (Conference Board of Canada, 1992; Gijselaers, 1996). Many students are not equipped to deal with the complex problems encountered in the work place. Educators need to

incorporate as much realism in the learning environment as possible to enhance students' problem-solving skills. These concerns also apply to counsellor educators as they work with students in pre-professional counsellor education programs.

One way to deal with these concerns is using an instructional methodology known as problem-based learning (PBL). In this paper I will present information on problem-based learning including its definition, advantages and disadvantages, its components, the different roles within PBL and suggest its application to counsellor education contexts.

RATIONALE FOR PROBLEM-BASED LEARNING

Albanese and Mitchell (1993) defined problem-based learning (PBL) as an instructional method which is characterized by the use of problems as a context for students, working in small groups to learn problem-solving skills and gain knowledge. From a broader frame, Walton and Matthews (1989) regarded problem-based learning as an educational strategy and suggested that it be viewed as a whole curricular approach.

The problem statements can take several forms. Individual actors may role-play problems germane to the professional study. Problems can be in the form of a collection of reports, notes or background histories of clients. Also, they can be ones which are encountered in the theoretical and/or practical literature which have direct relevance to professional practice.

PBL differs from other problem-centred approaches in several ways (Albanese & Mitchell, 1993). In PBL, students are presented with the problem first, before having learned the concepts. This approach is different from case histories in that not all information may be presented or used to solve the problem. A distinctive feature of PBL is that the problem is one that students are apt to encounter in professional practice.

This approach is based on two assumptions (Scheiman, Whittaker, & Dell, 1989). The first assumption is that learning using problems is a more effective method for fostering usable knowledge than is traditional memory-based learning. The second assumption is that the skills which are most important to applied professional practice are self-directed learning skills and problem-solving and critical thinking skills.

PBL has been adapted and used in a variety of educational settings other than in medical schools. Woods (1996) adapted PBL for use in large classes in chemical engineering. Rangachari (1996) used PBL in an interdisciplinary arts and science course to explore the dimensions of health and illness in the modern world. Bridges and Hallinger (1996) utilized a PBL approach to teach principals in an educational administration program. All three authors report favorable outcomes from using

PBL both in terms of their personal experience and students' evaluation, and suggest its application to other subject disciplines and/or programs.

REASONS FOR ADOPTING PROBLEM-BASED LEARNING

Application of Learning

PBL enables students to use prior knowledge and fosters transfer of learning (Albanese & Mitchell, 1993). If the problems are well formulated, they should stimulate students to activate their prior knowledge and help them understand and structure new knowledge. PBL promotes transfer of learning based on the assumption that transfer is a function of the similarity between the learning context and the application context (Albanese & Mitchell, 1993; Norman & Schmidt, 1992; Scheiman, Whittaker & Dell, 1989; Wilkerson & Feletti, 1989). When information and concepts are learned in association with problems, students have a greater recall of information when presented with that problem in professional practice.

Developing Professional Competencies

Using a small group tutorial structure, PBL allows students to engage in discussion, questioning, critiquing, and teaching (Walton & Matthews, 1989). This learning milieu provides for a greater processing and elaborating of information (Albanese & Mitchell, 1993). PBL students are asked to determine what they know and do not know, to predict outcomes, to plan ahead, to plan effective management of time and cognitive resources, and to monitor their efforts to solve a problem and/or learn new information (Norman & Schmidt, 1992; Wilkerson & Feletti, 1989). PBL students are responsible for generating their own learning issues with the help of a faculty member and take the major responsibility for developing the information and skill base which they will use in professional practice (Wilkerson & Feletti, 1989). This approach fosters an intrinsic motivation for learning (Norman & Schmidt, 1992; Wilkerson & Feletti, 1989), as well as promotes self-regulatory skills and lifelong learning (Walton & Matthews, 1989).

Student Satisfaction

Students using PBL are more likely to use a meaning than a reproduction approach as a strategy to their studies (Albanese & Mitchell, 1993). PBL promotes a learning environment which students report to be more stimulating than traditional approaches to teaching. PBL students tend to report low levels of stress in their studies; they rate their learning experience high in meaningfulness, self-directedness, satisfaction, peer support and student interactions (Albanese & Mitchell, 1993).

CONCERNS ABOUT PROBLEM-BASED LEARNING

Lack of Curriculum Specificity

As a strategy, PBL does not specify parameters around a particular subject discipline. Students are given freedom to direct their learning. Left to their own direction, students may miss components within a particular subject area (Schwartz, Fiddes, & Dempster, 1987).

Accenting Problem-Solving Over Information

PBL as an instructional method appears to accent problem-solving skills and not the acquisition of knowledge (Albanese & Mitchell, 1993; West, 1992). Research findings suggest that PBL students' initial learning may be poorer than their more traditional counterparts but they process information more extensively (Norman & Schmidt, 1992). However, when compared to experts in the field, PBL students in medical schools appeared to use more backward reasoning links, fewer forward reasoning links, made more erroneous statements and were less decisive in reaching a problem definition (Albanese & Mitchell, 1993). Medical experts use more forward reasoning links suggesting that experts work forward from what is known and move toward the goal of a proposed solution; whereas novices use backward reasoning, that is, working backward from the unknown to the givens (Gilhooly, cited in Albanese & Mitchell, 1993). Gilhooly suggested that backward reasoning retards skill development by focusing on goal-starting and reduces the likelihood of learning the connections between problem-givens and forward reasoning.

Lack of Efficiency in Learning

PBL may be an inefficient way to learn. The amount of learning which takes place may be a function of the time spent on group dynamics (Albanese & Mitchell, 1993). Students may take a long time to understand the terminology and research the relevant sources. Possibly there are some types of information which might be best learned using traditional teaching methods while other types of information are best integrated using a PBL approach (West, 1992). Some students may lose interest after the problem has been solved, may need direction in their work, may fail to manage their time appropriately, and may narrow their focus or the range of topics to investigate in depth (Albanese & Mitchell, 1993). The question which remains to be answered is the degree to which self-direction and self-regulation are necessary for successful practitioners, and the ability of an educational methodology to promote these attributes.

COMPONENTS OF PROBLEM-BASED LEARNING

Problems Statements

The core component of PBL is the deliberate statement of a problem which forms the basis for learning professionally relevant problem-solving skills and significant new information. Wilkerson and Feletti (1989) and Walton and Matthews (1989) suggested two preconditions to posing problems in PBL contexts: establishing program and/or course competencies which can be tested at the end of the program, and setting clear expectations for student performance within each competency. When these two criteria are met, both instructors and students are better able to evaluate the outcomes of the problems. This careful consideration of expectations and competencies helps to focus the problem statements and enhance student learning (Birch, 1986).

An effective problem will challenge students to think critically and initiate learning. Gist (1992) suggested that problems need not imply guaranteed solutions but should require the application of concepts. Walton and Matthews (1989) indicated that students must learn to become comfortable with the concept of probability and that decisions may have to be made without certainty of having all the necessary information. They suggested that problems should be reality based and require students to use a range of thinking skills. Gist (1992) suggested that problems should meet the following criteria: occur frequently in the practical setting; require skilful and effective management; have a potentially serious outcome in which interventions make a significant difference; are ones often handled poorly by practitioners; and which emphasize important concepts in the professional practice of the discipline. When developing problem statements, Gist (1992) suggested that the process students will use to arrive at solutions be kept in mind.

The Problem-Solving Process

Barrows (1985) and Scheiman, Whittaker, and Dell (1989) outlined a five stage process used in PBL contexts.

Initial Concept Formation. As students share their perception of the problem and the setting in which the problem is encountered, they become aware of how their perceptions and biases can be influenced by observations of affect, age, behaviour, family background, work history, and situational contexts. Further, they become aware of the error of making assumptions which need to be verified prior to proceeding to solutions. Students begin to understand the system of relationships which form the context for the solution of the problem. The thinking patterns (Birch, 1986) used during this phase of the process lead students to one or more processes of looping back to earlier stages in order to further clarify and redefine the problem.

Hypothesis Generation. Students generate a number of hypotheses as possible explanations for the simulated problem. These hypotheses are usually based on the student's prior knowledge. This formulation is important in that the student is able to understand the bridge between what is known and what needs to be known, i.e. their metacognitive processes (Peterson, Sampson, Reardon & Lenz, 1996). This knowledge deficit forms the basis for the beginning of a focused exploration of information pertinent to the problem (Birch, 1986).

Search and Scan Activity. Students search for data to confirm or refute their hypotheses. This process is called searching. Scanning denotes looking for information which may indicate an overlooked problem, or may provide background information to the problem. Having this information increases students' confidence that the search was thorough.

Problem Formulation. The problem is formulated on the information gathered through the search and scan activity. When students begin to understand the main relationships within the problem situation, they are able to hypothesize solutions to the problem. Students specify the conditions necessary for establishing the validity of the hypothesised solutions (Birch, 1986).

Closure. When the students feel they have all the information necessary to manage the problem, they are able to propose solutions. To bring closure to the process, students summarize and synthesize what has been learned by evaluating the acceptable solution(s) with reference to the definition of the problem (Birch, 1986). The final analysis involves suggesting ways the problem may have been better managed (Albanese & Mitchell, 1993).

Gist (1992) suggested a number of skills which are critical to the PBL process: analysis of the problem context, cue perception, hypotheses generation, searching the information for clues that will help test various hypotheses, attention to and analysis of details, process of developing learning issues, identification of appropriate resources for resolution of learning issues, application of knowledge back to the problem, problem synthesis and group dynamics. Students learn and practice these skills as they deal with each of the problem statements.

ROLES IN PROBLEM-BASED LEARNING

Faculty Member

Faculty members are responsible for constructing the problem statements which provide significant learning opportunities for students' skill development and concept formation. They facilitate the PBL process by guiding, probing and supporting the students' endeavours rather than lecturing, directing or providing solutions (Albanese & Mitchell, 1993).

They serve as an expert knowledge resource (Wilkerson & Feletti, 1989) and provide constructive feedback (Norman & Schmidt, 1992) after the solutions have been determined.

Student Tutorial Group

The student tutorial group is the context in which the PBL process unfolds. This small collaborative group provides a learning arrangement, where the group's task is to define and analyse the different aspects of the problem and achieve an understanding of the contextual relationships involved. Students are responsible for deciding what and how they will learn (Walton & Matthews, 1989). All students must feel free to express themselves if this process is to provide for optimal learning (West, 1992). This freedom of expression provides students with the means to monitor their understanding, learning, reasoning, and critical thinking skills more efficiently than they can in a lecture/seminar method (Walton & Matthews, 1989).

Tutorial Leader

Typically, the student tutorial group is monitored by a tutor who is skilled in the process of facilitation and/or knowledge of the subject matter. Tutors attend to the task and maintenance aspects of group functioning (Johnson & Johnson, 1994). The tutor acts as a facilitator to promote cooperative behaviour by helping members clearly define their role, and as a monitor to assess individuals' and the group's progress in learning the appropriate knowledge base. He or she must find the middle path between too much interference and none at all (West, 1992), and ensure that the learning objectives for the problem are achieved. The tutor must help to establish a group climate which promotes open, trustful and supportive discussion.

Barrows (1985) suggested that the ideal tutor is the one who is an expert in both the tutoring process and in the subject being studied. The next best tutor is a teacher who is proficient in tutoring but not an expert in the subject. Eagle, Harasym and Mandin (1992) suggested that non-expert tutors should be clear on the course goals and problem objectives and consult often with faculty members and other tutors who are experts in the subject. Barrows and Tamblyn (1980) stated that an expert tutor will stop students at critical points and ask them to elaborate on what they are thinking, clarify questions and probe the student's understanding of principles and concepts, summarize what is known and not known about the problem, and challenge the group on how the hypotheses will be refined.

Feedback

Gist (1992) suggested that task and maintenance items be considered in the appraisal of student solutions. Some of the task items include the degree of reasoning, critical and creative thinking, and the acquisition and integration of knowledge. Some of the maintenance items include the degree of peer support provided, teaching and communication skills used in the group, the amount and quality of group interaction and the assessment of oneself and one's peers on contribution to group maintenance.

In summary, PBL is an instructional methodology or an educational strategy which involves a process within which students provide solutions to a problem while working in a collaborative group context. Within this process, students acquire information and develop professional thinking skills both of which are critical to successful professional practice. Faculty members act as facilitators who develop significant problems which serve as a stimulus to initiate student learning. Faculty also provide scaffolding to students as they think through the problem and its possible solutions, and provide feedback to students on their analysis of the problem and their acquisition of information around the learning stimulus. This methodology promotes active student involvement in the learning process by encouraging students to be self-directed both in their preservice and professional education.

APPLICATION TO COUNSELLOR EDUCATION

Counsellor educators can use problem-based learning as an instructional methodology on a course-by-course basis (Albanese & Mitchell, 1993) or as an educational strategy on a program basis (Walton & Matthews, 1986). One of the difficulties with the cours- by-course approach is the possibility of a lack of student preparation for PBL. Group skills are necessary for the tutorial group to function effectively (Albanese & Mitchell, 1993) and it may be difficult for students to manage one course requiring more flexible and creative use of time amongst others using a seminar, lecture, and/or discussion methodology. In response to these difficulties, a program was suggested which would consist of three phases: an essential theory and skills phase, a problem-based learning phase, and an internship phase. By adopting an essential theory and skills phase, educators would guard against the criticism that student's learning might have gaps (Schwartz, Fiddes & Dempster, 1987), that some information and skills are better learned using an lecture/discussion or a demonstration approach and not a PBL approach (West, 1992), and that the curriculum is not well defined (Albanese & Mitchell, 1993). Also by enhancing students' group dynamics knowledge and skills, their learning in a small group context should be enhanced (Albanese & Mitchell,

1993). This foundation would likely enable students to maximize their learning during the PBL phase.

Essential Theory Phase

The essential theory and skills phase would provide a foundation and a structure for students as they approach the study of counselling. The main objectives of this phase would be to focus on skill development in assessment, individual and group counselling and to orientate students to understanding behaviour assessment using theory and process. This approach might be delivered using a more traditional seminar/discussion methodology with emphasis on applying theory to case studies. The courses that might fit into this phase include group counselling to give students a knowledge of group dynamics and the skills to facilitate group work during the PBL phase, assessment courses in which students learn the skills of administration, scoring and interpretation as well as report writing, a course in counselling theory to provide structure and to facilitate an approach to analysing behaviour, and a counselling process course composed of a study of the counselling process and the communication skills necessary to facilitate the process.

In addition, this phase would focus on learners as constructors of their knowledge (Savery & Duffy, 1995) and would teach students metacognitive skills which would be useful during the PBL phase. Students would be encouraged to think both critically and creatively and to monitor their own understanding, i.e. operate at a metacognitive level. Students would be taught to monitor their cognitive skills as they relate to the acquisition of knowledge, i.e. memorizing and understanding; their cognitive processes, i.e. knowing when and how a strategy should be applied, determining what is known and what is unknown about a topic; and, the criteria they use for knowing, i.e. knowing when one arrives at an answer (Kitchener, 1983). Teaching students to monitor their cognitive skills is helpful in managing their learning and enhancing their critical thinking and reasoning skills (Savery & Duffy, 1995).

Problem-Based Learning Phase

To facilitate student learning, instructors should determine the expected student outcome competencies to be accomplished during the PBL phase (Walton & Matthews, 1989; Wilkerson & Feletti, 1989). Based on these outcomes, instructors would establish an informational base of essential readings which would provide initial exposure for students and give them a starting place from which to locate and research further information. Students would be expected to go beyond these essential readings through literature searches to bring further information on the concerns presented in the learning stimulus, i.e., the problem (Albanese

& Mitchell, 1993; Norman & Schmidt, 1992; Walton & Matthews, 1989).
For example, a PBL term might require students to develop knowledge
competencies in Social Learning Theory as it applies to the development
of inappropriate personal and/or vocational behaviour, the application
of psychological first aid, and/or knowledge of the issues facing minority
cultures as they engage in activities within the dominate culture.

Based on the expected outcome competencies, faculty members
would develop a number of realistic, but simulated client concerns, and/
or problems from the theoretical and/or practical literature which act as
a learning stimulus (Gist, 1992; Walton & Matthews, 1989). The author's
preference would be to have a majority of simulated client concerns
which are likely to be encountered in professional practice. Each client
description might contained information on family background, educa-
tion level and aptitude, personality descriptions, and a history of the
concerns expressed by the imaginary client. More information should be
presented than is needed to make an assessment to develop students'
discrimination and analysis skills (Birch, 1986; Gist, 1992; Walton &
Matthews, 1989). The client descriptions should not be labelled such as
Mary, the Middle-Aged Women in Crisis. Such labelling might orient
students to view the problem from a particular frame of reference.
Students would enhance their reasoning skills if they arrived at the
assessment themselves. More specifically, a detailed client description
(Gist, 1992) might involve a female from another culture (a recent
immigrant) who has just experienced a marriage break-up and is looking
for work as a means of economic support. This description might impli-
cate the information often learned in courses on counselling theory,
multi-cultural counselling, career counselling and crisis intervention.
This phase might be a minimum of one academic term in length and
students could be presented with 10 such learning stimuli during the
term. Students would receive a credit value equal to the number of
courses in a student's typical course load.

To have counselling students learn from one another, and to enhance
their critical thinking and problem-solving skills (Gist, 1992), they could
be divided into tutorial groups using the results of an assessment instru-
ment or based on student's self-selection. The use of an instrument, such
as the Myers-Briggs Type Indicator, permits placing students in groups
such that all thinking skills/styles are represented in each group. Tuto-
rial groups should be composed of four to five individuals so that
maximum communication and participation can take place. Further,
having completed a course in group counselling, students would be
familiar with group dynamics and group process and could enhance
their communication skills as they collectively work toward posing solu-
tions to the learning stimulus.

Instructors and/or advanced graduate students could act as tutorial leaders. They could help students develop their knowledge base associated with the learning stimulus and promote professional critical thinking and reasoning skills. For example, students might be asked to assess what information was given in the stimulus and what information they would like to know and why. By using this strategy, students are more likely to approach the essential readings with a specific purpose to locate information important to the assessment of the learning stimulus, i.e. search and scan (Barrows, 1985; Scheiman, Whittaker & Dell, 1989). They could help students to develop hypotheses, recognize assumptions, and fit information into a theoretical context. They could facilitate the debriefing of the problems by helping students understand the reasoning behind their solutions, helping them develop better assessment skills and change strategies, and consolidate what had been learned from the problem-solving. Further, they could be responsible for assessing students' outputs.

Students would be asked to present a number of outputs during the debriefing sessions. For example, students could present a written assessment of what they considered the concerns to be for each learning stimulus. This assessment should be supported by references to the literature. Such an assessment enables the instructor to determine the student's degree of information and the depth of understanding of the issues inherent in the learning stimulus (Albanese & Mitchell, 1993; Norman & Schmidt, 1992; Walton & Matthews, 1989). Students would be expected to develop solutions to the problems within the learning stimulus, i.e., closure (Barrows, 1985; Scheiman, Whittaker & Dell, 1989). For example, if the learning stimulus concerned a client, then goal statements and suggested change strategies for helping the client overcome the difficulties would be required. Students would be required to present a written paper outlining the empirical support for the proposed change strategies and how they should be applied. Furthermore, students could be asked to present a video tape or a live role-play demonstrating the implementation of these change strategies. Having prior exposure to the information and skills during the essential theory and skills phase, students will be able to reinforce their skills as well as link new information in such ways to facilitiate its transfer to professional practice.

Internship Phase

The author sees the PBL phase as an excellent learning experience during which students gain pre-internship knowledge and skill about the types of client concerns or professional problems likely to be encountered in the internship. With such experiences, students will be able to work effectively with clients in the intern setting.

SUMMARY AND CONCLUSIONS

In this paper, the components and principles of problem-based learning have been outlined. PBL, as an educational strategy or instructional methodology promotes a better transfer of learning from the classroom to the professional practice, promotes the notion of working collectively to solve significant theoretical and/or applied problems, and promotes life-long learning. These components and principles are applied to a graduate level counsellor education program. Such a program is viewed from three phases: an essential theory and skills phase, a PBL phase and an internship phase. Counsellors, who are able to use their critical thinking and reasoning skills, transfer their learning to diverse situations and are responsible for their continued professional development will be better prepared to meet the demands of the work place and to positively impact their professional practice.

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