PROJECT ORIENTED TEACHING AND PROBLEM BASED LEARNING

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Abstract

In problem-based learning, the role of the teacher changes from expert to helper. Teachers will have to distinguish between teaching and learning roles and "functions." Roles imply the duty and responsibility of the teacher and of the student. Function implies who or what can best serve the student to assist transfer of learning. In problem-based learning, students can access available resources and methods to solve the problem or case study put before them. It truly becomes a learning journey, where more is gained from the process than from the final outcome. Project-oriented teaching emphasizes on "project" as the main line running through the entire process of teaching, through the project forward, so that students understand the basic process of project operations; it stresses the importance of student's participation in the project, so that classroom teaching and practical training in job skills combine up.

Key words: project oriented teaching, problem based learning

Introduction

There is clearly a trend towards increased focus on managerial issues and the acquisition and application of problem-solving skills. Regarding course delivery there is a trend towards increased use of project-organised education in order to facilitate the acquisition of skills for "learning to learn" on an interdisciplinary basis as well as skills for team-work, co-operation and communication. Furthermore, the use of computer assisted learning and the WWW tends to be an integrated tool for course delivery that may lead to establishing the virtual academy at a local as well as global level.

The challenge of the future will be that the only constant is change. Therefore, the educational base must be flexible. The graduates must possess skills to adapt to a rapidly changing labour market and they must possess skills to deal with even the unknown problems of the future. The point is that professional and technical skills can be acquired and updated at a later stage in ones career while skills for problem-solving and skills for learning to learn can only be achieved through the process of academic training at the universities. The concept of project-organised education provides just that opportunity. The constant change will also underpin the necessity for an interaction between the design of university curricula at graduate level, and the design of adequate courses in the area of Continuing Professional Development. This, again, underpins the fact that university graduation should be seen as not the end in itself but as only the first step in a lifelong educational process.

Problem-based learning is a learning strategy that incorporates specific instructional preplanned activities, focused on a relevant learner problem, and allows for the flexibility of the situation and the learners in the classroom. This course model has its foundation in the theories of humanistic, learner-centered, and problem-centered design approaches. Higher education institutions are evaluating alternative learning methods for the 21st century. Part-time versus full-time, work-based versus institution-based, face-to-face versus distance learning, to name a few (3). These changes bring student experience and an informal curriculum that is increasingly diverse. Problem-based learning, a sister of experiential learning and learning internships at the workplace, brings the real life work-based scenarios into the classroom to offer the practical application of the theory or content of the course objectives. Students, and the organizations hiring them, want education to be relevant to the real world they will work in. Managers want employees and new supervisors to come to them with critical thinking skills and the ability to solve problems. If students do not practice problem-solving in the classroom, how will they be prepared for the real world? If our teaching is not designed to lead to desirable learning outcomes, we are wasting our students' time and the valuable resources of the community.

Problem-Based Learning

Problem-based learning (PBL) is a curriculum development and instructional system that develops both problem-solving strategies and disciplinary knowledge bases and skills by placing students in the active role of problem-solvers faced with an "ill-structured problem" that mirrors real world problems (11). PBL emphasizes the learning part of the teaching-learning process (5). It is based on the idea that learners learn what is meaningful to them and learn better if they feel in control of what they are learning (ibid).

In education the idea of PBL is not new. It was developed in the 1970's when McMaster Medical School introduced a learning environment as a reaction to traditional models of teaching that first were used in medicine, health science, and other natural sciences. It has been a major success since the 1970's. PBL turns the instructions topsy-turvy. In the place of covering the curriculum, learners probe deeply into issues searching for connections, grappling with complexity, and using knowledge to fashion solutions (10). According to Stover (1998) PBL "will increase retention of knowledge, help students transfer concepts to new problems, enhance students interest in the content and enhance self-directed learning" (p. 2).

The main idea of PBL is that a group of students is presented with an "ill-structured" problem—that is, it has many solutions—that reflects a real problem from their professional field. Students who encounter the problem will not have most of the relevant information needed to solve the problem from the very beginning. Real problem are the heart of PBL model. But what are the characteristics of good problems? Duch (3) lists some of the characteristics of good problems as:

1. An effective problem must first engage students' interest and motivate them to probe for deeper understanding of the concepts being introduced.

2. Good problems require students to make decisions or judgments based on facts, logic and/or rationalization.

3. Cooperation from all members of the student group is necessary in order to work effectively through a good problem.

4. The initial questions in the problem should have one or more of the following characteristics; they should be:

open-ended

connected to previously learned knowledge

controversial issues that will elicit divers opinions.

5. The content objectives of the course should be incorporated into the problems, connecting previous knowledge to new concepts and connecting new knowledge to concepts in other courses and/or disciplines.

Solving the problem takes students through the following processes (10):

1) Engagement. Problem-based learning requires students to self-direct their search for a solution, often by assuming the role of a key actor in the problem situation.

2) Inquiry. Students brainstorm with others and gather information from multiple sources.

3) Solution Building. Students work in teams discussing alternatives and examining possible solutions.

4) Debriefing and Reflection. Students share information, opinions, and idea with others based on what they have learned through the experience.

5) Presentation of Findings. Students write plans, reports, and other forms of work documentation to include in their portfolios (or students present their findings back to the class; or both).

Problem-based learning is a strategy choice for workplace trainers and instructional designers because "in a society where change is constant and teamwork is a way of life at work, the lessons learned through involvement in problem-based learning are essential for students' career development (Office of Educational Research and Improvement, 1996)."

In the field of language teaching and learning, however, the use of PBL is relatively new (6). This novel teaching approach according to Vukadinovic (2003) has been introduced with the desire to integrate language and content study to facilitate autonomous learning. In this model, a group of students are given a problem to solve in their field of study, prepare a report, and present the results in the class.

Kosel (2002) enumerates the following as some of the advantages of PBL approach in teaching English across the curriculum:

1. A real problem raises motivation, much more than a preselected sequence of information from a course book.

2. In the model, students can integrate their professional knowledge and their knowledge of English.

3. The model makes them better equipped with functional skills needed for their professional careers and thus makes them more competitive on the job market.

4. Individual and social learning are combined.

5. English is learnt while doing something else, which goes together with the slogan "Learn by Doing."

Project-based learning

Project-based learning, or PBL (often "PjBL" to avoid confusion with "Problem-based Learning"), is the use of classroom projects, intended to bring about deep learning, where students use technology and inquiry to engage with issues and questions that are relevant to their lives (7). These classroom projects are used to assess student's subject matter competence compared to traditional testing.
Project-based learning (PBL) provides complex tasks based on challenging questions or problems that involve the students' problem solving, decision making, investigative skills, and reflection that include teacher facilitation, but not direction. Project Based Learning is focused on questions that drive students to encounter the central concepts and principles of a subject hands-on.(2)

With Project-based learning students learn from these experiences and take them into account and apply them to their lives in the real world. PBL is a different teaching technique that promotes and practices new learning habits. The students have to think in original ways to come up with the solutions to these real world problems. It helps with their creative thinking skills by showing that there are many ways to solve a problem.

Project-based learning(PjBL) is an approach for classroom activity that emphasizes learning activities that are long-term, interdisciplinary and student-centered. This approach is generally less structured than traditional, teacher-led classroom activities; in a project-based class, students often must organize their own work and manage their own time. Within the project based learning framework students collaborate, working together to make sense of what is going on. Project-based instruction differs from inquiry-based activity by its emphasis on collaborative learning. Additionally, project-based instruction differs from traditional inquiry by its emphasis on students' own artifact construction to represent what is being learned.

The core idea of project-based teaching is that real-world problems capture students' interest and provoke serious thinking as the students acquire and apply new knowledge in a problem-solving context. The teacher plays the role of facilitator, working with students to frame worthwhile questions, structuring meaningful tasks, coaching both knowledge development and social skills, and carefully assessing what students have learned from the experience. Advocates assert that project-based learning helps prepare students for the thinking and collaboration skills required in the workplace.

Rigorous and in-depth Project Based Teaching:

- **is organized around an open-ended Driving Question or Challenge.** These focus students' work and deepen their learning by centering on significant issues, debates, questions and/or problems.

- **creates a need to know essential content and skills.** Typical projects (and most instruction) begin by presenting students with knowledge and concepts and then, once learned, give them the opportunity to apply them. PBL begins with the vision of an end product or presentation which requires learning specific knowledge and concepts, thus creating a context and reason to learn and understand the information and concepts.

- **requires inquiry to learn and/or create something new.** Not all learning has to be based on inquiry, but some should. And this inquiry should lead students to construct something new – an idea, an interpretation, a new way of displaying what they have learned.

- **requires critical thinking, problem solving, collaboration, and various forms of communication.** Students need to do much more than remember information—they need to use higher-order thinking skills. They also have to learn to work as a team and contribute to a group effort. They must listen to others and make their own ideas clear when speaking, be able to read a variety of material, write or otherwise express themselves in various modes, and make effective presentations. These skills, competencies and habits of mind are often known as "21st Century Skills".

- **allows some degree of student voice and choice.** Students learn to work independently and take responsibility when they are asked to make choices. The opportunity to make choices, and to express their learning in their own voice, also helps to increase students' educational engagement.

- **incorporates feedback and revision.** Students use peer critique to improve their work to create higher quality products.

- **results in a publicly presented product or performance.** What you know is demonstrated by what you do, and what you do must be open to public scrutiny and critique.

Project-based teaching creates opportunities for groups of students to investigate meaningful questions that require them to gather information and think critically. Typical projects present a problem to solve; a phenomenon to investigate; a model to design; or a decision to make.

The project work is problem-based meaning that traditional textbook knowledge is replaced by the necessary knowledge to solve theoretical and practical problems from the society/reality. *The aim is broad understanding of interrelationships and the ability to deal with new and unknown problems.*

In general, the focus of university education should be more on "**learning to learn**". The traditional focus on acquisition of professional and technical skills (knowing how) often imply an "add-on" approach where for each new innovation one or more courses must be added to the curriculum to address a new technique. It is argued that this traditional subject-based approach should be modified by giving increased attention to entrepreneurial and managerial skills and to the process of problem-solving on a scientific basis (knowing why).

Closing Remarks

Even if the professional content of the curricula may vary between countries, some general trends may be identified. There is clearly a trend towards increased focus on managerial issues and the acquisition and application of interdisciplinary problem solving skills. Regarding course delivery, there is a trend towards increased use of project-based education in order to facilitate the acquisition of interdisciplinary problem-solving skills as well as skills for team-work, co-operation and communication. And web based learning tends to become an integrated tool for course delivery leading towards establishment of Virtual Academy at a local and possibly global level.

The challenge of the future will be that the only constant is change. To deal with such significant change the educational base must be flexible. The graduates must process skills to adapt to a rapidly changing labour market and they must process skills to deal even with the unknown problems of the future. Skills for learning to learn become essential.

The constant change will also support the necessity for an communication between the design of university curricula at graduate level, and the design of adequate courses in the area of lifelong learning. This, again, underpins that University graduation must be seen as not the end in itself but as only the first step in a lifelong educational process. In this regard, there will be a need to establish a new balance between the universities and professional practice. This new balance should allow the professionals to interact with the universities and thereby get access to continual updating of their professional skills in a lifelong perspective.

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