Life-long learners through problem-based and self directed learning

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Abstract

Concerning with lifelong learning has a noble pedigree, by considering the rapid growth of knowledge and technology after space age 1957, with the Soviet "sputnik" Satellite, the role of educational institutes has changed. It is impossible to expect curriculum to transfer necessary knowledge for living in this global village with different complicated challenges. In this situation, learners should be able to investigate the necessary knowledge and skills for better living and overcoming the facing problems. In this paper policy, strategy and culture of problem-based and self directed learning are examined. Lifelong learning as a policy for the expansion of the education and training system, should address problem solving and self directed learning. Lifelong learning as a strategy for the reform of the welfare state also should address problem-based and self directed learning. Lifelong learning as a cultural practice, should be provisioned by goals, means and evaluation in curriculum development. In this continuous process of social changes learners should be lifelong and self directed learners to be able to conquer their challenges and their problems.

Keywords: lifelong learning, problem- based teaching, self directed learning, curriculum

Introduction

After Space age and after sending the first Spaceship around the Moon in 1957, the process of teaching and learning has become more challenging. We cannot expect educational institutes to consider transferring knowledge as their own aims and goals anymore. With the expansion of technology and internet age, in every second we publish lots of books and scientific papers which propose new theories and challenges. So we need learners to be life-long learners to be able to surmount their problems and can direct their learning in accordance with new problems which they face in their daily life. Problem Based Learning (PBL) encircle around learning at philosophical model and practical level. The systematic philosophy makes PBL a suitable choice for a life-long learning process, because it provides a platform for learning through problem solving. PBL is a student-centered learning process which places emphasis on motivating learners to assume responsibility for their learning and to develop their inquiry ability in the reasoning process.\cite{1}

Problem-Based Learning

Problem-based learning (PBL) is an approach that stimulates students to learn through engagement in a real problem. So the essential elements of Problem Based Learning “PBL” are working with real world issues, peer collaboration, focusing on critical questions that frame the issue. Problems drive learning and development of
critical skills. PBL is an instructional methodology probing students to have deeper understanding of the subjects. It is a format that simultaneously develops both problem solving strategies and disciplinary knowledge bases and skills by placing students in the active role of problem-solvers confronted with an ill-structured situation that simulates the kind of problems they are likely to face as future managers in complex organizations. PBL is student-centered and makes a fundamental shift—from a focus on teaching to a focus on learning, from convergent way of thinking to divergent way. The process is aimed at using the power of reliable problem solving to engage students and enhance their learning and motivation. There are two main parts of any type of teaching: students and teachers. But the role of these two categories, are different in PBL compared with traditional classical style of teaching. Teacher is a facilitator for guiding students to identify the key issues about the subject rather than being a content expert. The students also have a different role to play in PBL because they are the spirit therefore, have to participate fully to achieve certain expectations not only individually but also collectively in the group. It is important to note that although students are in their learning process it does not mean that the teacher becomes a passive observer. On the contrary he/she has to be active in the sense that his facilitation keeps students on course. [2]

There are several unique aspects that define the PBL approach:

- Learning occurs within the contexts of authentic tasks, issues, and problems—that are aligned with real-world concerns.
- In a PBL course, students and the instructor become co-learners, co-planners, co-producers, and co-evaluators as they design, implement, and continually refine their curricula.
- The PBL approach is grounded in dynamic academic research on learning and on the best practices that promote it. This approach stimulates students to take responsibility for their own learning, since there are few lectures, no structured sequence of assigned readings, and so on.
- PBL is unique in that it fosters collaboration among students, stresses the development of problem solving skills within the context of professional practice, promotes effective reasoning and self-directed learning, and is aimed at increasing motivation for life-long learning. [3]

Life-long learning policy

Traditional educators tend to produce students who are often disenchanted and bored with their education. They are faced with a vast amount of information to memorize, much of which seems irrelevant to the world as it exists outside of school. Students often forget much of what they learned, and that which they remember cannot often be applied to the problems and tasks they later face in the business world. Traditional classrooms also do not prepare students to work with others in collaborative team situations. The result: students tend to view his/her education as simply a "right of passage," a necessary "union card," and an imposed set of hurdles with little relevance to the real world. Education is reduced to acquiring a diploma, merely another commodity to be purchased in the marketplace and the final grade becomes the overriding concern rather than learning. [4]

Researches in educational psychology have found that traditional educational approaches (e.g., lectures and transferring knowledge and information) do not lead to a high rate of knowledge retention. Despite intense efforts on the part of both students and teachers, most material learned through lectures is forgotten, and natural problem solving abilities may actually be impaired. In fact, studies have shown that in 90 days students forget 90% of everything they have been told (Smilovitz,1996). Motivation in such traditional classroom environments is also usually low. They don’t know why should learn and memorize lots of names and formulas and even transferring of their learning is ambiguous. In such kind of strategy, they learn to learn what they have to learn, not capable to conquer their problems. They learn to stop learning after finishing their courses while in this century, in the age of IT there is no time to stop learning. Learners should enjoy the process of enquiry to solve the problems, in this case they never stop learning and become life-long learners. Perhaps one of the greatest advantages of PBL is that students genuinely enjoy the process of learning. PBL is a challenging program which makes the study of organization design and change intriguing for students because they are motivated to learn by a need to understand and solve real managerial problems. The relevance of information learned is readily apparent; students become aware of a need for knowledge as they work to resolve the problems; in this case they never stop their learning. [5]
Learning one set of skills at school, technical college or university is no longer enough to carry people throughout their working life. People should be able to learn and adapt to the new skills and training that will be required. But learning to learn is not enough; people also need to be sure that they acquire new skills during their careers as efficiently as possible – and that means ensuring that qualifications systems give them credit for the experience and knowledge they have gained, whether in the classroom, in the workplace or elsewhere. Globalization and the growth of the fast-changing knowledge economy mean that people need to upgrade their skills throughout their adult lives to cope with modern life, not just in the area of work but also in their private lives. Often in private life, we learn new skills without even realizing it – every new piece of home equipment we buy, from mobile phone to washing machine or steam iron has added features we need to learn how to operate, usually by reading an instruction manual. We cannot say that we can finish our learning.[6]

But the point is how to achieve lifelong learning for all, and how to measure whether individuals and society are making progress in this area. Qualifications of various types are a tried and tested way of measuring and proving people’s accomplishments – diplomas on leaving school, degrees after university, and specific skill qualifications, from a bus driver’s licence to an accountancy diploma. But existing national qualifications systems are not necessarily adapted to a fast-changing knowledge economy. They will need to be changed to take account of the need to build on existing knowledge to cope with the latest update in technology, and to measure less tangible skills such as team spirit or willingness to learn. There does seem to be a link between qualifications systems and lifelong learning, but little evidence exists of just how it works. If we can identify and understand the ways in which national qualifications systems deliver, or fail to deliver, lifelong learning, the positive links can be transformed into robust concrete relationships which policy makers can use as a basis for reforming qualifications systems with lifelong learning benefits in mind.[7]

A study of efforts by 15 countries to develop lifelong learning through reform of qualifications systems reveals 9 broad policy responses that other countries can draw on to develop and refine their policies on lifelong learning:

- **Increased flexibility and responsiveness**: Offering more customized training and greater choice. The focus is on being responsive to individuals, enterprises and the economy. The dominant ideas are targeting programs to the individual and a learner-centered approach.

- **Motivating young people to learn**: Stresses the importance of success in initial education and training, and becoming confident in basic skills. Introducing vocational elements into school courses is a possibility.

- **Linking education and work**: Reflects a strong desire to see qualifications systems as a strong link between the education/training system and the labor market, and the economy more generally.

- **Facilitating open access to qualifications**: This may mean drawing up specific routes to occupations or jobs, recognizing a wide range of achievements and moving barriers for excluded groups.

- **Diversifying assessment processes**: This often requires making assessment fit for its purpose and attempting to recognize all kinds of learning.

- **Making qualifications progressive**: Learning is linked to job hierarchies, adult learning is expanded and relationships between qualifications are classified.

- **Making the qualifications system transparent**: This often means reducing complexity and simplifying the way the qualifications system is presented, for instance by reducing the overlap between qualifications.

- **Reviewing funding and increasing efficiency**: Reducing cost is the most obvious goal. Reviewing efficiency is another. Expanding private capacity for training is also an approach.

- **Better managing the qualifications system**: This implies better co-ordination of the different institutions involved and increasing the local management of programs.[8]

**Mechanism to foster more and better lifelong learning**

These mechanisms, defined as conceptual links between qualifications systems and lifelong learning, are based on evidence of behavioral change within the main stakeholder groups. The most successful are highlighted in bold.
Communicating returns to learning for qualification.
Recognizing skills for employability.
Establishing a qualifications framework.
Increasing learner choice in qualifications.
Clarifying learning pathways.
Providing credit transfer.
Increasing flexibility in learning programs leading to qualifications.
Creating new routes to qualifications.
Lowering cost of qualification.
Recognizing non-formal and informal learning.
Monitoring the qualifications system.
Optimizing stakeholder involvement in the qualifications system.
Improving needs analysis methods so that qualifications are up-to-date.
Improving qualification use in recruitment.
Ensuring qualifications are portable.
Investing in pedagogical innovation.
Expressing qualifications as learning outcomes.
Improving co-ordination in the qualifications system.
Optimizing quality assurance.
Improving information and guidance about qualifications systems.[9]

In general, policy makers need to monitor and measure whether the qualifications system is responding to the needs of individuals, employers and qualification providers and whether it is helping to deliver lifelong learning. Stakeholders need to be involved in developing the qualifications system so that they can explain what their needs are. And everyone needs to know that the system is delivering quality outcomes – a workforce with increased quality skills that are adaptable and portable and which meet employers’ needs.[10]

Lifelong learning strategy

A strong Lifelong Learning strategy and culture are integral to the attainment and aspiration of young people and adults. The continued development and establishment of a clear Lifelong Learning message, together with access to high quality lifelong learning services for the educational institutes is key component that should be addressed in strategy of learning. Raising the levels of attainment and aspiration among adults and young people throughout the community is essential. However, raising attainment in schools cannot be achieved in isolation from raising attainment and aspiration among adults. Teachers and Learners need to have the confidence and skills to support their learning to become involved in the process of lifelong learning, and play their part in challenging our schools to deliver the high standards that a prosperous learning community demands. This important factor dependent upon building knowledge and skills, together with developing intellectual, professional and social capital throughout our communities. A culture of lifelong learning brings real benefits to society as well as to the individual, to the employer as well as those employed. Life-long learning is the key to improving the social fabric of our borough as well as our local economy. Learning contributes to all stages of life, and our vision for learning should be inclusive of all ages and all communities.

To support LLL, we wish to see learning and skills at the very heart of Council services and to ensure that:
• Learning should be valued in its own right, as a source of fulfillment, and as a means of building individual and community capacity and self-determination.
Lifelong Learning should be integral to raising attainment in pre-school children and in schools by influencing attitudes to learning and enhancing the abilities of parents and instructors to support their children’s education.

Learning should support the development of skills, to ensure that jobs of the future are sourced locally, and that the borough and its communities thrive through improved opportunities for fulfilling and rewarding employment. [11]

As was mentioned before, all these important strategy and policy are attainable in problem -based learning which leads to self directed learning during the school age and even after graduation. We should consider it as our strategy and policy for education.

The problem-solving process can be summarized according to three broad and dynamic phases.

Phase 1. First, gathering information and list it under a heading entitled: "What do we already know?" In this phase, we will entertain the problem in light of the knowledge that we already have from our own experience. We have to discuss the current situation surrounding the problem as it has been presented. This analysis requires discussion and agreement on the working definitions of the problems, and sorting out which issues and aspects of the situation are worthy of further investigation. This initial analysis should yield a problem statement that serves as a starting point for the investigation, and it may be revised as assumptions are questioned and new information comes to light. [12]

Phase 2. Next, we have to engage with the problem by also identifying under a second heading, "What do we need to know (to solve this problem)?" Here we have to list questions or learning issues that must be answered to address missing knowledge, or to shed light on the problem. It is in this phase that we must analyze the problem into components, discussing implications, entertaining possible explanations or solutions, and developing working hypotheses. This activity is like a "brainstorming" phase with evaluation suspended while explanations or solutions are written on a flipchart or chalkboard. We have to formulate learning goals, outlining what further information is needed, and how this information can best be obtained.

Phase 3. The above list should inform us in what to do in order to solve the problem. In this phase we have to discuss, evaluate, and organize tentative hypotheses. We have to make a "What should we do?" list that formulates keeps track of such issues as what resources to consult, people to interview, articles to read, and what specific actions team members need to perform. It is in this phase that we can identify and allocate learning tasks, develop study plans to discover needed information. We have to gather information from the classroom, resource readings, texts, library sources, videos, and from external experts on the subject. As new information is acquired, we have to meet to analyze and evaluate it for its reliability and usefulness in applying it to the problem. [13]

In short we get used to spending a great deal of time discussing the problem, generating hypotheses, identifying relevant facts, searching for information, and defining their own learning issues. It will become a habit and a way of living. Unlike traditional and standard classes, learning objectives are not stated up front. Rather, you and members of your group will be responsible for generating your own learning issues or objectives based on your group's analysis of the problem. All during this process, learners should be actively defining and constructing potential solutions. As an instructor, our role is primarily to model, guide, coach--to support learners through the learning and assessment process. In this situation learners learn to learn , they learn critical thinking , initiative action and can direct their learning , they learn how to solve their problems with rational steps.[14]

The majority of class time should be devoted to working in self-directed, PBL small group tutorials. A portion of class time should be allocated to "Resource Sessions," which may include simulations, case studies, and brief discussions to further explore concepts and issues which arise out of the PBL projects.

Transitioning to a PBL Classroom Environment
Students who are new to a PBL classroom environment may find it initially unsettling. This is because they have to take responsibility for their own learning, to work on ill-structured problems where there isn't a pre-established "right answer," and where they are expected to structure their own approach to acquiring and using information to solve problems. In many respects, this environment mimics the "real-world." In business settings, there are no standardized objective tests, lectures, or routine and well defined assignments. Entering this new type of learning environment requires us willingness on our part to accept risk and uncertainty, and to become a self-directed learner. In a research was carried on in Shahid Rajaee university, around 78 percent of our students that were educated in PBL environment, could direct and guide their learning after graduation.[15]

Establishing an Open Climate for PBL

Establishing an open climate is essential for problem-based learning. Every student should feel free to say whatever comes to mind, any ideas or comments, no matter how unsophisticated or inappropriate they might seem, without being put down or criticized. Most students have learned in their prior educational experiences not to speak up or volunteer their thoughts unless they are absolutely sure of the answer. Any show of ignorance was held against them. Learning can never occur unless you can bring out their ideas and thoughts, and openly admit to confusion, lack of understanding, or ignorance..."I don't know" is a powerful first step to learning. The same is true for ourselves as an instructor. The instructor doesn't have all the answers or doesn't know everything; no one can know everything, and no one should be expected to have all the answers. All the members of the group even instructors can learn in the process of PBL. It is responsibility of the student, TO SPEAK UP when they are doubtful, unsure, or uncomfortable with comments or ideas made by others in the group. They have to be willing to speak up when they feel that another member of the group is making statements that they feel are incorrect. So they learn to have it in their future life, in their family and their society. So they never accept what they are not sure about and will try to have knowledgeable decision.

Students must also develop the ability to openly and constructively express their opinions about the comments or ideas of others, or about the quality of other people performance in the group. It is our responsibility to offer opinions in a friendly and constructive manner. Every person should learn to both give and accept constructive criticism.[16]

PBL Assessment Philosophy

Everyone agrees that learning should be the outcomes of education; however many differ in their conceptions of learning. Dewey (1972) criticizes conceptions of learning that define learning as “fragments” and “dualisms” which are simply synthesized. Rather, Dewey describes learning as a habit formation that arises from the continual reconstruction of existing dualisms into entirely new unitary functions and understandings. Recent findings about the brain architecture and cognition support Dewey’s view of learning. Researchers (Lakomski 2002, Minsky 1986) have suggested that the brain does not appear to operate in a linear processing fashion of matching individual stimuli to preexisting pieces of information. Those advocating connectionism contend that learning occurs when neurons, which make up neural nets, fire in certain unique patterns. These connections form a pattern that can be strengthen through regular activation and recognition of these patterns. In other words learning encompasses more than absorbing or identifying discrete bits of information and then mapping them against other similar bits of information, rather it is the interaction of a new idea with the sum of all that we know, to the effect of transforming existing cognitive or neural structures. Assessment depends on our view about education, about what we believe and how much recent researches support us. Assessment has for a long time been recognized as a powerful driver of learning, and therefore something that teachers could leverage on to ensure students achieve desired objectives. Unfortunately however, this belief about assessment, has contributed to, inadvertently perhaps, assessment grades being used as a carrot or stick resulting in learning for the sake of its external value and not the intrinsic value of understanding. In one study an examiner lamented:

In an ideal world quantitative marks would be abolished...this is because students
tend to see their mark as a valuation of their worth (Warren Piper et.al. 1996:83)

But what is the origin of assessment. The Latin origin of this term, *assidere*, literally means to sit down beside. Another way of thinking of assessment is to use careful judgment based on the kind of close observation that comes from "sitting down beside." But the most important point in assessment is evaluation bases on authentic information. In PBL, assessment should not be separate from instruction. Rather, assessment is integral to learning. The focus and purpose of assessment is on learning, on how it is done, and how it can be better, not on normative comparisons. Assessment is a continuous process that drives instruction and learning process. Further, assessment does not bring an end to learning; it provides information about how to continue to develop our skills, knowledge and abilities with respect to objectives and outcomes of the course. Having said this, it is important for us to think of assessment as an active demonstration of our understanding and ability to apply this understanding. [17]

Words like "tests" and "examinations" have well established connotations of evaluating a student's *possession* of knowledge. We need a different process, and a new language, to identify how to assess a student's capability for *using* and *applying* knowledge. Education of an individual, understood in terms of developing a capability for using and applying one's knowledge, cannot be adequately assessed by traditional testing. Grading on a curve, which sorts students into groups for administrative purposes, says nothing about how each student is using his or her talents or growing toward their potential. In PBL evaluation we have to think about divergent answers not convergent, we have to consider the process of learning not just the right answer. In PBL, the instructor is no longer the only benchmark to which learner’s progress will be measured. Rather, our role as instructor is to help them monitor themselves, to monitor their own progress, to establish criteria for learning and quality work, and to help them devise their own goals for improvement. This means that teachers are not the only judge of student work; students will learn to evaluate the work of their peers, as well as their own. In addition, we have to learn that our work may also be monitored and evaluated by real-world assessors-managers and executives and other people in the society. [18]

Learners should co-operate with the instructor for relevant and meaningful assessments, and play an active role in developing criteria and setting standards of performance for high quality work. Assessments must have meaning for the learner. For assessments to be meaningful, they must have some connection to the real world, challenging enough to be interesting but not totally frustrating, and generative, where a real product, service, or valued information is being evaluated. This concept of assessment-as-learning focuses on what learners achieve—not what teachers provide. Assessment must also be seen as fair and equitable. In the early part of the semester, a voluntary "student assessment task force" can be formed or we can ask learners to assess their work and compare their assessment with the others assessments they have to learn to reconstruct their experience and their imagination. They have to learn that they can learn and direct learning.

**Conclusion**

In the age of internet and bombardment of information, in this global village, we face more challenging situation, we have more problems in our relationship with the other people. So our kids should learn to think independently and rationally. They have to learn thinking critically to be able to direct their learning to be able to be lifelong learners, and never stop reconstruction of their experience. They have to learn it through real problem solving during their school period. Learning one set of skills at school, technical college or university is no longer enough to carry people throughout their working life, their social skills and personal life. Most of the countries have been trying for some time to reform their qualifications systems to make lifelong learning possible. They feel this necessity that, learners should be able to investigate the necessary knowledge and skills for better living and overcoming the facing problems. Lifelong learning should be our policy for the expansion of the education and training system and should address problem solving and self directed learning. Lifelong learning should be our strategy for the reform of the welfare state and should be inclusive of all ages and all communities. Lifelong learning as a cultural practice, should be provisioned by goals, means and evaluation in curriculum development. In this continuous process of social changes learners should be lifelong and self directed learners to be able to conquer their challenges and their problems. We don’t need our students to be a good encyclopedia; we need them to have critical and creative thinking. We can direct our students as if they can be problem solver and self directed learners. In this case they will never lose their enthusiasm for learning and will be life-long learners.
References

2. M. Albanes. *Problem-based learning: why curricula are likely to show little effect on knowledge and clinical skills*, United States, 2000