# LEARNING THROUGH PROBLEM SOLVING

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## ABSTRACT

Learning through problem solving is a teaching methodology in order to achieve the objectives of the teaching. At the core of this methodology is creating a situation of concern. Creating Situation important problem is the fact that the "sparks" situation before laying the problem for solution. The purpose of it is required to apply this methodology lies at the core of its application. Teacher through teaching aims to achieve the highest possible results that possible. And to achieve these results the teacher should constantly be looking at finding methods, techniques and strategies more effectively. Experienced teachers have easier as it could have experimented more in this direction. Other teachers can often be found before mounting whether the method, technique or strategy selected learning from them is the best? Will achieve the highest score with other methods? Can be used based learning in solving problems in all school curricula? Can be used based learning in solving problems in social studies and science alike? What is the approach of teachers in Albania to learning based on solving problems? What is the approach of teacher reports in Albania with the international scientific literature? These and others like them are part of a study on this subject study.

**Keywords**: problem solving, teaching methodology, problem situations, the natural sciences, the social sciences.

## INTRODUCTION
**Knowledge for implementation based learning in solving problems**

The essence of learning through problem solving is that learning begins the moment appears a problem that arises for settlement before students. At this point the student learns or part of reminds knowledge needed to solve the problem. I think there are some difficulties for the implementation of learning based on solving problems. Limited experience in group work management. Students need to learn how to make optimal use of their time and resources while working in groups. Functioning effectively in groups involves knowing how to organize the work, distribute responsibility, break up complex tasks, and provide useful feedback on work that is done. Prejudices about the impossibility of a predetermined by the pupils that they will not be able to choose whether independently problem. Often in these cases is necessary motivation "to start then think more" on the way to settlement.

Lack of pupils' abilities to connect previous knowledge with new ways of solving problems. They are often unclear about how they can relate what they are currently reading to what they already know. They are also unfamiliar with different stages of the inquiry process, such as generating hypotheses, providing logical arguments, and transforming data into a product.

## LITERATURE REVIEW

Learning through problem solving is a methodology in which students engage in learning by encouraging problem solving. Students work cooperatively in groups to seek solutions to

real-world problems and more importantly, to develop skills to become self-directed learners. Problems can be solved with two or more ways, but can be solved with a way. Problems usually represent real life aspects arise or come before students during the learning process. The problems can be part of a lesson or part of a larger project. Problem-based learning (PBL) is an educational approach that challenges students to "learn to learn". PBL is unique in its integral emphasis on core content along with problem solving (Gallagher, 1997).

The learning through problem solving is known since many years ago but studies last twenty years have shown its effectiveness in comparison with the classical teaching. The findings of some researchers present it as the most advanced in terms of results achieved in the learning process. So Barrow in 1996, Dods,R.F. 1997, Torp and Sage 2002 overestimate this method in terms of long-term recall of knowledge, skills development, satisfaction felt by students and teachers at the end of problem solving. On the other hand opponents consider this method costly and ineffective to quickly achieve the same results. Researchers like Kirchner, Sweller and Clark stress on cognitive inadequacy of people to adapt to such an approach. Some other researchers Albanese and Mitchell 1993, 2005 Segers are ambiguous and contradictory in their positions. These are some of the reasons that the debate between supporters and opponents remains ongoing. Reasons for debate dealing mainly that there is a real gauge the effectiveness of different methods, because the experiences are different. Simultaneously positions from which depart and variables on which to base change. So Gibers with his followers focuses on understanding by students of the links between principles and concepts.

**Solving real life problems**

Let us give an example from real life of students. One day the students of a class of nine in Elbasan, Albania town center returned to their city from a trip to Skopje, Macedonia. An hour after landing from the bus Alban remembered that he had forgotten the bag on the bus. What should be the minimum value of the average speed at which the vehicle should move Alban's father to catch the bus before he crossed the border to Montenegro since the road is over 240 km and average speed moving bus 60 km / h. To solve this problem real life must first determine the problem solving methodology:

For this sets the scope of the solution.
Recalling the events as part of real life, as part of a television appearance as a game Counter-Strike, etc.
Relationship with other subjects, physics.
Determination of sizes that are part of this problem.
Develop a sketch and design of the solution.
Note the sizes of known and unknown.
The physical connection in this case between sizes.
More specifically physical sizes are: Street (l), velocity (v) and time (t). Size of the unknown is the speed. Speed in other sizes dependencies found by the formula $v = l / t$.
To establish the exequation that corresponds to the given problem:
$240 / v < 240/60 - 1$　　　$240 / v < 3$　　　$240 / v - 3 < 0$　　　　　$(240 - 3v) / v < 0$
Execution from this form of production can find its solution through the study of the sign:
$240 - 3v = 0$ or $v = 0$
For equation $240 - 3v = 0$ we have $- 3v = -240$ from out of $v = 80$.

Study of the sign:

| v | -∞  + ∞ | 0 | 80 |
|---|---|---|---|
| v | - | + | + |
| 240 - 3v | + | + | - |
| (240 - 3v) / v | - | + | - |
| (240-3v)/v < 0 | V | G | V |

**Discussion for the problem**

Finally activate students to discuss solutions to the problem through encouraging brainstorming again. How is the left side of? What can we say about solutions exequation communion? Do both communions accepted solutions as a solutions exequation communion? Analyzed problem settlement community. Given the answer to solving problem. During these moments of great importance are: work with groups of students, independent of their activity, constant encouragement and motivation of them. Interventions of teachers should be well considered.

**METHODOLOGY**

This study was conducted in 3 lower secondary schools Ptoleme Xhuvani (City), Vidhas (urban area), Pajun (rural area) and 2 high schools "Dhaskal Todri" (public), "Inkus" (not public) in the region of Elbasan, central Albania. The study included 80 teachers and schools principals. The methodology applied was interviews. Interviews were conducted in January 2015.

**RESULTS**

Below you will remark some of the answers given by the teachers and the schools principals during this process:

M.J. Experienced educational leaders stated: *Learning based on problem solving methodology is very efficient. In chemistry I always obey this order. By means of learning based on solving problems my students have achieved good results and. The difficulty of its implementation lies in finding the necessary time-mixed new knowledge that will be taught the students.*

A.B. Math teacher says: *in mathematics I always apply this methodology. The challenge is how I teach the students who read and understand data requirements and problem. After that great importance pavement problem and discuss its solutions.*

D.H. teacher says: *Even in the social subjects such as the subject of Albanian Language is no place to apply this methodology. Occasionally problematic situations arise that are selected based on this methodology. I think that in social education learning this is not the usual methodology. There are other effective methodology for the subject of the Albanian language and literature.*

I.N. Physics teacher talking to learners based on problem highlights: *Achieving sustainable outcomes is more secure when using this teaching technique because besides logical activity also activated other dimensions through the practical intelligence, design, drafting of the road the solution.*

ML retired teacher says*: In Albania many years ago the learning development of  by creating challenging situations and then solving  problems has been one of the main methods especially for natural science subjects.*

**DISCUSSION**

Some features based learning in solving problems are:

1. Students analyze a real-life problem and try to find solutions by opting for this strategy as appropriate.
2. Students work in small groups.
3. Focus on learning through experiences related to investigating and solving unstructured problems.
4. Clamp the previously learned knowledge through their application in solving problems.
5. Urges the complicated mental processes, and empowers the development of communication skills, selection of challenging situations.
6. Develop skills of independent learning and students.
6. The teacher supports students, provides material for teaching and orientation in the definition, implementation, and self-evaluation of their work.
Learning through problem solving develops:
a) skills for solving problems.
b) skills for organizing and leadership.
c) skills for communication and interaction.
d) critical thinking skills and creativity.
e) skills for group work and discussion of results.
f) skills for application of new knowledge to new situations.
g) The versatility of using information technology.
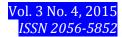Comparison. Traditional teaching and Learning through problem solving.
Traditional Teaching
1. The teacher conveys information through discourse.
2. The teacher sets tasks for students, provides ancillary literature, guides them towards solving the problem.
3. Students usually remember new information or learn ago.
4. Pupils have a duty to exercise and to apply what they have learned.
Learning through problem:
1. Students are presented with the problem identified by them walking paths ago for its solution.
2. Students and teachers determine what needs to know to achieve the solution.
3. Students and teachers solve the problem.
4. Students learn and apply new knowledge to solve the problem.

**CONCLUSIONS**

1. Teaching based on solving problems is a very efficient methodology in the process of its development and acquisition teacher curriculum by students.
2. During the implementation of learning based on solving problems is required preparation and planning of teaching to create harmonization of all its constituent elements.

3. To develop teaching under this methodology is necessary by activating and encouraging students to create challenging situations and then hospitalized for solution of the problem.
4. The methodology of learning through problem solving rather finds application in natural science subjects rather than on social science subjects.
5. Problem-based learning (PBL) is an active method of teaching and learning with effective impact on the acquisition of knowledge. For this purpose, this method should be applied in the teaching process by teachers.
6. Through this method achieve sustainable acquisition of knowledge and encouragement for independent activities by students.

## ACKNOWLEDGEMENTS

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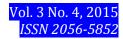
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