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# The Effect of Problem-Based Learning in Secondary Schools.

## Case Study of Secondary Schools in Relizane

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# DEDICATION

I am most grateful to ALLAH for lighting my path towards success. This thesis is dedicated to: To my parents my brothers, for their endless love and encouragement. To all my friends. Special thanks to my supervisor.

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My greatest and deepest thanks are owed to my supervisor Dr Touami Abdekader, whose, without her encouragement and help this work would have never completed .What is more important is the fact of providing me with self-confidence. He is really a model of the good and the serious teacher.

## Abstract

The present dissertation attempts to investigate the role of problem-based learning approach (PBL) in motivating learners and increasing educational level. It is hypothesized in this work that the PBL approach can help teachers and learners to work in collaborative atmosphere and get many benefits from its implementation in classroom practice. The main objective is to highlight the significance of PBL approach implementation to increase learners' motivation unlike deductive traditional methods. In this case, teachers are encouraged to adopt this technique whenever needed. Two questionnaires were administered to the three secondary schools in Relizane-S'hihMhamed of Ramka,Omar Ibn Elkhatab and Elmanar secondary school in Ammi Moussa-We intend to explore learners' and teachers' attitudes towards PBL. The results showed that most teachers do believe that PBL approach generally has a great impact on the learning process. Hence, it increases their motivation to learn and to become more active. In addition, the results demonstrated that (PBL) has enormous positive effects on schools that use it on a regular basis regardless of the obstacles that they may face like overcrowded classes.



**Key words: PBL** problem-based learning - **FL** foreign languages- **TM** traditional methods

**CM** classroom management- **LM** learning methods,

## List of Abbreviations:

**PBL:** problem-based learning approach.

**FL:** foreign languages.

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## General Introduction

The Problem-Based Learning approach has become one of the most important and significant techniques in inspiring learners' motivation in teaching and learning especially in foreign languages stream, particularly English. It is viewed as a pedagogical, influential tool for developing the learner's competences. Enhancing learners' language proficiency in the classroom is not an easy task for the teachers as they need to know the most appropriate methods and techniques to deal with mix ability learners in the classroom. In this stage, learners do more efforts than the traditional methods that they used to receiving all knowledge from teachers during the lectures and tutorials that will help the learners to increase their communicative skills when working in groups. Therefore, in order to discuss the issue and to explore it into relevant or targeted questions during their courses, we need to investigate the crucial role of teachers and learners in the implementation of The Problem-Based Learning approach when motivating learners to achieve the educational desired goals. Based on the reasons explained above, the present research work is an attempt to investigate the effectiveness of the Problem-Based Learning approach in increasing learners' motivation.

Thus, our research questions are as follow:

- Can teachers and learners play a crucial role in increasing learners' motivation by the implementation of The Problem-Based Learning Approach?

- To what extent can the PBL approach be effective in increasing learners' level?

Therefore, to answer these questions, we suggest the following hypotheses:

- We hypothesize that the PBL approach may play a crucial role in motivating learners to be active and autonomous learners inside and outside the classroom.

- We assume that teachers may encourage and motivate learners in order to increase their abilities to learn by giving answers to the given research questions. Our aim is to reach the following objectives:

- To confirm that the role of teachers and learners in PBL approach, that can be an effective tool to push learners to make more efforts towards active learning like classroom participation.

- To encourage teachers to undertake their PBL approach during the teaching process to correcting learners' mistakes and to enhance their learning.

- To make learners aware of the importance of their teachers guidance and encouragement on their learning process.

To reach these objectives, two questionnaires were used to obtain accurate information. One was made for teachers and the second was designed for the learners. The dissertation work is divided into three chapters. The first chapter is devoted to presenting the theoretical framework; it will give more information about the role of teachers and learners in the implementation of the Problem-Based Learning approach in English language teaching by its own concepts and definitions. The second chapter discusses the research design of our study, the methodology was followed, the data collection tool and the target population. As for the third, it presents the analysis and interpretation of both teachers and learners 'answers in the designed questionnaires in addition to some recommendations that we will suggest to both teachers and learners.

# Chapter One

## Literature Review

## 1. Introduction

This chapter aims to shed light on the effect of Problem-Based learning as a learning approach on both teachers and learners .it focuses on the implementation of innovative teaching approach such as Problem-Based learning that created to encourage learners to be actively engaged in the learning process, and to help them to be well educated and become self-confident and self-oriented, while following the determined steps of Problem-Based Learning approach.

## 2. Definition of Problem-Based Learning

There are numerous definitions and interpretations of PBL. The general definition appears in the designing and the assessing of learners outcomes achievable with PBL that fit the teaching philosophy as working in groups, in situations that involve learners to confronting with problems in order to enhance their learning. Problem-based learning (PBL) is an instructional method that challenges learners to "learn to learn," working cooperatively in groups to seek solutions to real world problems. These problems are used to engage students' curiosity and initiate learning the subject matter. PBL prepares students to think critically and analytically, and to find and use appropriate learning resources. (Duch,1995)

## 3. Theories of teaching and learning.

According to Pritchard (2005) (p.5), “learning is a vast and complex subject” the teacher should have an understanding of different teaching and learning theories such as behavioral, constructive and cognitive learning. A significant theory of teaching and learning is constructivism which means that individuals can construct much of what they learn and understand. Constructivist theory is much influenced from studies involved in human development, “especially the theories of Piaget and Vygotsky” (Schunk, 2008, p. 235). In

addition, Piaget and Vygotsky supposed that learners dynamically build their own knowledge and perception. Whereas.Vygotsky focused on the social participation of the learner while Piaget centred on the learner's inner motivation to balance new knowledge with prior knowledge and understanding (Schunk, 2008).

Piaget's theory of cognitive development is based on issues related biology, age and development of the learners. However, Vygotsky's constructivist theory emphasizes the learners' social interaction which is not strictly age-related (Pritchard, 2005). Importantly, Vygotsky' theory of social constructivism focuses on the Zone of Proximal Development (ZPD), and when the learners collaboratively work in the ZPD, development is achieved. ZPD is "the distance between the actual developmental levels as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86).

The theory of social constructivism can be applied in education as reciprocal teaching which shows the interaction and discussion between an instructor and small group of learners. Peer collaboration is another educational application of the theory. This encourages the learners to actively work on their assigned task and to learn from each other while collaborating with their peers.

**4. Problem-Based learning a constructivist process**

The real understanding of constructivist theories is necessary in implementing the PBL approach. Savin-Baden and Major (2004) so, constructivism theory is very important for learners in order to learn and to know what is going to their minds is what cognitive theorists are researching. This is aimed at enhancing learning productivity. For example,Vygotsky's social

constructivism which stresses the importance of the ZPD and teacher's instructional scaffolding in helping learners attain new knowledge can be seen as one of the frameworks for PBL implementation. Savin-Baden and Major (2004)..

The humanist theories of Maslow (1968) are strongly related to the implementation of a PBL approach. The theories asserted a hierarchy of needs that includes biological needs and physiological needs, safety needs, belonging, esteem needs. In a PBL approach, learners are able to have their diverse individual needs recognized, respected and developed in the processes. Learning will be improved if a teacher has understanding of the learning theories and knows how to incorporate these theories into the learning processes. For example, in implementing a PBL approach, designing effective learning problems which attract learners' interests is important. To do this, the facilitator should attend to learners' background and build on this through scaffolding learning.

The role of teachers in the process of the teachers' facilitation in a PBL class to guide learners cognition. So, PBL implementation will be more successful if the facilitators understand how to incorporate the teaching and learning theories into their practice. Knowles, Holton & Swanson (2005) indicates that the two streams implemented in education are the intuitive and reflective stream. This discusses the adults' ways of learning new knowledge through experimental investigation. A problem-based learning approach provides the opportunity for adult learner to use their intuition and analyses experiences.

**5. Problem-Based Learning as an Innovative Approach**

PBL is considered as an innovative approach according to its origins in medical schools then it is involved and implemented in different fields.

**5.1. The origins of the PBL approach**.

According to Martin (1996), PBL first appearance was in medical schools at Case Western Reserve University in the United States in the 1950s, but it was officially introduced as a methodology in Canada in the late 1960s The PBL approach was used to enhance the quality of medical education by moving from a subject and lecture-based curriculum to an integrated curriculum structured through real-world problems which cross traditional boundaries.

Problem-Based Learning is rooted in the "project method" of William Kilpatrick (Kain, 2003). suggest that learners should not be provided with answers but rather with experiences in learning to help them create the questions and to seek solutions to questions and problems.

According toRhem(1998), the intellectual history of PBL is far older. PBL is seen as a newly recovered style of learning, relating to the question-and-answer dialectical strategy, he claims that the early classic form of PBL has characteristics of a real-world problem which has a variety of possible solutions and this is centered on the learning situation. Organized groups discuss what is known about the problem as well as determine the information gaps within the given problems. In finding solutions to the learning problems.

**5.2. Evaluating a Problem-Based Learning Approach**

The introduction of problem-based learning in education was not only gained success in medical education but it was popularized and recognized in different fields. For example, Ong (2000) claims that PBL is introduced in non- health-science disciplines in different universities, PBL was renamed as Issue-based Learning (IBL) and implemented in Social Studies, and the

introduction of IBL has been such a great success that other educational institutions that have implemented IBL in programs of Social Studies.

In addition, PBL also was introduced in Engineering, History and Arts and Science such as Mathematics, Chemistry, Biochemistry, Physics, Biology and Computing. Particularly, PBL has been implemented in Studies for a long time**.** Williams (1999) reports on a three-year in nursing program which implemented PBL and discovered a great improvement in learners self-direction and the development of a holistic view of nursing, there are other researchers also discovered that learners were limited when performing psychomotor skills as well as lacking in fundamental knowledge of anatomy. The PBL implementation enhanced learners self-direction, the program used to improve other necessary skills.

**6. Elements of Problem-Based Learning Approach**

There are several elements of Problem-Based Learning approach that are showed in the following titles.

**6.1. The Aims of a PBL Approach**

The aim of PBL implementation is for preparing learners to become effective problem-solvers and self-directed learners. Therefore, learners taught with a PBL approach can develop a variety of skills which are useful for their present learning as well as for their future professional challenges. However, the implementation must also lead to the desired objectives and result in the understanding necessary for the discipline. Barrows and Tamblyn (1980) argue that PBL can enhance students' success in relation to adaptation and participation in change; application of problem solving in new and future situations; creativity and critical thought; adoption of a holistic approach to problems and situations, appreciation of diverse viewpoints.

Successful team collaboration and identification of learning weaknesses and strengths of learners learning through a PBL approach can develop skills of self-directed learning; effective communication; augmentation of knowledge and leadership by varied resources, the argument of expected learning objectives in classes where the PBL approach is needed to be more specific and very clear in comparison with other traditional approaches. (ibid)

Learners learn through PBL approach how to search appropriate learning materials for solving the given problems and therefore enhance their understanding. Learners also apply their acquired knowledge in dealing with their daily activities. PBL is a constructivist approach which encourages students to "activate" the gained knowledge and build it from the new one .From these studies, learning through PBL approach can better prepare learners for their future careers in the global working environment when compared with lecture-based approach. The skills of problem solving, critical thinking, communication, and collaboration achieved from the process of learning through a PBL approach are likely to help graduates to become successful in confronting their daily working problems.

**6.2. Features of a PBL Approach**

PBL is a pedagogical strategy; contextualized, real world situations, resources, guidance, and instruction are provided to learners as they develop of knowledge and problem-solving skills to find tentative solutions to the problem (Mayo, Donnelly, Nash, & Schwartz, 1993).

Unlike traditional teaching, which is often conducted in lecture format, PBL teaching normally occurs within small groups of learners facilitated by a tutor or instructor, According to Barrows (1996) and Gijselaers (1996), the content and the structure of PBL courses may differ, whereas, the general goals and learning objectives are similar. PBL begins with the assumption

that learning is an active, integrated, and constructive process influenced by social and contextual factors. PBL is characterized by a learner-centered approach.

PBL teachers work as facilitators who provide scaffolding guidance in the learning process. Also, open-ended structure problems are considered as motivation and framework for learning (Wilkerson &Gijselaers, 1996). In PBL, facilitators are encouraged to help learners' intrinsic interest in the subject matter, emphasis learning to recall in group work, and help learners actively engage in the process of finding additional learning resources to solve the given problem so that they will become self-directed learners. The "learner-centered" approach allows learners to study those topics, and decide how they want to learn.

The problems push the learners to examine a lot of different solutions closely before deciding on specific solutions. According to Gallagher (1997), structured problems help learners to learn a series of key concepts, ideas, and techniques because they encourage group discussion and give learners experience solving problems by experts in the field. Learners recognize that the problems are professionally relevant. So they become motivated to work on the problems because the achievement from solving the problems is useful for their future career, both in terms of the knowledge gained and the problem solving skills attained through the learning process.

**7. The Implementation of a PBL Approach**

The effective implementation of PBL depends on extensive and comprehensive development focusing on both the staff as facilitator process that will lead to the production of problems and solutions. According to Boud and Feletti (1991), there is an expectation that learners will become self-directed learners. When learners first engage in the problem-based learning process, the tutor's most important role is facilitative and supportive, other tasks include

that of instructional design, the preparation of learning problems and situations by additional resources, and the development of scaffolding questions to support the investigations. When implementing a PBL approach teachers need to understand that their involvement in learning is to be gradually reduced during the learning process, this reduction in learning intervention has to motivate learners in order they take more responsibility for their learning.

At the beginning of PBL, the teachers can provide help when needed based on learners' prior learning experience. This help can be in the form of scaffolding questions which are aimed at encouraging learners to do investigations into the problem. When learners gradually gain experience of learning through a PBL approach, this experience will be useful in helping them organize their learning related to new problems. In this way, the teacher needs to learn to stand observing learners learning from behind and only appearing to provide help in the form of scaffolding questions when requested. This gradually encourages learners to become self-directed learners.

The group interaction enhances the learners' communication, so, they can build better relationships between learners and their peers and between learners and their facilitators. Johnson and Johnson (1987) claim that groups can achieve their aims through collaboration, interaction and participation. Group members become the teachers to each other, rather than all learners relying on one person, the teacher, to provide the information, the class is the formal context in which the tutor simply facilitates the learning interaction and the learners construct knowledge rather than the tutor imparting knowledge.

Learning outcomes including the application and integration of knowledge, skills and applications are processes of analysis and self-directed learning. Des Marchais (1993) reported

his five year experience in implementing the PBL approach in the University of Sherbrooke's school. He argues that "the PBL program is more demanding of teachers and requires better training in pedagogy". However, "the Sherbrooke experience has demonstrated that it is both possible and feasible to shift from a traditional to a problem-based curriculum". By understanding the characteristics of the implementation of PBL, teachers will be better prepared to become facilitators of learning, rather than providers of knowledge.

## 4. Roles and Responsibilities of Teachers and Students in the PBL Process

Both teachers and learners have a great responsibilities in Problem-Based Learning process implementation.

### 4.1 Roles and Responsibilities of the Teacher

When the teacher is using a PBL approach, Bridges and Hallinger (1991) explain that the amount of direct instruction is reduced and learners become more responsible for their own learning. According to Vernon and Blake (1993), the instructor's role becomes one of resource guide and group consultant. In this situation, the learners group bring information rather than depending on the teachers. The key role that the teacher plays in providing a successful PBL program. When implementing a PBL approach, the teacher makes changes in ways of instruction, planning, learning direction, knowledge facilitation and assessment process.

The different roles of teachers can be motivators which encourage learners to be involved in the new learning environment and support learners to become more self-directed learners. In PBL classes, the facilitator's role allows the teacher to become a content and procedural resource person, a facilitator of group processes, a guide to additional resources, a sounding-board person. The facilitator is now working as models in different ways of problem-solving (Brown, Collins,

& Newman, (1989). To enhance learners self-direction in the learning process, the facilitator raises many meta-cognitive questions to encourage learners to be engaged in discussion, rather than dictating how to solve the problem. Also encourage learners' individual engagement in the group work.

The successful implementation of PBL will require a huge change in teachers' attitudes to learn before an interdisciplinary approach to PBL that can be implemented in teaching processes. so that the focus remains on good facilitation rather than content knowledge. When starting PBL approach, the facilitators should provide learners with considerable instructional scaffolding to help them improve their problem-solving skills, self-directed learning skills and group work skills. The scaffolding of the teacher can gradually be reduced among time. These skills are useful for learners in the learning process in seeking possible solutions for the learning problems given. These skills will also be developed through the learning process itself.

**4.2 Roles and Responsibilities of the Learners**

Some learners have difficulty with the concept and the elements of self-directed learning (Schmidt, Henry & de Vries, 1992). In PBL learners must take responsibility for their own learning. They are encouraged to recognize their learning needs and determine the necessary learning resources they will need to help them seek the learning situation and achieve their learning goals. This represents a change in thinking about their role. Working in groups can support learners' comprehension of the learning problem and to gain skills that will be useful in improving their communication skills.

The skills of collaboration are very useful for learners working as team members in their future workplaces. PBL learners are encouraged by facilitators to be active group members. They

are advised to be actively engaged in the group work in class discussions during the PBL process. It is through group work that learners have opportunities to learn the constructive criticism and find ways to reach agreement with classmates on difficult learning situations. Using group work in PBL is a means of providing opportunities for learners to collaborate with each other, learn from one another and construct knowledge gained from the learning interactions. When working in groups, learners will be responsible for their work. Learners also learn to be honestly evaluated by their own contributions. In addition to their individual learning performance assessed by their peers.

In addition, PBL learners need to play multiple roles such as leader, recorder, critic, discussant, teacher, researcher, presenter, communicator, problem solver and facilitator during PBL. Through playing diverse roles, learners gradually acquire skills in team-work, communication and problem-solving. Individual learners present their own work for the success of the group and no group member dominates the discussions.

**4.3. Designing a PBL Problem**

The development of learning situations occurs in the intrinsic problems in PBL approach is extremely important. The problem itself is the crucial factor related to the success of PBL. Duch (1997) claims that an effective problem has the following characteristics: first, it should be a real - world problem which attracts the learners' interest. They should be able to build on their prior knowledge and search the additional resources during the learning process. They should be encouraged through the problem situation to actively search for an understanding of the given problem. Next, the learning problem should be designed in encouraging learners to work collaboratively and use higher order thinking, the learning problem is open-ended to attract

diverse responses, and draw on learners' prior learning, that involves different opinions and contributions from learners. Another characteristic of a good learning problem is that the expected content outcomes of the course should be progress in the learning problem and the new knowledge should be transferred to other disciplines as PBL interdisciplinary approach.

Searching different learning resources that related to other disciplines to solve the learning problems, learners gain the expected learning outcomes of the course and acquire their knowledge in other fields Duch, (1997). To design an effective learning problem, the PBL facilitators should have the understanding of the discipline they are teaching as well as other disciplines related to the particular problem. This interdisciplinary knowledge helps the PBL facilitators in the process of problem design. It also helps them know how to guide learners to find appropriate resources during the learning process. These effective learning problems can be rewarding in learners as they will be motivating, encouraging factors which attract them to be involved in the learning process and achieve the desired learning outcomes.

**4.4. Organization of the PBL Class**

The preparation for the implementation of a PBL approach, Dion (1996) suggests that the PBL facilitator should have a clear understanding of the purpose for implementing the approach, the procedures and the expectations. This is useful for the teachers who are new to PBL. It also helps teachers to explain the PBL approach when learners are first introduced to a PBL approach. Working in groups to manage the work effectively, groups should be guided to work of their own potential .

The groups are encouraged to work individually and collect their group work. The facilitator will also introduce the schedule for the whole class where learners are required to

present their work reports. In this way, the facilitators' effective planning helps learners work collaboratively and effectively in finding tentative solutions for the problems and achieving the expected outcomes, good organization that help teachers with group work facilitation.

**5. Assessment in Problem-Based Learning**

The way of assessment that reflected learners' choices of "right" or "wrong" answers cannot be appropriate used in evaluating learners' performance in learning through a PBL approach. Tchudi and Lafer (1996) claim conventional assessment is a game that asks the learner to guess what the teacher wants rather than perform, It is difficult to use traditional tests to assess the outcomes the learners gain from the learning through a PBL approach such as skills of problem-solving, critical thinking, creativity, self-directed learning, teamwork and communication. Reynolds (1997) argues that PBL assessment needs to meet the philosophy of active learning instead of encouraging the learners to passively reproduce what has been memorized.

The process of PBL assessment must require the individual learners to analyze a problem, and search for relevant information. Traditional education uses techniques to assess learners' performance while the assessment used in PBL is more process-oriented. According to Toulmin (1972), process-oriented objectives can be difficult to articulate, though they comprise the "hidden curriculum" of most courses. These objectives are those that relate to how practitioners of a discipline think about and solve problems in a certain field. The content-oriented objectives are usually emphasized. In problem-based learning practitioners may struggle with defining, and then assessing process-oriented objectives.

Most assessment processes used is the more possible for the teacher to support and assess the learners learning. To gain from PBL implementation, the steps of the implementation process is prepared and facilitated to an effective introduction of a PBL approach to learners, especially for those who are new to the approach, is very important in order to helps learners to change from their traditional learning style to the innovative learning to be actively engaged in group work. This transformation helps learners attain the expected outcomes of the subject content and develops their learning and professional skills also.

### 5.1. Models of Problem-Based Learning Approach

According to Savin-Baden and Major (2004), there are several discussions about models of PBL, with the pure model and the other models, the most basic ones. The pure model is similar to the McMaster version of PBL with learners working in groups and not having lectures or tutorials, while the hybrid model is one which includes lectures and tutorials. In reality, most of the present models of PBL in practice could be classified as the hybrid model. Another claim made by Savin-Baden and Major (2004) is that the concept of modules or programmes can be different depending on the disciplines and cultures. Those are considered as the common models of PBL currently used in classes. (ibid)

### 5.2. Single Module Approach

This approach can be considered as the McMaster model where learners gathered in groups to solve a learning problem related to one module of work. They are supported by facilitators in helping them solve a learning problem. In this approach, the facilitator acts as a resource for the group. Very few lectures are provided. There may not be a facilitator or tutor for individual groups; however, the learners have the chance to work on the problem on their own.

## 6. Problem-Based Learning on a Shoestring

There are several approaches such as the selected ones, these is a briefly passage of each approach.

### 6.1 The Funnel Approach

This PBL form can be considered as a way of learning designed to gradually direct the learners away from common conventional approaches to more innovative approach of learning like PBL. This means that lecture-based learning can beused for the first year learner classes and a PBL approach will then be implemented in second year classes to make the learners familiar with the approach and funnel them to PBL in the final year of their programme (Savin-Baden & Major, 2004).

### 6.2. The Foundation Approach

The foundation approach can be considered as the funnel model in the term of structure. They have some similarities, initial lectures in the funnel approach appears in early teaching steps to change the thinking of the learners towards a more innovative approach such as PBL. In the foundation approach, knowledge gained from the initial lectures will become foundational to acquiring other learning outcomes embedded in the problem situations to follow. In this way, basic concepts stored in the minds of the learners will be decontextualized for solving new problems later. In addition, in the foundation approach facilitators do not have to have much active role in guiding learners to find the resources to solve the problems (Savin-Baden & Major, 2004).

### 6.3. The Two-Strand Approach

In this approach, PBL is considered as an essential element of the programme aimed to make the best use of both PBL and other learning approaches concurrently. This approach can be implemented if there is a requirement from departments for learners to start shared modules across different disciplines. This means that modules in each field are planned with linking topics in order that information attained from the mixed approach becomes a support for learners in the PBL process (Savin-Baden & Major, 2004)

### 6.4. The Patchwork PBL, the Integrated Approach and the Complexity Model

According to Savin-Baden and Major (2004), all other approaches have a link with problem-based learning, the integrated approach and the complexity model. In these approaches, learners have to work on sequential problems across disciplinary boundaries. The most complex PBL form can be the complexity model used to design programmes "that transcend subjects, disciplines and curriculum impositions, and embrace knowledge, self, actions and curriculum organizing principles" (Savin-Baden & Major, 2004, p.43).

### 6.5. Other Versions of the PBL Approach

Duch (2001) suggests a variety of problem-based instruction models employed in learning programmes. These include the "medical school model", "floating facilitator model", "peer tutor model", and "large class model". These models have similar features to the PBL approach originally used in medical schools, as it is a model used with multiple groups of learners in large classes. The tutor, in this model, is considered as a "floating facilitator", travelling between the groups to facilitate group work, mini lectures and whole class discussions are also planned within the floating facilitator model. When PBL variations are implemented in large classes where there

is a limited availability of tutors, multiple small groups can be facilitated by a staff member as "roving facilitator". The facilitator who may or may not be a subject-expert can be a senior learner who is responsible for managing learners' group discussions.

**Conclusion**

The implementation of Problem-Based Learning approach is very important in the learning process, because of its benefits for both teachers and learners in order to reduce the role of the teacher in the class as they used to do in the traditional way of teaching, it also help learners to be more active elements in the classroom and to develop the group spirit work, all these developments in acquiring knowledge should be incorporated in the teaching process.

# Chapter Two

## Research Methodology and Data Collection

## 2. Introduction

This chapter will present the steps and methods that are used in this work; it is developed to manage the methodological work that we relied on. After presenting the theoretical issues as chapter one that related to the impact of Problem-Based Learning on the learning process. It starts first by the purpose behind our research. Then, it discusses the methodology used and the research strategy chosen to describe, analyze and interpret the impact of Problem-Based Learning approach on both learners and teachers in the learning process. Also, it sheds the light on the tools that are used in collecting our data and the reasons behind their choice. Then, the next point is about the population of our study with the sampling strategy that we have used to select the sample. Finally, we will briefly see the aim of the developed questionnaires and the way they are organized.

## 2.1 The Purpose of The study

Our study focuses on the role of both teachers and learners in the application and the integration of the Problem-Based Learning approach in the academic system, in the case study of the three secondary schools in Relizane. Our objective is to shed light on the real impact of this approach on learning process, through questionnaire and the observation ,in order to improve and enhance the learning system .The result obtained from our analysis and interpretation of the collected data determines which appropriate recommendations to be suggested to teachers and learners, to increase their level effectively in the classroom as a good technique to foster their learning in general, to raise the learners interests and their educational needs.

## 2.2 Methodology

This research is an attempt to show that the Problem-Based Learning approach has a great impact on learners to be intrinsically and extrinsically motivated to solve any kind of problem in any situation in order to have critical thinkers and problem-solvers. To reach this objective we need to rely on the appropriate method which is Problem-Based Learning approach. The choice of the method depends largely on the topic of the research work and its aims, and the samples under investigation .A method is a kind of approaches that used in educational research to gather data and to see to what extent is the used approach is relevant in a given situation, In other words, methods are techniques and procedures to collect data. Since our objective is to determine the effectiveness of the PBL approach, the descriptive

method will be relied on in our research. So far, we need a research strategy to describe, analyze the role of teachers and learners as the two basic elements in the research, describe a research strategy .Biggam (2008) discribes a research strategy as "…where you describe how you intend implementing your own research study i.e. the strategy that you intend adopting to complete your imperial study."(2008:82).The appropriate case study that matches our objectives is "case study" .Consequently, we are going to investigate the case study of different secondary schools streams in the three secondary schools in Relizane.

## 2.3 Methods

Descriptive research falls into two major categories: quantitative and qualitative studies. In Quantitative research data is collected and analyzed in terms of numerical data that it is concerned with the measurement of attitudes, behaviors and perceptions. However, qualitative research is associated with gaining more familiarity and closed insight into assumptions, and the role of the learners without measuring data through numerical statistics. We also select to use a quantitative method. "Most quantitative research falls into two areas: studies that describe events and studies aimed at discovering inferences or casual relationships. Descriptive studies are aimed at finding out 'what is', so observational and survey methods are frequently used to collect descriptive data" (Borg& Gall, 1989).

The characteristics of quantitative research are: Data is collected and analyzed in terms of numbers, the use of charts and graphs to help the reader better understand data organization. The use of statistics like: frequencies, average, and percentages to measure data. To go through these steps, a questionnaire survey is designed to gather statistics. "The term survey is commonly applied to a research methodology designed to collect data from a specific population, or sample from that population, and typically utilizes a questionnaire or interview as the survey instrument" (Robson, 1993).

## 2.4 Sample and Population

Population in this kind of research is a cooperative term which "used to describe the total quantity of cases of the types which are the subject of our study. So population can consist of objects, people or even events, e.g., school, miners, revolutions"(Walliam & Baiche ,2001:232) The population we are concerned with includes teachers/ learners of English at first,S hih Mhamed secondary school of Ramka,second,Omar Ibn Elkhatab secondary school, third,Elmanar secondary school in Ammi Moussa, in Relizane. To obtain a good result about the most important technique in teaching English as a foreign language, we could gather ten

(10) teachers and a hundred fifty eight learners (158) of English language. The reason behind our choice is that we are interested in a specific characteristics in our selected learners and teachers, to achieve our objectives, both selected teachers and learners are from the same region, They were asked many questions to know about their opinions towards Problem-Based Learning approach, in order to gather a range of rich data for answering the research questions, a variety of data collection methods were designed and utilized; and after the process of PBL implementation. The research instrumentation is more detailed.

## 2.5 Research Location and Timing

The study was conducted with the teaching staff and the learners who agreed to participate in the study from three secondary schools in Relizane. The three secondary schools are part of the process of Algerian educational system. Furthermore, it can be said that this study is promoting educational initiatives which add to the innovations taking place within the Algerian educational system, especially in the development of teaching and learning in academic education. I determined the implementation of the Problem-Based Learning process, and the data collection, so that the staff participants had enough time to attend the Problem-Based Learning work, design the Problem-Based Learning lesson plans, gather additional Problem-Based Learning resources and implement a PBL approach in their classes.

## 2.6The Research Instruments

In this research study, a questionnaire is addressed for teachers those who are teaching English in secondary schools so, they focus on phonetics, grammar, oral and written expression in order to evaluate their learners level, the questionnaire contains closed questions where the potential answers are defined in the questionnaire, and opened-questions where the respondents are allowed to express their own ideas with their own words. According to Walliam and Baiche(2001,232), the questionnaire is an excellent method which permits the researcher to ask questions and receive responses with no necessity to talk to every participants of the sample. The reason behind choosing the questionnaire as a data collection tool is that it is an economic instrument, i.e. the questionnaire is a means of saving time, since data can be collected from a great number of informants in a short period of time. Another reason that encourage us to rely on the questionnaire refers to the fact that it helps our participants to feel at ease while answering the suggested questions.

## Phase one of the PBL Implementation

Conducting PBL works with teachers to prepare for the success of the implementation of a Problem-Based Learning approach as well as to gather a range of rich data of the teachers' perceptions about their classes. My aim for the Problem-Based Learning work was first to open discussions about features of a Problem-Based Learning approach to find the strategies on how to implement the approach, Also, the intention of the research to be sure that the teacher participants had a clear understanding of a Problem-Based Learning approach and how to implement the approach in their classes. Teachers' comments of the usefulness of the work to see teacher perceptions in implementing PBL approach. The lecturers introduce the PBL approach and the styles of PBL assessment chosen for learners. This method of introduction is useful for learners who are new to the PBL approach as it will help learners' readiness for learning through PBL which is likely to be a new and demanding learning approach for them. The teachers also assign learners to learn in small groups or encourage them to set learning groups themselves, while the lecturers allocated learning problems to each group in the PBL classes.

## Phase two of the PBL Implementation

It consists the process of the implementation of a PBL approach by the lecturers in classes, after attending the PBL work, the teacher participants do some preparation for implementing the process of Problem-Based Learning. As the teachers introduce the PBL approach and the styles of PBL assessment chosen to the learners participants as the first step in the class. This method of introduction is useful for learners who are new to the PBL approach as it will help learners' readiness for learning through PBL which is likely to be a new and demanding learning approach for them. The teachers should select the appropriate styles of assessment in which they can continuously evaluate learners' performance during PBL implementation. The styles of PBL assessment may be new in comparison with those used in Lecture-Based approach such as the final tests. PBL learners' performance assessment is continuously conducted during the course. The process of PBL implementation in classes encouraged to facilitate learners' group work during the learning process.

## 2.7 The Questionnaire

Two questionnaires were administered to reach our objective; one questionnaire is designed to secondary school learners, and the second one is made for their teachers. The learners questionnaire is divided into two sections, the first one concerns learners 'personal information in which they are required to determine their gender, age ,and their streams the second section deals with detailed information which includes other items concerning the role of PBL approach implementation, in which they are supposed to tick yes or no to answer.

The questionnaire was administered in the second semester while PBL implementation was prepared to apply in classes, both teachers and learners helped me with data collection of the questionnaires in the three secondary schools that witnessed the distribution of the questionnaires to all (158)learner participants. Those who helped in collecting the completed questionnaires from the learners. The operation kept contact with the three schools via email and telephone during the process of questionnaire collection to see if any problems may arise. When the learner questionnaires were all gathered, they were very helpful and corporate among the whole operation.

### .2.7.1 Pupil's Questionnaire

The questionnaire aim is to investigate the influence of PBL on learner's motivation in the learning process. It is important in this study, to give learners the opportunity to express their own opinion, concerning their learning. Learner's questionnaire was designed to explore how they perceive the effect of PBL approach on their learning process, by giving a high importance to their streams, as targeting the foreign languages stream learners, in order to gather a rich data of learners' perceptions of learning through a PBL approach. Learner's questionnaire was survey constructed and administered to all learner participants who had attended classes of PBL implementation and agreed to be involved in the study, the aim of administrating the learner's questionnaire to help the learners understand and complete the questionnaires in their own way, their perceptions of learning through a PBL approach. The learner's questionnaire consisted of 12 questions, it included both multi-choice and open-ended questions which focused on exploring how and what the learners learnt through a PBL approach, by give multiple choices. In order to make learners more comfortable to answer the questions that designed especially according to the learners competences.

### 2.7.2 Teachers 'Questionnaire

This questionnaire aims to investigating how teachers deal with Problem-Based Learning approach in learning, and its effect on learners' in classroom. It is According to Burns (2000), in educational research, the survey, a descriptive method, is often used to collect data. Data is often collected by means of a questionnaire, where a set of pre-determined questions are asked. To conduct this study, a teacher questionnaire survey is prepared. This questionnaire was constructed and administered to all (10) ten teacher participants who agreed to be participant in the study, the teachers questionnaire was designed to provide the teachers with opportunities as well as encourage them to freely state their perspectives on the implementation of a PBL approach. The teacher's questionnaire consisted of 10 questions. It included both multi-choice questions which aimed to explore some information related to teachers' individual teaching profession such as qualifications or years of teaching experience and open-ended questions which focused on how the teachers implemented a PBL approach in their classes.

## 2.8 Conclusion

Throughout this chapter, we have presented the research methodology that has been tackled, in order to collect sufficient, reliable and credible data. The focus is on the methodology fallowed to explore our research objectives, among the target population concerning the crucial role of Problem-Based Learning approach to enhance the learning process by designing relevant questionnaire for teachers and their learners.

# Chapter Three

## Data Analysis and Results

### 3.1. Introduction

In the previous chapter we have presented the methodology that we have followed in our research, which tackled the full descriptions of the research tool and its administration. In this chapter, we attempt to analyze and interpret the general data collected; the data presented in statistics forms. This research aims to investigate the role of teachers and learners in order to enhance and develop the learning process, among the analyses of teacher's and learner's Questionnaire and the observation obtained to reach the expected results.

### 3.2. The analysis of Teachers' Questionnaire

**Question 1:** Name of the school you are working for:

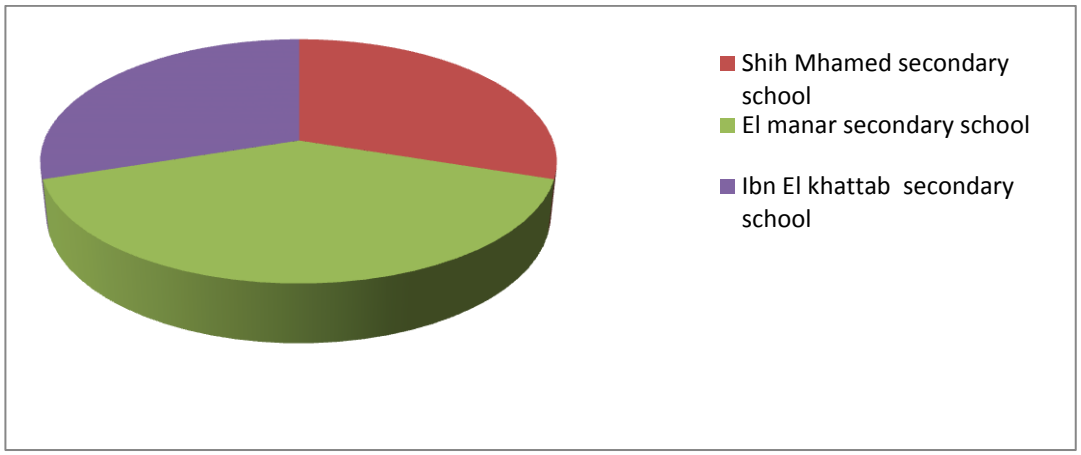


**Figure 3.1: secondary schools under investigation**

The table above shows the number of teachers in each school is approximately the same. our study focuses on these population in order to find the relevant results about the topic from ten (10) teachers as a sample, three (3) teachers from Shih Mhamed secondary school represents 30%, four (4) teachers from El manar secondary school represents 40%, and three (3) teachers from Ibn El khattab secondary school that represents 30%.

**Question 2:** How many years have you been teaching?

| Years | Number of teachers | Percentages |
|---|---|---|
| Less than 5years | 3 | 30% |
| 5-10 years | 5 | 50% |
| 11-20 years | 1 | 10% |
| More than 20years | 1 | 10% |

**Table1: Teachers' experience**

The statistics in the table above show that the majority of teachers experience is from 5-10 years its equal 50%, and three (3) teachers are novice teachers represent 30%, whereas, more experienced teachers over twenty (20) years are the minority that represents 20%.

**Question 3:** What is your qualification level?

The data collected indicated the qualifications of the teachers. The majority (70%) of secondary schools teachers have Master degree, while some of them have License degree that represents 30%.

**Question 4:** In how many teaching sessions have you integrated problem-based learning?

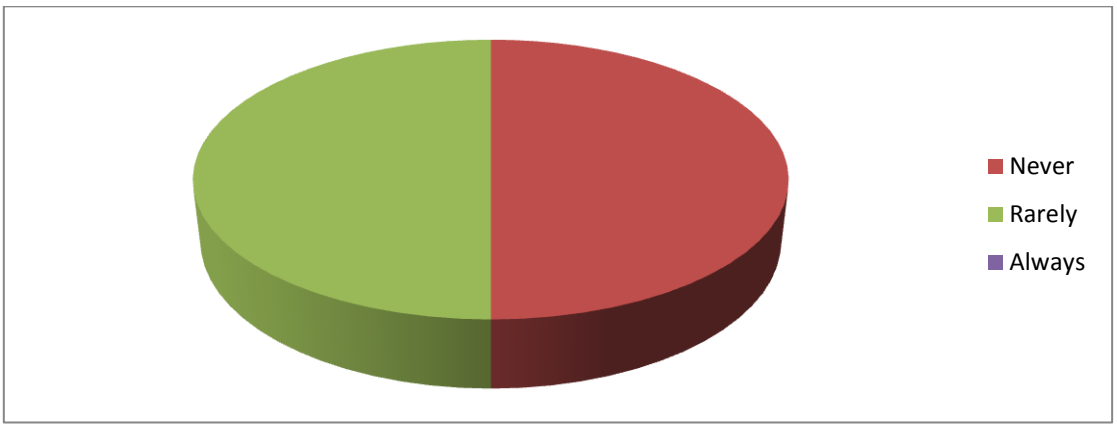


**Figure3.2: frequency of PBL sessions**

The data collected in the table above reveals that the problem-based learning approach is rarely or never used by teachers in daily lessons, the statistics show that 50% rarely depend on (PBL) and 50% never use it in teaching and no one use it on a daily basis.

**Question 5:** In which level are you implementing a PBL approach in teaching?

| Level | Number of teachers | Percentages |
|---|---|---|
| 1st year | 1 | 10% |
| 2nd year | 3 | 30% |
| 3rd year | 6 | 60% |

**Table2: PBL implementation level.**

The table above shows that the big part used is the 3rd year class that they are the most experienced with 60%,the 2nd year learners are less experienced than 3rd year, whereas, just 10% integrated the (PBL) with the 1st year class.

**Question 6:** which stream you work with before the implementation of the PBL approach?

The result of the question shows the teachers favorable stream to imply the PBL approach, it indicates that the majority of teachers prefer foreign languages stream not the economic or mathematical stream.

**Question 7:** How did you group your pupils in PBL class?

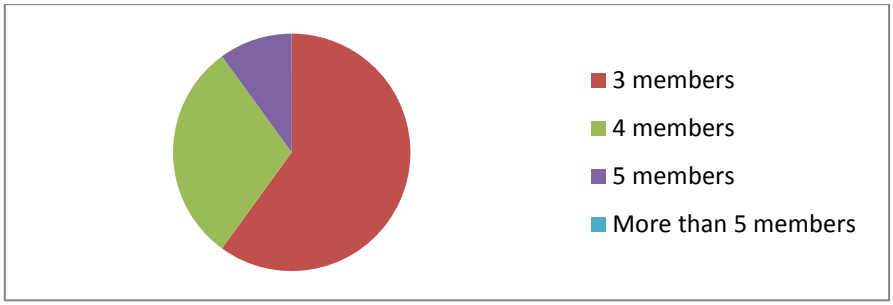


**Figure 3.3: PBL class grouping**

The pie-chart above presents the number of learners in one group, the results show that the majority of teachers prefer three (3) members in each group this represents 60% of whole number, 30% reveals that they use four (4) members in each group, just one teacher organize the groups by 5 members, no teacher arranges groups by more than five (5) members.

**Question 8:** Explain how do you facilitate lectures during (PBL) class?

The data collected by this particular question confirms that 80% of teachers adopt a direct way in the explanation of the lessons because the majority of learners cannot understand the implicit tasks, whereas, 20% try to use indirect explanation that is appropriate with the more advanced learners in order to be a critical thinkers.

**Question 9:** Is there any difference between the PBL approach and other methods?

The data collected by this question suggest that there is a big difference between Problem-Based Learning approach and other methods, one hundred percent (100%) of teachers confirm that the Problem-Based Learning approach is differ from other learning methods.

**Question 10:** do you prefer (PBL) approach than other traditional methods?

Answers to this question reports that that (50%) of teachers prefer the Problem-Based Learning approach than other methods, whereas, 50% of teachers do not give much importance the Problem-Based Learning approach in their learning process.

### 2.2. The analyses of Pupils' Questionnaire

**Question 1:** Name of the school you are studying at:

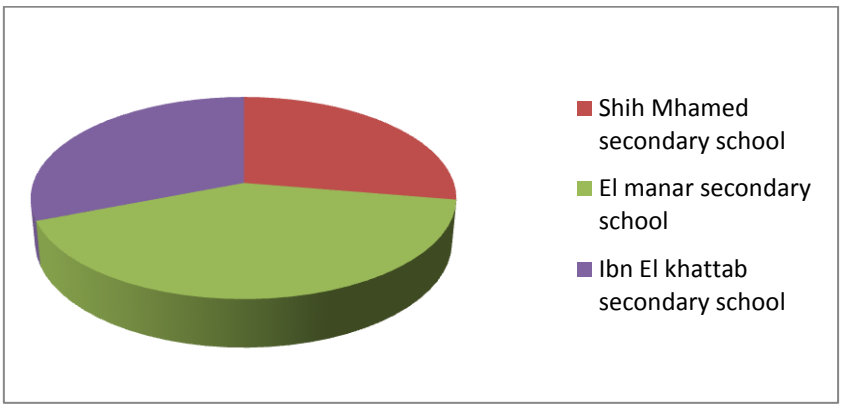


**Figure 3.4: distribution of learners' participant schools**

The pie-chart presents the number of learners in each school, first, El manar secondary school by sixty three (63) learners represents 41.44%, second, Ibn El khattab secondary school is in the second place by, in the third place Shih Mhamed secondary school by (42) participant learners represents 27.63% of the global learners.

**Question 2:** gender

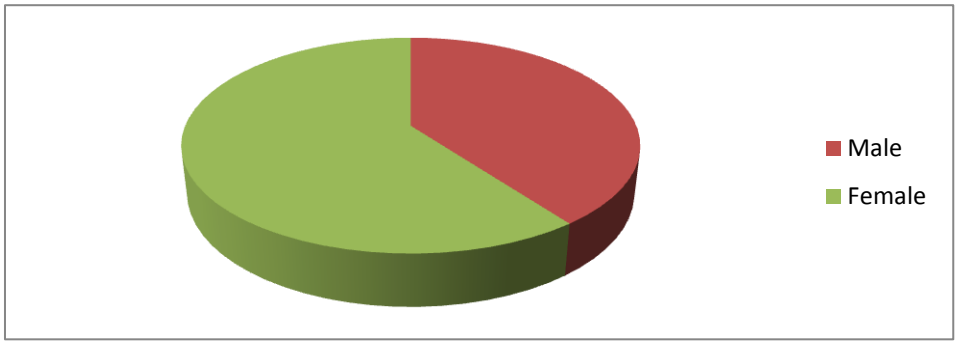


**Figure 3.5: description of gender**

The data collected in question N° 3the determine the gender of the research population. The female learners are numerous than male learners.

**Question 3:** stream

Question N°3 reports that the favorable stream to employ the PBL approach is in totality of foreign languages stream learners, which represents by 100%, other streams like economic or mathematical ones are not concerned.

**Question 4:** What year level are you studying?

The data collected report that the problem-based learning approach is used just with the more experienced learners, the third year represents as the majority by 71.59%, while second year represents only 28.41%, and there was no first year participant.

**Question 5:** Are you familiar with problem-based learning approach (PBL)?

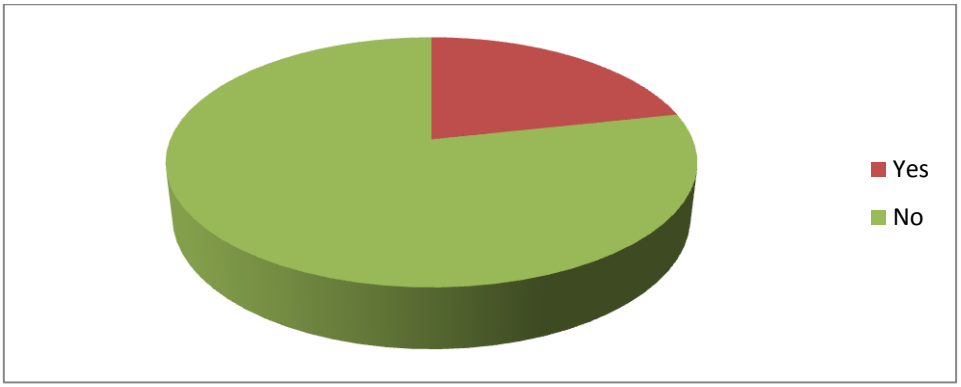


**Figure 3.6: familiarity with PBL learning approach.**

The data collected in question N°5, it determine that the majority of learners have no idea about problem-based learning approach (PBL), this represents 78.41%, whereas a minority have vague idea about problem-based learning approach (PBL).

**Question 6:** Have you ever been taught under a problem-based learning approach (PBL)?

The statistics of the question N°6 show that the majority (69.41%) of learners have not been taught by teachers using problem-based learning approach (PBL). However a minority had little knowledge of this learning approach.

**Question 7:** Have you been prepared for PBL class?

In question N°7, the data collected reported that the majority of learners were prepared for problem-based learning approach (PBL) in class, whereas the minority was prepared for problem-based learning approach in class nearby 20%.

**Question 8:** How have your groups been organized in PBL class?

**Table8: group members' organization.**

When asked about their groups organization learners' answer indicated that in majority they prefer three members in each group which represents half of them that represents 50%, four 4

members become second with 37.5%, third 19 learners prefer to be grouped by 5 members in each group that represents 12.5%, no one prefer to be grouped y more than 5 members in each group.

**Question 9:** are there adequate resources available for problem-based learning approach?

The statistics indicate that the majority of learners do not find available resources about problem-based learning approach (PBL), that represents 82.96%, only a minority has some limited resources about problem-based learning approach (PBL).

**Question 10:** How was the teacher's assessment in group-work?

| Options | Number of learners | Percentages |
|---|---|---|
| Good | 19 | 21,60% |
| Average | 60 | 68,18% |
| Bad | 9 | 10,22% |

**Table10: teachers' assessment among (PBL).**

The table above shows that a great number of learners have the average by the group assessment in (PBL) approach that represents 68,18%, whereas, the good assessment represents 21,60 %, and the bad assessment represents10,22%.

**Question 11:** Please compare your learning through the process of a PBL approach with other methods?

| Options | Number of learners | Percentages |
|---|---|---|
| Easy | 16 | 18,18% |
| Adequate | 23 | 26,14% |
| Difficult | 49 | 55,68% |

**Table11: compare (PBL) approach with other methods?**

More than half of the participant found that the problem-based learning approach (PBL) is more difficult than other methods because it pushes learners to do more critical efforts to understand the task in deferent way, whereas a quarter of them see that is adequate for learning, and less than 20% considered that (PBL) approach is easy to be used.

**Question 12:** Have you acquired any skills through the PBL approach?

Question N°12 revealed that the majority 82,95% of learners did not acquire any skills during the implementation of problem-based learning approach (PBL) in class, the minority said that they benefited from problem-based learning approach (PBL) class , remaining minority are less than 20%.

### 2.3. The Results of Teachers' and Learners' Questionnaire

After analyzing teachers and learners questionnaire, we found that the majority of teachers prefer to apply problem-based learning approach (PBL) with foreign languages stream because they are able to work with it and it can be effective in lectures, thus they give more importance to foreign languages stream more than other streams, as they are specialized in the field, whereas, the data collected from the teachers questionnaire show that the more experienced teachers give more importance to autonomous learning, critical thinking and problem solving by using their minds, and also to encourage learners to collaborate and work in groups in order to interact with each other positively.

### 2.4 Discussion of the Results

Based on the obtained results, problem-based learning approach (PBL) is very important in classroom learning environment. It helps both teachers and learners in their learning, the area that need improvement and it has a great effect on the learners' motivation. But it need to be known in the educational system because, problem-based learning approach (PBL) is not well-known in our educational system, therefore we need to make it more known by making conferences and open debate, to make people aware of it, and integrate in our daily learning, because it has more positive impact, if we prepare an adequate atmosphere in classroom, and limit the numbers of learners in a single PBL will be given enough time to be implemented.

### 2.5. Recommendations

Based on this research we analyzed and interpreted the findings of this research to provide some suggestions for teachers and learners about helpful aspects of effective learning, so the following suggestions are for teachers and learners.

**Recommendations for Teachers:**

- Teachers should provide learners with different tasks that need to organize work in groups in order to push pupils to be collaborative learners.

-Teachers should group learners in mixed ability learners enable them to interact with each other.

-Teachers must avoid subjective assessment and using rude word in case of wrong answers.

-Teachers should encourage their learners to make efforts inside classroom by participation and outside by making research

**Recommendations for Learners:**

-Learners should work in groups ad help themselves in the classroom and outside it.

-Learners should make efforts not to depend only on the teachers' explanation in the classroom.

-Learners should focus on the teachers' explanation while lectures attending and identify mistakes.

-Learners should have collaborative spirit in order to help struggling learners.

-Learners should be active and look for extra resources in order to enhance their knowledge.

### 2.6. Conclusion

From the data collected and its analyses, we can say that the problem-based learning approach can help both teachers and learners in order to enhance their diverse individual needs. Learning will be improved if a teacher has an understanding of the learning methods and knows how to incorporate his experience into the learning processes and also how to design effective learning problems. Attracting learners' interests is important. The facilitator should consider learners' background and build on this through scaffolding learning. The problem-based learning approach is very useful if it is more spread and adopted in our educational system.

## General Conclusion

The implementation of Problem-Based Learning approach used in the educational system, especially in English learning in which it is considered as an important topic that many researchers have dealt with. Thus, nobody would deny its role as part of the classroom assessment for extending the learners 'learning. Our learners in foreign languages stream used to strive to develop their language proficiency. They needed to be supervised by their teachers during the whole sessions. In this prospect, the implementation of PBL approach, teachers are more aware of their choice of techniques to help learners enhance their learning .The feedback is among these techniques that can be used in the classroom. It helps to provide the learners with more understanding for a better performance and enable them to realize their strength and weaknesses by working in groups and shape the target questions about the given issue to deal with. In the PBL approach the role of teachers becomes guiding, and facilitating the tasks with more freedom to learners to act and interact in the lectures. Furthermore, they should be aware that the good strategy depends on the leaner's characteristics, the given work and the way it has provided.

Throughout our research, we have investigated the crucial role of teachers and learners as the major dichotomy in implying the PBL approach. In chapter one, we dealt with the definition, the origins, and theories of teaching and learning, the elements and features of the PBL approach, then indicated what scholars stated about the role of teachers and learners in PBL approach, collecting the most important articles about the topic that constituted literature review. The second chapter dealt with the methodology that followed to conduct the implementation of the method and involving the sample population, the location, timing of the work, the tools that used by teachers for learners questionnaire in order to reach our objectives in research. In the third chapter, we dealt with the data analyses; the analysis of teachers' questionnaire and the analysis of learners' questionnaire, discussed the results obtained, and indicated some suggestions and recommendations.

To conclude, the majority of learners enjoy working in groups and open positive debates, they have the desire to learn more about that language because they became more motivated and encouraged by their teachers. Additionally, they consider their teachers orientations and the correction of their mistakes in the classroom as a great opportunity to improve their language proficiency as well as a good technique that motivate them for better achievements. Consequently, they confirm the powerful role of the implementation of

Problem-Based Learning approach in classes. So, it is very important for teachers to provide their learners with new learning methods such as the PBL approach. It should be constructive, positive, adequate and level appropriate to make sure that it will help learners to improve and develop their learning skills.

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**Appendix A**

## Teachers' Questionnaire

**Dear Teacher**

This questionnaire is designed to gather information on the implementation of a problem-based learning approach. Your insights and comments are important for the fullfilment of the study. Your answers will be kept confident and anonymous.

1. Name of the school you are working for: ……

2. How many years have you been teaching?

Less than 5 years □

5-10 years □

11-20 years □

More than 20 years □

3. What is your qualification level?

License □ Masters □ Doctorate □

4. In how many sessions have you integrated problem-based learning in teaching?

……..

5. In which level are you implementing a PBL approach in teaching?

First year □

Second year □

Third year □

6. Which stream you work with in the implementation of PBL approach?

Foreign languages □ economic□ mathematical□

7. How did you group your pupils in PBL class?

Three members □

Four members □

Five members □

More than five □

8. Explain how you facilitated your pupils learning during your PBL class?

Direct □

Indirect □

9. Is there any differences between the PBL approache with other methods?

Yes □ No □

10. Do you prefer PBL approach than other methods?

Yes □ No □

**Appendix B**

## Pupil's Questionnaire

**Dear learners**

This questionnaire aims at gathering secondary school pupils' perceptions in learning through a problem-based learning approach. Your responses would be appreciated and I would be grateful if answered these questions honestly.

Name of the school you are studying at:

1. Age

2. Gender

Male □

Female □

3. Stream

Foreign languages □

Economic □

Mathematical □

4. What year level are you studying?

First year □ Second year □ Third year □

5. Are you familiar with problem-based learning approach(PBL)?

Yes □ No □

6. Have you ever been taught under a problem-based learning approach (PBL)?

Yes □ No □

7. Have you been prepared for your PBL class?

Yes □ No □

8. How have yourgroups been organized in PBL class?

Three members □ Four members □

Five members □ More than five □

9. Are there adequate resources available for your investigations?

Yes □ No □

10. How was the teacher's assessmentin your group-work?

Good □ average □ bad □

11. Please compare your learning through the process of a PBL approach with other methods?

Simple □ adequate □ difficult □

12. Have you acquired any skills through the PBL approach?

Yes □ No □