

PROJECT-BASED LEARNING: IMPLEMENTATION & CHALLENGES

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Abstract: *This study is an attempt to investigate the possibility of applying PBL in some Bahraini Primary Schools. It also aimed to explore the challenges that might occur during the application of PBL in actual classroom situation. Both questionnaire and semi-structured interviews were employed in gathering the data. A total of 24 pre-service teachers in 8 schools took part in this study during the academic year 2016/2017. The findings of the study revealed that more than 3/4 of the participants were unable to implement PBL with their students. The various challenges they encountered were also identified. These included choosing a significant content, time management, monitoring and assessment, and lack of facilities. Finally, based on the results, some suggestions and recommendations that could help teachers, schools and decision makers in implementing PBL were offered.*

KEYWORDS: Project Based Learning, Pre-Service Teachers, Teaching Practice 4.

INTRODUCTION

Teaching Project Work in Primary Schools (PBL) is one of the courses taught for Bachelor of Education Program (B.ED) students at the Bahrain Teachers College (BTC), Bahrain University. It aims to help candidate teachers to acquire the necessary skills of using PBL with young learners in Bahraini primary schools. The educational focal point is on ways that instructors can enhance learners' dependability in all phases of conducting the project so that they become dependent on themselves and emphasize learner centered instruction.

According to the Ministry of Education in Bahrain, students should be prepared to enter a knowledge based economy by helping them to acquire the 21st century skills. To fulfill this goal, Singapore has been chosen as a model for the reformation of the educational system in the K12 public schools in Bahrain. Project based learning was also adopted as a method of instruction "because it is more similar to the globalized working environment than traditional lecture driven instruction" (Wilkinson, 2014).

In this course, students receive comprehensive theoretical background information about PBL and then they start implementing it in microteaching sessions in teaching different subjects as: English, Arabic, Science and Math for their classmates at the BTC. During the application of PBL, they displayed great abilities and confidence, but they still uncertain whether or not will be able to apply it in real classroom situation during their teaching practice, and what challenges they might encounter?

During the supervision of fourth year students in their teaching practice (TP4), it has been noticed that just few of them who used project based learning in classrooms. This was the key motive for me to investigate the problem in order to find out the challenges that hinder the application of PBL. Therefore, this study aims to examine the possibility of applying PBL in Bahraini schools, and to explore the challenges if there are any. It also aims to provide some

suggestions based on the findings of the study that might facilitate the implementation of PBL. However, the following research questions are designed to direct the study.

Research Questions

1. To what extent PBL can be implemented in the Bahraini Primary Schools?
2. What challenges do pre-service teachers encounter when implementing PBL?
3. What are the suggestions that could facilitate the implementation of PBL if any challenges were occurred?

Significance of the study

Although the sample of the study is relatively small, the researcher expects that this study will provide useful information about the possibility of applying PBL in some primary schools in Bahrain and the challenges that might occur. It is also hoped that instructors of method courses at the BTC can use such information in preparing materials and tasks in advance to minimize the influence of those challenges. In addition, this information could be valuable for decision makers to direct their attention to the importance of carrying out an environmental analysis before adopting new teaching methods or curriculum. However, the results of the study could help in:

- reconsidering how PBL should be taught at the BTC.
- designing and conducting in-service training sessions for teachers.
- addressing the challenges in order to minimize their negative impact.

LITERATURE REVIEW

Project Based Learning (PBL) is a student centered teaching method based on constructivism and constructionism theories developed by Gergen, (1995); Piaget and Inhelder (1969); Vygotsky, (1978). A review of literature shows that PBL has increasingly been trialled and adopted across a diversity of educational institutions worldwide (Pereira, et al, 2017) and (Willkson, 2014). The main purpose behind developing this method is to create effective learning opportunities where learners can work collaboratively in groups to answer a driving question, solve a problem, or tackle a challenge with an aim of creating an end product (Bell, 2010). PBL is not limited to providing students with content knowledge, but further develops their psychomotor and social skills, such as searching for information from different resources, critical thinking, problem solving, self evaluation, summarizing and giving presentations which are highly recommended for long life learning. In other words, "It educates the whole child rather than focusing on one aspect of learning" (Phillips, et al. 1999)

Consequently, more emphasis is currently placed upon the implementation of PBL in classroom as stated by Thomas (2010:2) who described PBL as an effective method of teaching that can be used in various "contexts, including racially groups and low achievers". Unlike traditional methods of teaching where teachers are considered the main source of information and dominate most of talk time in class (Aldabbus, 2008), PBL provides valuable opportunities for students to be engaged individually and in groups in formulating the enquiry

questions, setting goals and planning for the process of conducting and designing the project (Markham (2003:4). This shows the role of the teachers who are seen as facilitators and advisers, provide students with adequate guidance and feedback. They give students more room to choose the way they approach the task which motivates students to be more independent. Besides that, students have to work together in groups, distributing roles, helping and supporting each other, searching for information, sharing experience, designing activities, and reflect on the knowledge and social skills which are essential for lifelong learning. Bell, (2010) summarized the remarkable advantages of PBL as it motivates students to be fully engaged in the process of learning and gives them a feeling of satisfaction. They also observed that PBL encourages students to collaborate with each other in solving problems; it promotes self-learning as students become more responsible in their learning; and as PBL involves a range of activities, it meets various learning needs and interests of learners. PBL is sparkling method of teaching through which students can discover the challenges and problems in the world around them. The responsibility of learning is transferred from teacher to students” (Grant, 2011).). According to Gubacs, (2004) learners have the chance to self assess their own end products, they can also evaluate their classmate’s projects and give constructive feedback to each other. This would help them to become aware of their own strengths to be enhanced and weaknesses to be eradicated.

What makes projects based on PBL different from the regular projects that students usually carry out at the end of the term or academic year is that the projects do not end up in a predefined results or take restricted paths decided in advance by the instructor. Projects based on PBL create more freedom for students, so they can select the suitable topic, resources to be consulted, distributing responsibilities among group members and the way they design and display their final products (Marwan, 2015). In a study conducted by (Thomas, 2000) indicated that students who learn by PBL are able to develop better social interactions and are more punctual in terms of attendance. This behavior has positive impact of students learning. Similarly, Edelson, et al (1999) argued that the way students conduct the project, the material to be used and roles of participants the way they design the end product foster their intellectual powers throughout problem solving skills, thinking and reflecting on the various stages of the project.

According to Thomas (2000), it has been observed that only few teachers who experienced some serious difficulties in implementing PBL in their own classrooms. However, this method, as any other method of teaching, has some drawbacks as illustrated by Habok and Nagy (2016:3) who argued that PBL is a “highly time consuming activity and requires great attention to detail”. In addition, students who lack the skills of working in groups may face some challenges in working collaboratively (Johnson & Johnson 1989). Likewise, Ladewski, et al., (1991) indicated that “the implementation of PBL can conflict with deep-seated beliefs on the part of a teacher”. That is, some teachers resist any suggested shift from the methods of teaching they use to apply with their students to more advanced methods as PBL. Other challenging issues reported by Marx et al. (1997) stated that projects usually take more time than expected. They added that some teachers find it difficult to monitor and scaffold students' activities, as they either give them too much freedom or too little modelling. Some students were unable to come up with effective driving questions, keep up motivated and actively engage in the process of conducting the project till the end. They also noted that some students were sometimes not able to access the technology necessary to search for information.

However, Harmer and Stokes (2014) suggested that, in certain cases, PBL can be used as a supplementary method of instruction if teachers think that consistent use of PBL may affect the accomplishment of the learning goals. Besides that, PBL is demanding in terms of planning and preparation, facilities, student discipline and monitoring and evaluating students. Therefore, “teachers should reconsider the potential benefits that project work may cover with the potential problems that are associated with them” (Heines, 1989).

Implementation of PBL

PBL typically involves the following steps: significant content should be carefully chosen to meet the learners’ needs and attract their attention. Then the topic should be introduced in an interesting way such as activating students’ prior knowledge through short discussion, eliciting questions, displaying a video or a trip. The main purpose of this stage is to stimulate students and encourage their eagerness to know more about the topic. After introducing and discussing the topic, students are encouraged to come up with a driving question to help them stay focused on the area of the project and to give them a purpose behind conducting the project. The question should be challenging, open ended and directly related to the core of the project. However, different groups might have different driving questions.

It is very important to make the project meaningful by giving students enough freedom for their voice and choice about how to carry out the project. They should be encouraged to use their ideas in designing the project, what materials to be used, and sources of information and how to present the end product. This room would help them to be more creative and independent learners. During the process of conducting the project, teachers should make sure that learners have sufficient time and opportunities to practice skills such as effective communication, using technology, critical thinking and problem solving which all are important for 21st century job market.

After answering the main driving question, learners have to share with each other the gathered information to be evaluated and summarized, then more sub questions can be generated by students for more detailed information. Feedback and revision is another important element of project based learning. The teacher along with peers work together to provide constructive feedback to each other. Students usually learn from the process of conducting the project through which they revise and modify their work according to the feedback received from their teacher and peers. Presenting the end product to a public audience like students and teachers of other classes, parents, community members and friends is considered the main motive for students to work hard and feel proud of what they have done. So students should be encouraged as much as possible to display their projects and talk about them to other people and answer their questions.

METHODOLOGY

The main purpose of this study is to investigate the applicability of PBL in some Bahraini primary schools, and exploring the challenges that might exist during the application of this method. Therefore, a case study approach design was chosen to carry out this research. Two data collection tools were applied in gathering the required data: a questionnaire and semi-structured interview. The questionnaire has been administered along with the instructions to 24 pre-service teachers in 8 primary schools in different parts of Kingdom of Bahrain at the beginning of their teaching practice four (TP4) . The aim of the questionnaire is to see, from

pre-service teachers' perception and teaching practice experience, whether or not the project based learning method can be implemented in Bahraini primary schools? And to see if there were any challenges that might be encountered during the process of the implementation. Whereas, the interview aims to seek more information and clarifications based on the responses of the participants in the questionnaire.

Participants and context

24 pre-service teachers studying in year four at Bahrain Teachers College during the academic year 2016/2017, final semester took part in this study. The participants were selected randomly from different majors (Arabic and Islamic studies, Math & science and English). They had almost the same background. That is, they received equal training program, and took similar content and method courses. Pre-service teachers were distributed by the Ministry of Education on 8 different schools for teaching practice which lasted for one complete semester. During their teaching practice they had to teach full lessons based on a teaching schedule prepared by the schools.

Data Analysis and discussion

Adopting PBL as a method of teaching in Bahraini Primary Schools is considered a big shift from traditional to advanced methods of teaching. As a result, various challenges are expected to exist during the implementation of PBL. This section presented and analyzed the data derived from the questionnaire and semi-structured interviews. The data are classified by theme and then organized into various categories, as follows:

Challenges related to teachers: The findings of the study indicated that only 7 out of 24 pre-service teachers were able to implement PBL during their TP4 which lasted for whole semester because of the following reasons. First, they could not easily decide which topic or unit in the text book to be taught by PBL. This challenge could be due to the fact that the curriculum has not been designed to be taught by PBL. Therefore, this was left to teachers to decide. Another striking difficulty faced by the participants was implementing PBL within the school schedule, because they had to complete certain topics in certain time as planned by the MOE. Using PBL often takes more time than other methods of teaching which may delay the processes of presenting and covering the lessons scheduled by MOE. This is in line with what has been stated by Dahlgren et al. (1998), that many teachers assume that PBL is time consuming and they were unable "to cover as much material as a traditional lecture-based style".

Another major obstacle showed by this study was that some pre-service teachers were reluctant and not confident enough to apply PBL because they had a preconceived belief that if they applied PBL students would create too much noise in classroom, as a result they would not be able to make them calm and regain their attention easily. Besides that, giving support to 30 -36 students and monitoring their progress during the process of the project was hard. Focusing on all elements of PBL was found to be problematic as well by some pre-service teachers. The findings also demonstrated that participants were not confident to apply PBL because they were not sure whether to assess the process of conducting the project or the end product. This could be due to the lack of experience.

Challenges related to students: The results of the study revealed that some students dominated the work and did not allow their classmates in the group to take active role in the project, whereas others wanted to direct the project according to their interests specially high achievers. As a result, those who did not get the opportunity to participate became upset and

unwilling to continue working with the same group. This issue maybe because of the little exposure and training that students received on the skills of collaborative work before conducting the project, or the group working rules were not effective. However, ‘teachers are able to set students up for success by helping them build a solid foundation for these skills through the use of scaffolds’ (Hmelo-Silver & Barrows, 2006 p. 24).

Furthermore, using technology is one of the essential components of PBL, but the findings showed that some students don not have their own devices or maybe they did not have access to technology which obstructed them from searching for information to be shared with their classmates in the group. Another issue revealed by the study was that some students worked very fast focusing on finishing the project rather than learning from the process of carrying out the project. This could be attributed to the common fact that students were still exam oriented and interested in gaining high marks rather than acquiring skills.

Challenges related to curriculum: The curriculum is artificial and not based upon something authentic. Therefore, pre-service teachers found it difficult to adjust it to be taught in meaningful projects. Some of them used it as a normal project or as a task based learning neglecting the elements of PBL. As it has been mentioned earlier, the curriculum was not designed to be taught by PBL. Therefore, teachers should strive to find out how the content of the lesson modified and contextualized so that it can be taught by PBL while preserving the objectives of the lesson. However, this is a common problem and often happens especially when the emphasis is placed upon the end product rather than the process of conducting the project “The true focus of PBL is encouraging students to engage in inquiry, explore real-world contexts, and share their learning with others” (Holland, 2015).

Challenges related to schools: The findings illustrated that schools don’t offer the necessary materials and facilities required for projects. This could be due to the lack of financial resources devoted for such projects. Different projects need different materials and facilities to be conducted and if the schools do not have sufficient budget, it would be hard for teachers to apply PBL. Another striking finding related to schools was that some school administrations preferred simpler methods of teaching to avoid noise, spending money and adhering to the teaching plan provided by MOE. Either they did not welcome any shift or they put obstacles in the path of teachers so they did not use unfamiliar methods of teaching. However, school factors were the major barrier as reported by many researchers such as: Blumenfeld, et al. (1994) and Pereira, et al (2017). These factors include insufficient resources, inflexible schedules, and lack of technology. In addition, a number of students and district curricular policy are serious limitations that obstruct the implementation of PBL.

Challenges related to parents: School – Parents’ collaboration may help greatly in the success of the educational process. This relationship did not exist, and there was not as effective communication between teachers and parents as it should be. Consequently, it has been observed that some parents underestimated the value of PBL, and were not keen to offer the necessary materials for their kids to do the project. On the other hand, some parents did the project for their children instead of just helping them to search for the information or provide them with the necessary materials and facilities that enabled them to conduct the project. This was maybe because parents were not aware of the importance of project based learning.

CONCLUSION

This study sought to investigate the possibility of applying PBL in some Bahraini Primary Schools and to see if there were any challenges existing during the implementation. Analysis of the data revealed that less than one third of the participants were able to apply PBL whereas the rest failed to do so because of the following reasons: some of them were reluctant and not confident enough to use PBL. Most pre-service teachers found it difficult to manage their classroom time appropriately because projects took more than the expected time. Additionally, the context where PBL was implemented played a fundamental role in hindering the process of using PBL effectively. Designing valid and reliable assessment tools that require students to demonstrate their understanding was another striking difficulty. There is an evidence demonstrated by this study that PBL was challenging for students as well. It showed that students lacked the necessary skills of collaborative work. As a result, some students dominated the work and imposed their ideas on their classmates. The study indicated that some schools did not offer the required facilities and were not ready to shift to PBL because of various constraints such as time, noise and lack of financial support. Lastly, the findings of this study offered good opportunity for the researcher to come up with some valuable suggestions that could help in facilitating the process of applying PBL based learning, as illustrated below.

SUGGESTIONS & RECOMMENDATIONS

The following suggestions and recommendations are made to help teachers , schools and decision makers implement PBL as it has proven to be an effective method of teaching.

- The culture of using PBL should be spread among schools throughout workshops, seminars and training sessions.
- Teachers should receive in-service training on how to apply PBL.
- Parents should be familiarized with the importance of PBL.
- PBL should be taught along with problem based learning, inquiry based learning and task based learning.
- Curriculum should be authentic and originally designed to be taught by PBL.
- Special budget for projects should be offered by schools.
- Display area where distinctive projects can be displayed to motivate other students should be made available to students.
- Rewards for best projects should provided.
- Collaboration among teachers within the same school should be encouraged.
- PBL should be used across the curriculum.
- There should be an application of different effective assessment tools that assess the process and the end product.

- Taking into account the Bahraini school environment in the case of adopting a new method of teaching.

Recommendations

- The sample size that took part in this study was relatively small. Hence, a bigger sample is recommended.
- Further research to explore the effectiveness of PBL in teaching the 21st century skills is suggested.

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