

BENEFIT AND CHALLENGES OF PROJECT-BASED LEARNING

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ABSTRACT

Project based learning has become a popular practice in Malaysian education from pre-school until the higher learning institutions. However, there are still much to be researched about this learning technique in Malaysian education scenario; especially at higher learning institutions. At the higher learning institutions, this learning technique is commonly adapted for co-curriculum subjects. Co-curriculum subjects may differ from one institution to another; and as such, so are the practice and management of such subjects. Naturally in such diverse environment that deals with relatively matured students, issues pertaining to what constitutes as quality and successful project-based learning are of great importance. This paper aims to discuss the benefits as well as challenges in implementing project-based learning in private higher learning education; in specific from the experience of UNITAR International University in conducting co-curriculum courses for more than 7 years.

Keywords: Project based learning¹; co-curriculum²; challenges and benefits of project based learning³

1. INTRODUCTION

As the world changes with the turn of an era of emerging technologies and globalization- so does the direction of learning process. Today, what is defined as quality students are students that possess not only knowledge but more importantly are also real-life skills. Higher learning institutions are driven to produce graduates that possess the correct skills that match the current demand of the industrial culture. Project-based learning (PjBL) is a complete pedagogical approach which engages students in an organized and cooperative manner to investigate and resolve certain problem. (Musa, Mufti, Clarkson, and Amin 2011). Students can no longer survive by memorizing textbooks, they now need to explore and experience genuine tasks that connects to the real-world; in which they can develop, master, and demonstrate authentic skills. This is when project-based learning is valuable to allow students to learn by engaging in real-life projects.

Project-based learning (from here onwards referred as PjBL) is an alternative learning technique that is different from the conventional 'pencil-and-paper' (or exam-based) learning. In a PjBL course, students are given a problem statement and in order to find the solutions, students engaged in a project. Projects normally last

throughout the semester (or longer depending on the policy of the institution). Students will be assessed based on their performance throughout the projects as well as the outcome of the projects. This approach differs in certain aspects from conventional learning. In normal conventional classes, students normally learned based on what the lecturers delivered in class and majority of the assessment would come from the final examinations.

2. OBJECTIVE OF STUDY

The main purpose of this study is to analyze the students' perspectives based on their experiences in PjBL at private higher learning institutions. The underlying concept of this study is to compare PjBL with what has been termed as conventional learning in this paper. Conventional learning refers to the common learning styles in which students finished their lessons in the classroom and by the end of the course they will be assessed in written final examinations. Findings of this research are also subjected to the sample population, having differentiating factors from other institutions such as age, gender, previous learning experience, current learning environment and culture, management policy, and so on.

3. METHODOLOGY

Research was conducted at UNITAR International University; which have more than 7 years of experience in applying project-based strategy in its 2 credit-hour co-curriculum courses. On average, students registered for co-curriculum can amount to 400 within a semester. Because of the diverse nature of each co-curriculum course, the lecturers are mostly regular experienced course leader.

The sample population of this study consisted of 261 students. On average, the students are aged between 20 to 25 years, and came from different Diploma and Bachelor programs.

The approach of this study is both qualitative and quantitative. Two separate surveys were given to students and course leader respectively. The questions were designed to focus on students' preference in doing projects and course leader experiences in teaching PjBL course. The survey data was analyzed using software SPSS 23.0.

4. RESULTS AND DISCUSSION

4.1. Benefits of Project-Based Learning

The benefits of PjBL are indeed numerous, even though it is not so easy to be measured due to lack of research in the local higher learning institutions. However, surveys have proven that students voted their preferences to PjBL, and some of the probable reasons/benefits are identified as suitability for different learning preferences, learning by doing and development of new skills.

4.1. (a) Fit for All

Not one student is the same as other students, and hence different students simply learn differently. Learners' diversity is due to factors like level of intelligence, gender, psychology, physiology, socio-economic status, or even language proficiency. Therefore, logically pedagogy strategies should also be constructed diversely to give equal chance to different type of students to learn effectively.

Since 1970s, numerous writings and researches have been done on the benefits of PjBL as an alternative solution to diverse learning styles from all ages. One of the key

strength of PjBL is that it may be suitable for the type of learners who may not necessarily benefit from memorizing vast contents and their mastery of knowledge assessed through written examinations. In developed countries, PjBL has become a popular choice in teaching pre-school and primary students. For instance, students were not simply asked to read from science textbooks on how larvae turned into adult insects, instead they went on a field project to witness from Mother Nature itself. PjBL is also practiced for slow learners to develop basic day-to-day survival skills. Down syndrome children may not be able to read properly but they can learn on how to cross the street by bringing them to the roadside to wait for lights to turn green to cross.

Not just due to age or intelligence factor, this benefit may also be true for gender reason or learning preference, even at higher learning institutions. Male students have different learning preference when compared to female students. Some students prefer to be dependent on lecturers' instructions or can patiently sit down memorizing lines by lines of class notes, while some students tend to be more dependent and prefer to 'put up' actions. However, in a learning environment where students undertake projects, it may benefit both sexes and learning preferences. Even when students are engaged actively in 'outgoing' projects, they would still be required to develop certain pre-requisite skills to carry out the projects (which may be acquired from textbooks or class notes or even tested on quizzes, etc.). Students are not expected to be independent hundred percent and would still receive guidance from the lecturers.

4.1. (b) Learning by Doing

PjBL normally requires students to engage in tasks that reflect the real-life experiences. When students are given the opportunities to engage in real-life experiences, they understand better, then able to practically apply that understanding to a purpose, and would soon develop and apply even more new skills. As a result, based on what they have experienced, students are able to sustain what they have learned and applied better (as compared to the traditional learning styles of memorizing facts).

What is very significant to the students are the impact to their way of thinking and perhaps even their personality. PjBL involves elements of trustworthiness in which within a guided environment, the course leader trusted the students to experience and find the solutions on their own. This trustworthiness connects to feelings of being treated maturely. Furthermore, the experiences serve as eye-opener to the reality of life beyond campus and give opportunities to students to have a taste of real life in which they may not be able to experience from classroom learning.

For instance, students from community service course were engaged on a 2-days community service. The theories they have learned in class may be useful but the experience is priceless when they helped retarded children or homeless senior citizens. According to Dickson (2012), one strategy to facilitate teaching and learning is through transformation from traditional education to outcome based education (OBE). Therefore, one of the teaching method in OBE is PjBL (Md. Baharuddin et al. (2011).

From another interview with the course leader of event management course, the course leader revealed that some of his students were business administration or IT students. Eventually for their projects, they learned how to organize and manage event under limited budget. Consequently, some of them had discovered that they have hidden talents in managing different types of event, while some developed real interest in making event management as part-time source of income.

Study found that the consensus is that students have high preferences to Pjbl. Refer to the survey findings summarized in Table 4.1(B1) below. Finding no.1 shows that majority 78% of the respondents prefers to work in group compared to the 22% who prefers individual works. This claim is further strengthened by finding no. 2 that shows 90% of students like to do project rather sit for examinations.

Table 4.1(B1) : Students Preferences in Projects

No	Survey Questions	Summary of Findings (%)
1	Do you prefer to work in groups or individual tasks?	78% = Group 22%= Individual
2	Do you prefer to do project or sit for final exam?	90%=Project 10%=Final exam

4.1. (c) Development of Skills

Ideally, when course leaders designed projects for the students, Course leader must identify the objectives of the project as well as the learning outcomes. Learning outcomes would consist of knowledge and skills, as well as the application of both. Interestingly, whether by intention or not, students would most probably have developed a set of skills that may not be listed in the learning outcome in the first place. Given any nature or background, projects would normally have certain similar features. For instance, projects would require a deadline in which students should conclude and submit reports. Besides that, it is a common feature that projects are carried out in groups and a student will be elected as the leader. By common practice also, Course leaders would set a date for students to present their findings to the class.

Among the possible skills are: a) in order to meet up the deadline and avoid from marks being deducted, students will have to learn how to manage their tasks efficiently, such as delegating works as well as setting timeframe; b) not just to the group leader, all members in the group will acquire leadership skills as they have to practiced self-discipline in carrying out and completing their respective tasks; c) naturally, the group leader plays an important role in communicating and coordinating the team members. He or she learned about people management as well as negotiation skills; d) the group leader may also have learned about stress management when he/she is facing with testing moments like members who refused to cooperate to instructions or shortage of working budget; e) in a project, each member is tied down to the other member in which if one member does not fulfill his own task, it will affect the entire success of the project. There may be cases where a last-minute 'emergency' happened (such as member falling sick on the presentation day or the secretary's computer that keeps the only softcopy of the report cracked down). Based from the interview with the Course leaders, emergency tends to happen to at least one group within the class but rarely does any group declared that they are not able to complete the project. They would somehow find a way to submit within the deadline or negotiate with the Course leader to extend the deadline. What these students are experiencing is crisis management and that helps them to learn to be resourceful, resilient and surviving; f) when they should present in class, they learned public speaking skills; g) they also learn IT skills when they had to use software to create the presentation slides.

Having said all these, it can be clearly assumed that most of the above skills are developed only when students carry out projects in practical; while on the other hand

students may not get the same exposure if they are just confined to conventional learning in classrooms.

4.2 Challenges in Project-Based Learning

The challenges of PJBL touch on 3 cornerstones- the roles of course leaders, the role of students themselves, and most importantly the roles of institution or the administrator of the PJBL courses.

4.2. (a) Course leaders' Capabilities

No doubt course leaders play important roles in guiding the students towards successful projects. However, many have the misconception that teaching PJBL requires no difference than teaching conventional classes. In truth, A PJBL Course leader must be aware that as opposed to conventional learning that is 'teacher-centered', the role of lecturer in PJBL is more of a facilitator or mentor. Course leader is no longer expected to 'feed' students from beginning until the end of the course. 'Feeding' may only last while the course leader needs to equip students with the pre-requisite knowledge/skills. As for the rest of the way, course leader's roles are about guiding and encouraging the students to seek information by themselves. Md. Baharuddin et al., (2009) states that PjBL not only enhance cooperation among students but also between the student and the staff who are experienced and experts that are outside of the College. However, to fit into this role may become a challenge to the course leaders. Most course leaders teaching PjBL courses are experienced in teaching the typical conventional style prevailing in the local higher learning scenario. In fact, they are also the 'by-products' of conventional learning, having been trained in such environment from pre-school until tertiary level. Therefore, it is common for course leaders to 'slip back' into the roles of conventional lecturers even while teaching PjBL classes.

In most cases course leaders are not sufficiently trained or experienced enough in PJBL courses. This is reflected from Table 4.2(A1) below. Almost all the Course leaders claimed that they have limited experience in collaboration with larger industry.

Table 4.2(A1) : Course Leaders Experience

No	Feedback	Findings (%)
1	Yes, and applied it the assessment	10
2	No, never heard of it	90

One of the most important aspects of PjBL that differs significantly from conventional learning is the assessment methods. Under PJBL, students are greatly assessed for their performance, and the 3-key measurement of learning outcomes are: 1) how well do the students understand the content knowledge (such as the theories taught in class)? 2) how well have they mastered the acquired skills throughout the project?, 3) how well do they *apply* the content knowledge and skills that they have mastered in the project (i.e. habits of mind)? Course leaders need to create a balanced assessment plan that includes all 3 measurements. From Course leaders' experience, the most challenging to design is the third measurement that is to assess habits of mind. This may be due to the fact that course leaders hardly need to address this requirement in their experiences when designing for written examination. Such assessment method is normally designed to test the level of understanding,

application of subject matter, and practical mastery of skills; yet hardly on students' level of thinking attitude or impact to their personality. Definitely with course leaders lack of experience and skills, to design a balanced assessment plan for PjBL courses is not an easy task.

Consequently, when course leaders failed to design assessment properly, it may not reflect the true achievement of students' performance, neither can it assess the level of learning that has (or not) taken place, and eventually the result can be misleading in determining whether the overall project has achieved the objectives or not. PjBL emphasize the importance of using formative assessment in order to maximize students' learning potential, especially to promote critical thinking skills. (Trauth-Nare and Buck, 2011). An example taken from Community Services course reflected on how a student does not do very well in written quizzes (which the course leader set up to test level of understanding of the theories given in class). However, the student showed remarkable adeptness during the project when he is attached on a community work. Naturally one would assume in a community service course, assessment should focus on the acquired community skills rather than theory testing. However, what if the course leader gave more weightage to the quiz rather than project itself- the student will not be assessed fairly and it would look as if he has not done well in the subject.

4.2. (b) Students' Commitment

Despite the findings from section 4.1(a) that shows students' inclinations towards doing projects, findings also found the process may not necessarily be easy for many of them. It is interesting to find students' answers to an open-ended question that inquired about problems students faced during the projects. From Table 4.2(B2) below, almost all students gave a set of similar answers. It can be concluded that despite their preference in doing projects and the fact that they attended different co-curriculum courses, almost all of them faced certain similar problems, mostly on cooperation between team members. One of the possible reasons to the similar answers is that the respondents study within the same environment, culture, and management bureaucracy. Table 4.2(B3) also shows that course leaders' opinions are also in tangent to the students' view; in which 100% agreed that lack of cooperation among team members are the major challenge to the students.

Table 4.2(B2) : Problems Students Faced During Project (Students Perspectives)

No	Feedback	% Respondents Giving the Same Feedback (n=261)
1	Lack of cooperation from team members	95
2	Time too short	39
3	Insufficient budget	25

Table 4.2(B3) : Problems Students Faced During Project (Course leaders Perspectives)

No	Feedback	Findings (%)
1	Lack of team members cooperation	100
2	Lack of resources	80
3	Plagiarism	100
4	Doing work 'at-the-	50

	last-minute' attitude	
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The following is summary of the reasons to the lack of cooperation that students have given: a) hard to meet up with team members who are working and studying part-time; b) not all team members know each other especially when grouping is determined by the course leaders; c) Time (semester) allocated for co-curriculum is too short and it doesn't allow team member to create group bonding and synergy; d) students came from different programs and faculties and only meet about once a week for the class. Since everybody have their own timetable it is not easy to agree on a suitable time to meet up; e) since UNITAR consider as virtual institution, students rented out on their own at disperse locations. This also does not make it easy to assemble all team members for discussion since some stayed outside Selangor/KL area; f) when most students in a particular class are made up of certain race, the rest of minority race(s) feels insignificant and non-cooperative.

The issue of teamwork is so glaring that it brings to the next question- what is the course leader role in helping the students? Is the course leader aware of the problem? As a guiding rule, course leaders need to facilitate and guide the students towards the correct direction to achieve project objectives and outcomes. Even though students are expected to be independent in their projects, it does not mean they should be left on their own. Course leaders must provide both formative and summative feedback; guiding the students before the project starts, as projects progressing, and at the end of projects.

Refer to Table 3.2(B4) below. The question asked how often students get feedback from the Course leaders while doing the project. Findings show that only 44% students confirmed that they received both formative and summative feedback. Meanwhile, 55% received only either formative or summative or none at all.

Table 3.2(B4) : Students Received Feedback From Course Leaders

No	Feedback	Findings (%)
1	Both during and after end of project	44
2	During project only	25
3	After project ends only	25
4	Never	5

Table 3.2(B5) below further confirmed that Course leaders did not provide sufficient guidance to the students. In finding no.1, 80% Course leaders admitted to not discussing the assessment scheme with the students. Meanwhile, in finding no. 2, 20% only provided both formative and summative assessment. As for the rest 80%, feedback is only given after the project ends, mostly during final presentation day or to announce the final results. This also shows that 80% of the Course leaders did not follow the progress of the students as they were doing the projects. Indeed this is risky since students can be misled in the direction of their project and thus not achieving the objectives of the project.

Table 3.2(B5) : Course leaders Provide Feedback To Students

No	Questions	Findings (%)
1.	Do you explain/discuss assessment criteria with students, so that students understand how they can	80% = No 20% = Yes

	achieve maximum marks (as well as understand the reasons why they don't get good marks) ?	
2.	Do you give feedback to students for their project? If yes, did you give during their project in progress? Or after project? Or both? Or none at all (meaning students only know from their final results)?	80%= End of project 20%=During and end of project

It has been mentioned in section above that Course leaders face challenge in their role as PjBL instructor because they are accustomed with conventional styles of learning. When these students embarked on the PjBL, most of them experienced it for the first time. It may prove to be quite a struggle for them to adapt to a new style of learning while having had to put aside their usual learning habit. Before, they studied based on what the lecturers have delivered in class and success in the final examinations depends on their own individual effort. But now, students not only have to seek information and make decision independently, they also have to depend on one another in order to achieve scores.

As mentioned in the benefits of PjBL above, students are exposed to multiple soft skills by doing the project. However, it is not right to assume that students would naturally adopt the skills seamlessly. What may look like attitude problem (i.e. lack of cooperation) in the first place could have signs that the students are confused and putting up resistance as they faced with new situation and challenges. That is why it is important for Course leaders to motivate and guide the students' direction, as the new skills slowly set in.

3.2. (c) Management Policies

The author feels strongly about the last challenge, which are the policies set by the management or administrator of PjBL courses. Academic policies set by the management (whether intended directly or indirectly to the PjBL courses) would have its impact on the PjBL courses. The policies can either facilitate or becoming hindrance to the success of PjBL. Eventually the last recipients in the course of actions are the students themselves. A glaring mistake that any management may have committed is to run PjBL courses within the same framework or approach as of conventional learning. Refer to the following findings:

a) The co-curriculum courses run according to the normal semester like any other regular subjects. This would mean that within a normal semester student must complete their project within 12 weeks. Realistically, when undertaking projects, students need time to first equip themselves with the necessary knowledge and skills, next they need to do proper planning and job delegation, they will also need time to get to know and feel comfortable with their own group members, need more time to meet up for discussion and implementing actions, and time to write report and prepare presentations. They must juggle this workload with the other major courses that they are taking up in that semester. Clearly, undertaking a project takes extensive time and effort. Question is whether the 12 weeks given are adequate enough for students to learn effectively. Inadequate time can lead to a 'rat race' for both Course leaders and students of the same class. Course leaders are hard-pressed to complete the course syllabus, while students should rush with the planning, implementing and preparing

report for the project. Lack of time and preparation for both lecturers and students alike may not produce the desirable learning outcomes as initially planned for the project. In turn, students may have not learned adequately and may not be assessed according to their actual capabilities.

b) In a recent development, result for co-curriculum measured as pass or fail regardless of the grading percentages that students have achieved. In PjBL, students are not assessed based on their understanding or memorization of facts alone. Students are assessed on authentic efforts and higher order thinking skills, in which they sacrificed time and energy in order to perform. To these young adults, they are able to comprehend and appreciate tangible benefits more (like being given high marks) rather than intangible benefits (like being told that the soft skills they have developed would help them in their working life later in time). Therefore, receiving good grades by the end of semester would be the ultimate reward to their hard work. If this ‘carrot’ is taken away, students have no tangible motivation to work on. They will no longer be bothered to strive harder because eventually they would still get same pass/fail result as everybody else, even if the others put the least effort in the project. As a consequence, it is afraid that even the Course leaders would not be concerned enough in designing good projects since students have become lackadaisical in their overall effort. That will be the time when PjBL has ‘failed’ in its beneficial purpose.

c) Another major challenge is when management applies the same assessment approach being used for conventional courses to PjBL. Management needs to distinguish assessment method unique to PjBL because, firstly, it was mentioned previously that assessment for PjBL should incorporate a balance of 3 measurements, to which may not be the same criteria for written examinations (especially the last measurement on habits of mind). Secondly, institution should consider the facts that PjBL is a performance-based assessment, also that no one students perform similarly, and next is that all the co-curriculum courses (hence their projects) differ in nature and background. Therefore, assessment method for the co-curriculum courses should not be stereotyped, but customized according to suitability of the courses/projects. In this exercise, the course leaders advise should also be considered. But what normally happened is that the management standardized marking scheme for all the courses. For instance, management may decide that 40% is given for written reports and 10% given for class presentations. This scheme may benefit students taking “Community Service” since they are required to relate their experience on a 10-pages report as well as presenting to the class. However would this be fair to the students taking “Public Speaking” course who will be assessed mainly on their presentation skills and which may not be required to submit any report at all? Obviously assessment scheme that imitates conventional learning is not entirely suitable for PjBL.

4. Conclusion

Educators today need to depart from the prevailing culture in Malaysian education – an approach of mass teaching, exam-oriented and content-centered learning. Educators should design alternative strategies that provide students with rich engaging experience in real-life tasks, like the project based learning. Most important about PjBL is that it offers benefits that may not be obvious within the conventional learning, such as the impact to the mindset and attitude. This is indeed an important criterion in creating wholesome graduates, sound in knowledge as well as personality.

The benefits and challenges highlighted in this paper definitely are not exhaustive enough and only reflect the experience of one private higher learning institution that implements PjBL. PjBL is just a term, and in reality it is already been practiced at

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many other higher learning institution, perhaps under different context and terminology. However, there are still so much issue to address before the success of PjBL can be realized. At private higher learning institutions, implementing PjBL is a continuous struggle, trying to fit into a predominant framework that does not quite match. This is mostly due the low level of awareness and research on the correct framework for PjBL at tertiary level. This paper would like to call for more research about PjBL practice at higher learning institutions, perhaps by benchmarking with the stories of successful implementation either locally or abroad.

REFERENCES

- Buck Institute for Education. *PJBL-Online*. Retrieved June 2017 from <http://www.bie.org/index.php>
- Dickson, P. (2012). Using PBL Approach to Conduct Project Course in Politechnic of, 156-160.
- Edutopia. *PBL Research Summary: Studies Validate Project Based Learning*. Retrieved June 2015 from <http://www.edutopia.org/project-based-learning-research>
- Houghton Mifflin. Project Based Learning. Retrieved December 2007 from http://college.cengage.com/education/resources/res_project/students/c2007/background.html#Challenges
- Iowa State University. *Student Learning Outcomes*. Retrieved February 2008 <http://www.celt.iastate.edu/wpcontent/uploads/2015/09/RevisedBloomSHandout-1.pdf>
- Md. Baharuddin et al. (2011). The Outcome Based Education (OBE) at Politeknik Kota Bahru Malaysia. *International Journal of Humanities and Social Science*, 1(8), 163-171.
- Mohd Noramdzan et al. (2015). Implementation of Project Based Learning (PjBL) at a Malaysian Polytechnic – A Preliminary Study. *Procedia – Education and Social Sciences*
- Musa, F.Mufti, N.Latiff, R.A, & Amin, M.M. (2011). Project-based Learning: Promoting Meaningful Language Learning for Workplace Skills. *Procedia – Social Behavioural Sciences*, 18, 187-195.
- NWREL. Benefits of Project Based Instruction. Retrieved June 2008 from <http://www.nwrel.org/request/2002aug/benefits.html>
- Project-based learning aligns with and enhances the College, Career, and Civic Life Framework for Social Studies State Standards. By [Andrew Miller](http://www.edutopia.org/project-learning) August 2017

PJBL-Online. *Designing Your Project*. Retrieved July 2017 from
<http://www.PjBL-online.org/pathway2.html>

PJBL Checklists. Retrieved January 2009 from
<http://PjBLchecklist.4teachers.org/>

Teacher Vision. Assessment Advice and Forms. Retrieved June 2008 from
<http://www.teachervision.fen.com/assessment/resource/5815.html>

Trauth-Nare, A., & Buck, G. (2011). Assessment for Learning. *The science Teacher*, 78(1), 34-39.

Wikipedia. *Project-based Learning*. Retrieved January 2017 from
http://en.wikipedia.org/wiki/Project-based_learning

Wikipedia. *Constructionism, Learning by Design, and Project Based Learning (2008)*. Retrieved June 2008 from
http://projects.coe.uga.edu/epltt/index.php?title=Constructionism%2C_Learning_by_Design%2C_and_Project_Based_Learning