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Research Article

Project- Based Learning Implementation Vis-À-Vis Students' Interest in Public Secondary Schools in the Philippines

Dr. Jestoni P. Babia[a], Benedict Al E. Candia[b]

[a] Dean , College of Teacher Education, University of San Jose – Recoletos
[b] Faculty , College of Teacher Education, University of San Jose – Recoletos

Abstract

The researcher further sought to orchestrate whether the PBL approach affects 21st-century skills among public secondary schools in the Philippines. Furthermore, this study evaluates the student interest level in terms of course experience, teaching facilitation, and competence level among teachers in classroom instruction as perceived by the teachers, students, and principals. There are 14 schools in the Philippines covering Benguet, Batangas, NCR, Albay, Boracay, Cebu, and Bohol. A total population of 352 respondents composed of 300 students, 38 teachers, and 14 principals. The results are: (1) the student interest levels were significantly very high, (2) teachers and principals perception was relatively very high, (3) there was no significant difference between the teachers and principal perception, and (4) there was a linear relationship existing between enjoyment towards listening ability and encouragement: PBL methodologies yield 73.04%, 61.88% change within student participation during group activities; student interest which was relevant to the PBL activities yields at 52.81%; 67.62% change within students encouragement; 66% change within students' ability to listen; 74.90% change within student encouragement in PBL sessions and activities. Hence, the opportunities and challenges of implementing PBL are vital for providing adequate training among teachers.

Keywords: Project-Based Approach, Course Experience, Teaching Facilitation & level of competence.

I. INTRODUCTION

The academic institutions have implemented the Project-Based Learning (PBL) approach. It focuses on the end product that represents new learning (Kokotsaki et al, 2016). PBL approach is among the most challenging issues. As suggested, 21st-century teachers are now the facilitators of learning. Learners are now self-directive to learn with their peers. This study aims to investigate the implementation of the PBL approach among Philippines schools.

PBL strategy produced self-directed learners (Bagheri et al, 2013). Activities filled with meanings and collaborative knowledge construction enables the learners to be independent (Howard, 2002). Moreover, a study about the effects of PBL on English achievement revealed that students educated by project-based learning were more successful and had higher attitude levels towards the lesson than the students educated by the instruction based on student textbooks (Bas, 2011). A study by Nariman in 2015 investigated the teachers' effort in implementing PBL in the classroom for English learners. In connection, a case study method anchored on the Next Generation Science Standards (NGSS) using the PBL approach. Also, there is a similar study on course experience regarding the opportunities and challenges in PBL implementation in a University in Hongkong (Chong et al, 1999).

Another study by Co-nect Schools in 1997 focusing on skills development investigated the impact of PBL in terms of student performance in the classroom to raise their scores on standardized achievement tests. A positive

linear relationship between student attendance, attention, and engagement during the formative period of building skills. Gallagher et al. (1992) also support this study as they used pretest and post-test designs. A study focusing on teaching facilitation in a police academy determines whether PBL has a significant effect on the police academy training for compliant soldier bureaucrats rather than competent practitioners (Makin, 2015). The results of the exploratory study suggested that the complexity of PBL exceeds curriculum revisions. Another study relating to teaching facilitation examined the intensive field experience in facilitating PBL on teacher's pedagogy through the online structured methodology (Dole, 2015). Locally, a study on PBL Assessment argued that PBL has significant implications for instruction in Taiwan (Tiangco, 2010). It found out that the Philippine experience teaches everyone in the directive to focus on the compelling vision of their respective institutions. Another local research on the Philippine MET System in PBL Implementation explored the teaching process of Lyceum International Maritime Academy (LIMA) and how can PBL improve the goal of teaching maritime students (Baylon, 2006).

There are limited studies that assess the implementation of the PBL approach in Philippine schools. The ideas of students, teachers, and principals are vital toward the success of this assessment. Students are considered the heart of the curriculum (Handa, 2020). Their interest level in course experience and teaching facilitation in the classroom is significant to provide new tools and concepts for instructional delivery. Teachers are the facilitators of student learning. They are recommended to be equipped with PBL approaches. Moreover, school principals and teachers are tasks to evaluate the competency level to provide a training program and module on peer coaching in PBL integrated schools. The opportunities and challenges of implementing PBL should be determined to have a successful implementation.

This study will assess and validate whether 21st-century learning skills have been manifested and enhanced through this approach. The study will eventually lead to the design of a training module integrating K- 12 competencies and standards through the project-based learning approach.

II. THEORETICAL AND CONCEPTUAL FRAMEWORKS

The study is mainly supported by Progressivism Theory, an educational theory of John Dewey that is concerned with the learning by doing approach. By this, learners are encouraged to pursue their interests and satisfy their own needs. This supports the theories of Experiential Learning and Constructivism.

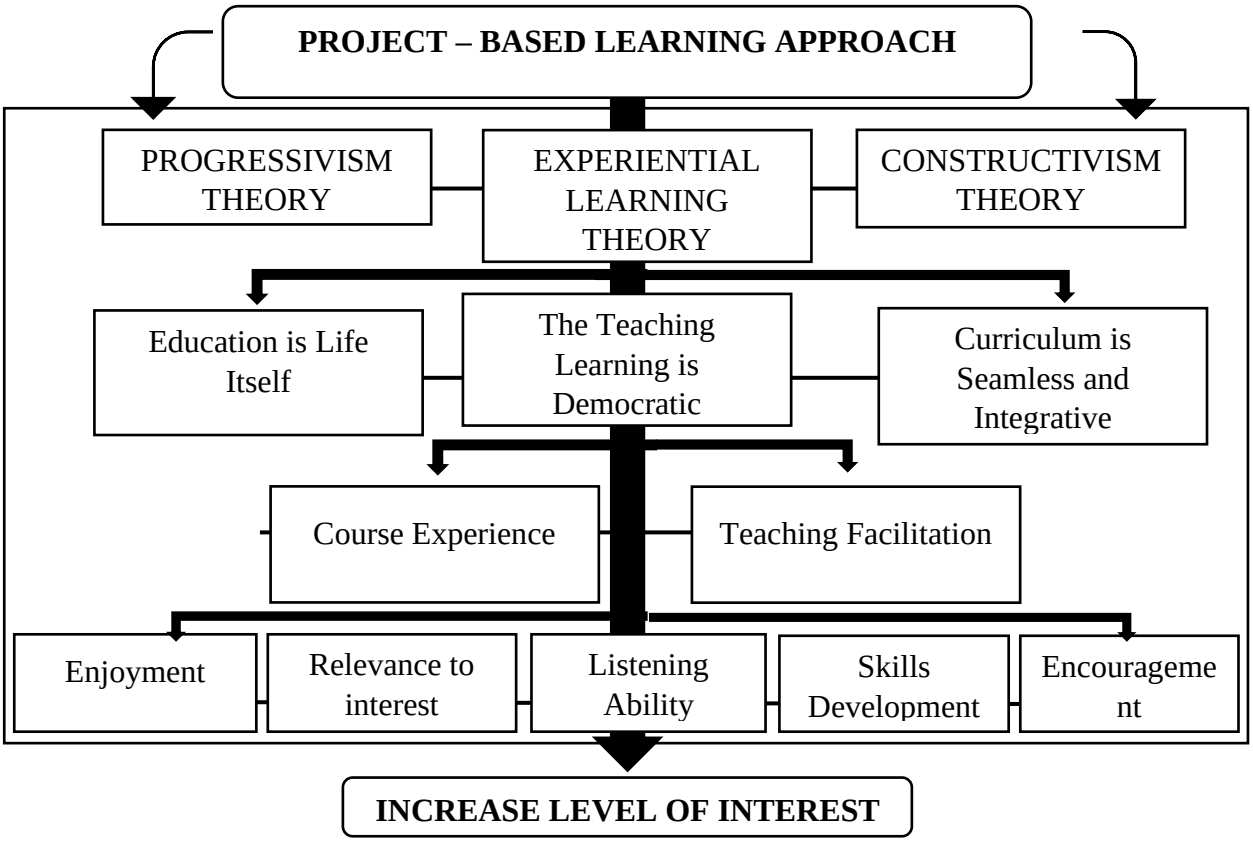

Figure 1: Theoretical Framework of Project – Based Learning Approach

Progressivism theory highlights the utilization of need-based and relevant curriculum responding to the needs and ***interests*** of the students, relating their classroom experiences to real-life situations. This will eventually lead them to be encouraged in their lessons making it more fun, ***enjoyable,*** and thus, non-threatening. Hall-Quest (2007) maintained that for education to reveal its encrypted meanings, it must be progressive in its organization that it suffices the problems. Progressivist also believes that change is a never-ending process and that it is the only constant thing in this world. Hence, progressivist teachers are very much concerned with ***developing student's skills*** and not relying so much on students' abilities to memorize facts and concepts.

As a constructivist approach in the PBL context, phases are identified to achieve the best possible learning for the students. Among these phases which serves as the model of this study are the following: Engagement; Inquiry, Designing Problem Statement, and Debriefing. (1) Engagement stimulates students' interest that they synthesize questions leading to (2) Inquiry that allows them to explore and stretch their knowledge and skills. Successive to this is the (3) Design of problem statement that necessitates a (4) Resolution to arrive at the best route that represents the best solution and eventually terminating at (5) Debriefing /that generalizes content and process.

Using PBL as an approach, different concepts in the content areas are presented to direct students to determine the connections of things in the real- world through projects. According to Miller (2015), projects generate necessary content, skills, and opportunities in real-life contexts. Hence, the study seeks to investigate the importance of the Project-based Learning approach in the classroom and how it affects the following skills: learning and innovation; life and career; effective communication; and Information and Communication (www.p21.org). It has been established that learners are capable of constructing meaning. As supported by (Quinn, 2013) in his theory of Constructivism and has been further affirmed by Good and Brophy (1994), learners are not only passive receptacles of learning because they can deliberate efforts to make sense of the information. As CHED Memo Order #46 S 2012 mentions, learners focusing on skills development must be at par with global standards to thrive in today's world with the emphasis on Outcomes-based Education principles. In other words, the process must seek to measure whether the students have thoroughly achieved the expected outcomes and competencies intended for the course and the program. This is also in line with the Department of Education's goal in the curriculum implementation of K- 12 on equipping and tapping the knowledge, skills, and understandings of the students manifested in the authentic activities in the classroom.

To provide the actual context of the entire theoretical perspectives, the Project-based learning approach is responsible for achieving the goals of education, and to achieve these goals, it has to be by students' interest.

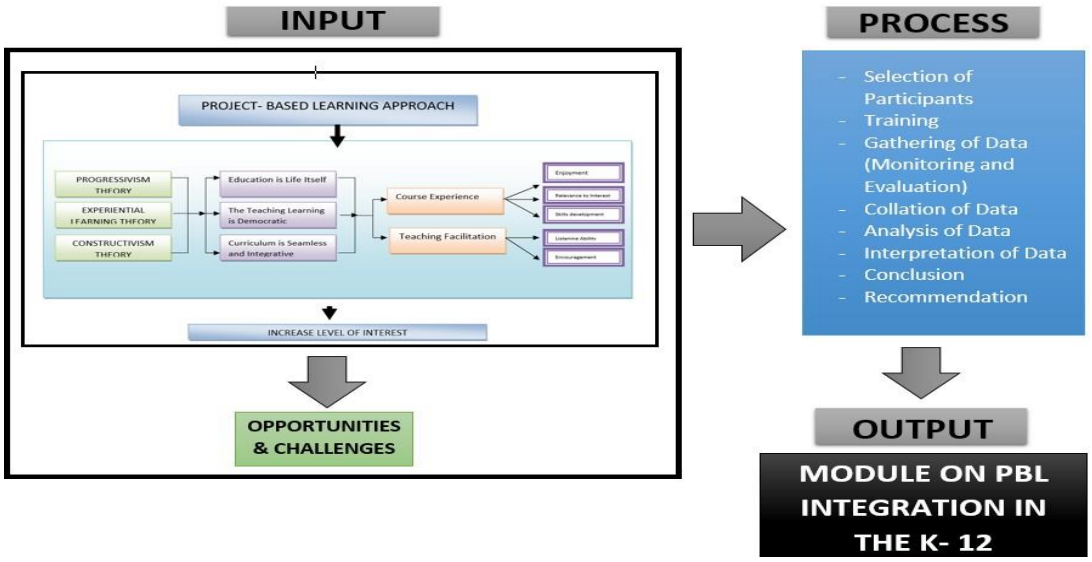

Figure 2: Conceptual Framework of Integrating Project-Based Learning Approach

Anchored on the theory of this study, the flow shows the variables and factors that bear significance in this study. As mentioned, the three concepts include: (a) ***education is life itself; (b) this theory rejects authoritarian teaching methods;*** and ***progressivism theory advocates that curriculum is presented in an integrated fashion,*** which means that subject matter is not segmented. The relationships of these concepts were further broken down into variables such as **(A) Course Experience,** which is measured through the factors like *enjoyment, relevance to interest,* and *skills development;* and **(B) teaching facilitation** where the following factors are given considerations: *listening ability* and *encouragement,* where teachers' ability to facilitate student learning engagement and collaborative works are seen. As mentioned in the theory, the interplay of these variables measured the students' level of interest. The study also further identified the challenges and opportunities that the teachers have experienced in the implementation of PBL in the classrooms.

These are identified through the following variables: **(A) Course Experience** which can be measured through the following factors: ***enjoyment, relevance to interest,*** and ***skills development***. These factors are identified in the sense that students are involved in fun activities where they can exhaust their positive pressures directly related to their interests; and **(B) teaching facilitation** where the following factors are given considerations: ***listening ability*** and ***encouragement***, where teachers' ability to facilitate student learning engagement and collaborative works are seen. The interplay of these variables will measure the students' level of interest. As John Dewey mentions, students' interest will be captured when they are highly engaged in relevant life activities which will eventually result in skills development through teacher facilitation. In the course of conducting this research, the researcher discovered studies that are related to this work. The study was determined based on the processes to be undertaken. The study was dependent on the training of the teachers who will implement the PBL- based activities. Once the training is implemented, the monitoring and evaluation will take place where the gathering of data, analysis, and interpretation and providing conclusions and recommendations will be done. The output of this study was to design a sample curriculum where PBL is integrated based on the required standards and competencies.

III. DESIGN AND METHODOLOGY

This study used both qualitative and quantitative methods to prove its claims. Using the qualitative method, the researcher determined the opportunities and challenges that teachers have encountered in integrating the Project-based Learning approach in the classrooms through random interviews. This part employed univariate analysis wherein one variable was examined at a time and that which concerned with frequencies. As a quantitative study using the descriptive method, the researcher identified the relationships existing from respondents' perception as well as the interplay of the identified variables utilized. This method focused on the collection and analysis of data presented in the study. The researcher verified the observations on the various research environment identified through the triangulation approach. Answering of the validated researcher-made questionnaires was provided to the student- respondents along with the random interviews to validate the answers from the tool. A tool in determining the teacher- performance was also utilized to gauge the level of their PBL implementation in the classroom. The two-stage sampling technique was utilized in the study in choosing the appropriate respondents for the monitoring and evaluation of the implemented program. The first technique utilized purposive/ convenient sampling where teachers and principals were intentionally chosen. Then, simple random sampling was used to determine the student respondents.

The scope of the study comprised of 14 schools in the Philippines: Benguet, Batangas, NCR, Albay, Boracay, Cebu, and Bohol. The selection of these teachers was based on their training under Global Filipino Teachers Program (GFT) from March 31 to April 4, 2015 in Cebu City. GFT Program is an initiative by Globe Telecom in collaboration with the Department of Education (DepEd) and the Coalition for Better Education (CBE) as a means to support training and enhancement programs for public school teachers nationwide. The program which started in 2009 has already produced 366 Proficient Teachers and 30 Peer Coaches. The 5-day Training Program on ICT Integration using PBL Approaches aims to enhance teaching strategies of public-

school teachers by introducing them to new methodologies and approaches to classroom teaching and other professional development opportunities

Among the schools that were covered in the latest training of the Global Filipino Teachers Program were the following: La Trinidad National High School and Tublay National High School of Benguet Province, E Rodriguez Integrated School and Highway Hills Integrated School in Mandaluyong City, Mataas na Kahoy National High School in Batangas City, Ligao National High School in Ligao City, Tobaco City National High School in Tobaco City, Boracay National High School, Boracay Manocmanoc Extension and Lamberto National High School in Boracay, Camotes National High School and Logon National High School in Cebu Province, and Kamayan National High School and Katipunan National High School in the Bohol Province. All of them were public secondary schools under the Department of Education, which satisfactorily met the requirements set by Globe Telecom, Coalition for Better Education, and Department of Education for the Global Filipino Teachers Program. The schools were also chosen based on the MPS (Mean Percentage Scores) identified by the respective Division Offices.

IV. RESULTS AND DISCUSSION

The interplay of the variables in the study are given meaning and implication to find out the extent of PBL Implementation in the classrooms among Philippine schools. Perceptions of the respondents are also being asked and are measured to further strengthen the findings through comparative analysis using sound statistical tools. The findings also measure the interest levels of the students in the implementation of PBL in the classrooms using the identified variables.

FACTORS	WEIGHTED MEAN	INTERPRETATION
Enjoyment	4.22	Highly Interested
Relevance to Interest	4.48	Highly Interested
Skills Development	4.55	Highly Interested
Listening Ability	4.51	Highly Interested
Encouragement	4.48	Highly Interested
OVER ALL WEIGHTED MEAN	**4.45**	HIGHLY INTERESTED

Table 1: Summary of the Interest Level of the Students

Table 1 presents the summary of the interest level of the students in the implementation of PBL in the classroom. The over-all result reveals the general weighted mean of ***4.45*** interpreted as highly interested. Of the five factors, enjoyment is the least weighted mean with 4.22 while skills development reveals the highest with 4.55. Hence, the tabular values generally reveal that students' interest level is evident as predetermined by the variables in the study. Across variables, students strongly agree that the level of their enjoyment, listening ability, and encouragement are very high in the conduct of the PBL activity while their relevance to interest and skills development are also relatively high. On the whole, project-based learning activity has a very high influence on students' learning experiences as the activities are related to their interests, skills, and abilities that will make them enjoy and encourage as well.

STUDENT'S INTEREST LEVEL IN THE COURSE EXPERIENCE BASED ON ENJOYMENT:

As reflected, the over-all weighted mean is 4.22 with an interpretation of highly interested. Students find PBL highly interesting in terms of the provision of stimulating activities that will challenge them to think. This indicator reveals a weighted mean of 4.69. Twenty-first (21st) century education highlights the development of the skills to think or create new ways of thinking to ensure that learners will thrive in today's world (p21.org). On the other hand, it is noted in the result that students find PBL interesting because it gives them the idea to connect different subject areas to other fields, allowing them to think more about the practical activities although it significantly reveals a lower weighted mean of 3.4.

The result implies that the provision of PBL activities that are highly interesting to students will motivate them to think of ways to discover and develop their critical faculty making them ready to face several challenges even outside the four walls of the classroom. Their practical knowledge learned through the different PBL activities will help them develop the competencies needed in the world of work. This relates to the study of Dweck, C (2000) on Self Theories: Their Role in motivation, personality, and development. Essays in Social Psychology mentions the difference between "entity theory" learners who view intelligence as fixed (e.g., people who were born smart) versus "Incremental learners" who view intelligence as flexible which is harnessed through effort.

STUDENT'S INTEREST LEVEL IN THE COURSE EXPERIENCE BASED ON RELEVANCE TO INTEREST:

The over-all result shows a weighted mean of 4.48 interpreted as highly interested terms of its alignment to their desired career interest. Students find the subject relevant to their interest revealing a weighted mean of 4.63. Significantly seen as the lowest weighted mean out of the five components identified, is the significance of future chosen career to students with a weighted mean of 4.3. With the implementation of PBL in the classroom, students' opportunity to develop the career interest that they wish to have in the future will become attainable. As Kolkan (2003) mentions, there are eleven attitudes, which are likely to be enhanced by the PBL method. Among these are cooperation, motivation, achievement goals, self-efficacy, and attributions, independent thinking, critical thinking, tackling conflicts, communication skills, pro-action, and sense of responsibility. Dweck (2000) added that teachers can celebrate and reward good learning by recognizing the "best mistake of the day", "best question of the day", and good group work. When students are focused more on learning as opposed to measuring themselves, failure is more likely to provoke continued effort, as opposed to the helpless response.

STUDENT'S INTEREST LEVEL IN THE COURSE EXPERIENCE BASED ON SKILLS DEVELOPMENT:

Without much of a surprise, students are highly interested in terms of learning and developing their skills through PBL reflecting an over-all weighted mean of 4.55. Students also find their subjects helpful in the integration of PBL in the development of their critical thinking skills bearing a weighted mean of 4.65. Significantly seen as the lowest out of the six components identified, is the development of students' communication and innovation skills revealing a weighted mean of 4.49. Skills such as critical- thinking, creative thinking, communication, learning and innovation, and information and communication technology are the skills that students need to develop to succeed in the information age. Hence, the result provides sufficient evidence that when PBL is implemented in the classroom, it will adequately develop students' 21st-century skills. This aligns with the research conducted by Condliffe, B et. al. (2015) on Project Based Learning: A Literature Review which states that the design principles of PBL will prepare students for deeper learning, higher-level thinking skills, and 1new ideas and information that will help solve today's problems as well as contribute to the goals of developing and empowering every thinking that all humans possess.

STUDENT'S INTEREST LEVEL IN THE TEACHING FACILITATION BASED ON LISTENING ABILITY:

The over-all result shows a general weighted mean of 4.51 interpreted as highly interested. As revealed, students put high regard in listening to teachers when giving class instruction with a weighted mean of 4.56. Out of the six components, listening attentively in groups and avoiding judgment are seen as the lowest revealing a weighted mean of 4.49. Students learn to collaborate in groups when PBL processes are administered. With emphatic listening, students become open-minded during brainstorming sessions and other simulation activities. Students will also learn to empty their cap and use the opportunity to discuss issues and not the matters which are unrelated to the goal of the PBL. Hence, the result implies that the PBL process, when facilitated by the teacher at appropriate pacing where tasks are analyzed, will yield a positive effect on the attention span of the students. As mentioned by Ertmer &Simons (2005), teachers must be ready to analyze tasks and adapt teaching tactics as a way of modeling those skills for students. Barron (2003), also added that working in groups, students often fail to listen to each other's ideas, and may attempt to split up group work into individualized, non-

interactive tasks. Truly effective collaboration requires the attention of everyone, which teachers can support by carefully describing and modeling what activate listening, joint attention, and coordinated activity look like.

STUDENT'S INTEREST LEVEL IN THE TEACHING FACILITATION BASED ON ENCOURAGEMENT:

As reflected on the results, the students are highly encouraged with the way the teacher conducts the PBL processes as identified in all indicators, with an over-all weighted mean of 4.48. Students are highly encouraged with the way teachers facilitate in-class revealing a weighted mean of 4.6. Meanwhile, the encouragement with genuine respect between the students and the teacher where learning partnership is developed is seen as fairly low out of the six components showing a weighted mean of 4.4. The implication aligns with the study conducted by Cook and Walsh (2012) on Collaboration and Problem-based Learning, Integrating Information Literacy into a Political Science Course. The findings generally present that PBL effectively brings information literacy and political science together by resisting the separation of subject and process (Cheney, 2004). PBL demands that students collaborate to respond creatively to a problem; it also requires that faculty and librarians collaborate to generate problems that engage students in an exploration of the subject while acquiring and practicing skills. Hence, when teachers will create an avenue where students will collaborate in dealing with real-world problems, it will effectively yield good results in achieving students' life-long learning. Furthermore, Slavin, R. (1991) also mentions in his Synthesis of research of cooperative learning (PDF). Educational Leadership that for enhancing student achievement, the most successful cooperative learning approaches have incorporated two key elements: group goals and individual accountability. Consistently, cooperative- learning effects have been found on outcomes such as self-esteem, intergroup relations, acceptance of academically handicapped students, attitudes toward school, and ability to work cooperatively.

	WEIGHTED MEAN	**INTERPRETATION**
A. CONTENT	4.08	Competent
B. CLASSROOM PROCEDURES, ROUTINES, MANAGEMENT	4.51	Highly Competent
C. TEACHER – STUDENT INTERACTION	4.46	Highly Competent
OVER- ALL WEIGHTED MEAN	**4.38**	**HIGHLY COMPETENT**

Table 2: Teacher's Perception on their Level of Classroom Competence in the Implementation of PBL

Table 2 presents the teachers' perception of their level of competence in the delivery of PBL processes in the classroom. As directly shown, the result generally reveals an over-all weighted mean of 4.38 interpreted as highly competent in the areas of content delivery, classroom procedures, routines, and management, and teacher and student interaction. As shown in the content variable, the general weighted mean is 4.08 with an interpretation of competence. The teachers' ability to organize contents and process logically and clearly to meet the goals and objectives of the curriculum of the PBL integration is seen as highly competent with a weighted mean of 4.55. However, the data further reveal that the teacher's ability to use relevant examples and other meaningful ways to enrich the lesson process as well their ability to integrate information from others within and outside the area of his or her expertise is seen as the lowest among the identified components with a mean of 3.42 but still in the competent range level. The data imply that the teachers' competent delivery of the content is influenced by the training they got before the implementation of the PBL. As for K- 12 curriculum, the use of a thematic and integrative approach to teaching and learning is essential for the students to understand the interconnectedness of every concept rather than showing it in a segmented manner (RA10533, S2013). When teachers successfully relate the lesson beyond their expertise, students may widen their horizons and see the importance of the concepts to real-life situations, allowing them to choose the fields that will interest them in the future.

In the classroom routine, management, and procedure variable, the data show that all components identified are within the highly competent level range with an over-all weighted mean of 4.51. Of the components, teachers are seen as highly competent in designing challenging tasks for students making them become highly engaged in the process with a weighted mean of 4.6 while using metacognitive strategies to promote self-directed and reflective thinking is seen as the lowest with a weighted mean of 4.47 but still within the highly competent level range. The data imply that the teachers' classroom management techniques are very adequate in the implementation of the PBL. Their abilities are also attributed to the training they acquired. Their orientation is constructivist since they consider students' ability to collaborate to achieve the desired 21st-century skills.

As the theory of Constructivism emphasizes, teachers are the facilitators of learning instead of being the sage in the stage. They are the guide in the side helping students achieve the goals of learning. Furthermore, in the teacher-student interaction variable, the general weighted mean of 4.46, reveals a highly competent interpretation. The teacher's ability to communicate the goals of PBL, use the art of questioning techniques as well as their enthusiasm in developing positive expectations to students are seen as highly competent with a mean of 4.5, while their ability to respond to students' opinions and pacing are seen as the lowest among the components with a weighted mean of 4.4 but still within the highly competent level range. The result implies that the teachers' capability in developing interactions with the students is highly adequate. Their communication styles suit the needs and interests of the learners.

	WEIGHTED MEAN	**INTERPRETATION**
A. CONTENT	4.41	Highly Competent
B. CLASSROOM PROCEDURES, ROUTINES, MANAGEMENT	4.59	Highly Competent
C. TEACHER – STUDENT INTERACTION	4.6	Highly Competent
OVER- ALL WEIGHTED MEAN	**4.55**	**HIGHLY COMPETENT**

Table 3: Level of Competence of the Teachers' Classroom Performance in the Implementation of PBL as perceived by the Principals

The result further reveals that teachers, when implementing the PBL process, start with the core competencies of the curriculum, then translate them into objectives. This is so since teachers perceived themselves as subject matter experts in the classroom. As reflected also in the result, teachers are in authority to tap students' prior knowledge when introducing new lesson concepts. Wiggins and McTighe (2012) see the importance of beginning the lesson with the "end in mind" so that students will be able to appreciate the lessons in real- life and can successfully understand and transfer them into different experiential accounts. This is also aligned with the provisions of RA 10533 S, 2013 Section 10.2 (d) and (h) that the curriculum must adhere to the principle of localization and contextualization where teachers will base the lessons on the background knowledge of the children(contextualization) and utilize indigenous or local materials to address the needs of the curriculum(localization). This is so since the Philippines as a country is unique and is composed of many different cultures based on its geographical context.

Furthermore, the result also reveals that the teachers' competence in developing students' 21st-century skills in the implementation of the PBL is very evident as perceived by the teachers. As shown, teachers have adequate facilitation skills in developing critical thinking, creative thinking, collaboration, and communication with the students.

With the extensive desire to promote quality learning, 21st-century skills are deemed appropriate in preparing students for internalization and globalization. It is also evident in the results that teachers as perceived by the principals communicated the goals clearly of the PBL which indicates that they respect the students'

viewpoints and opinions as well as their readiness and pacing. Hence, the result implies that the teacher- training provided by sectors such as Coalition for Better Education has positively affected the perceptions of the teachers in the implementation of PBL in the classroom. However, provisions for some indicators that are seen low must be given more reinforcements.

With the above results, it can be implied that the principal's perception in the teacher's delivery of content, classroom management, and procedure and interaction is paramount from the teachers' perception. Hence, there is sufficient evidence to suggest that the training program that they attended has prepared them in utilizing the appropriate PBL methodologies in the classroom.

Variables	Df	X	SD	Computed t value	Critical t value	Decision	Interpretation
Teachers	37	4.38	0.4329	-1.638704542	2.06865781	Accept Null Hypothesis	No Significant Difference
Principals	13	4.55	0.1456				

Alpha: set at 0.05 level of significance

Table 4: Significant Difference Between Teachers and Principals on their Perception on the Teachers' Competence Level in the PBL Implementation

Table 10 depicts the significant difference between the teacher and principal's perception of the teacher's classroom performance in the implementation of the PBL. The result indicates that the T statistics which is -1.638704542 does not fall within the critical region, which starts at t-crit. 2.06865781 (two-tailed) at 0.05 level of significance. Hence, the interpretation of the result accepts the null hypothesis indicating that there is no significant difference in the perception of both respondents. This means that the teachers' perception of their competence in the implementation of PBL concerning the content, classroom procedures, routines, and management and the teacher-student interaction is consistent with the perception of their administrators. It has been noted that these teachers have undergone training with the Coalition for Better Education in terms of its integration in the classroom and how can it become relevant to the needs and interests of 21st-century students. As noted, the training has prepared the teachers with access to the right methodologies and tools in executing PBL activities in the classroom, aligning them to the competencies and standards of the curriculum.

Figure 2: Regression Analysis between Enjoyment and Listening Ability

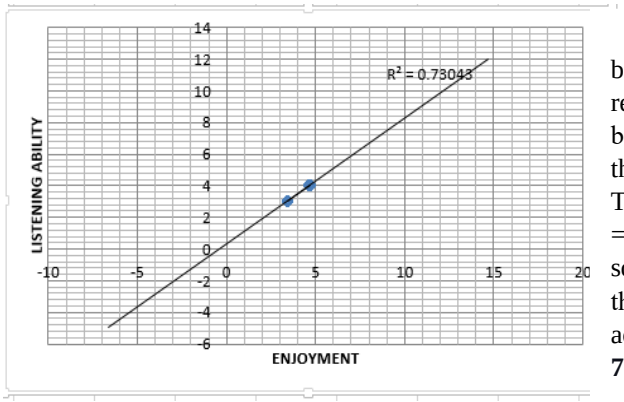

Figure 2 presents the regression analysis between enjoyment and listening ability. As reflected, a significant linear relationship exists between students' enjoyment and listening ability in the implementation of PBL as a course experience. The empirical model obtained states: Enjoyment = **0.78059+ 6.38397** listening ability with an R-squared value of 73.04%. The relationship indicates that students' enjoyment in the execution of activities through PBL methodologies yields **a 73.04%** change within students' listening ability.

Coefficients

Listening Ability **6.38397**

Enjoyment (X) **0.78059**

Figure 3: Regression Analysis between Enjoyment and Encouragement

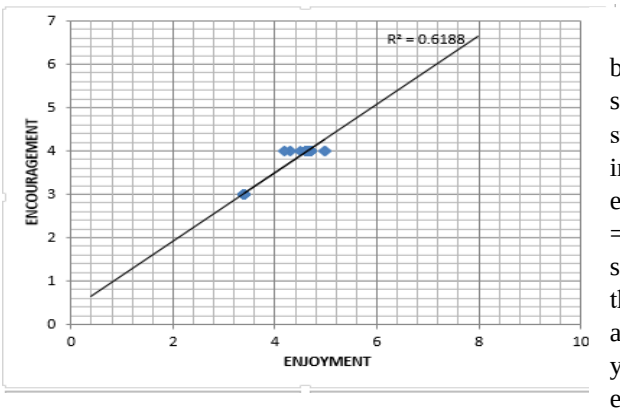

Figure 3 presents the regression analysis between enjoyment and encouragement. As shown, a significant linear relationship exists between students' enjoyment and encouragement in the implementation of PBL as a course experience. The empirical model obtained states: Enjoyment = **0.58563+ 6.88293** encouragement with an R-squared value of 61.88%. The relationship indicates that students' enjoyment in the execution of activities through PBL methodologies yields **61.88%** change within students' encouragement in the participation during grouping sessions and activities.

Coefficients

Listening Ability **6.88293**

Enjoyment (X) **0.58563**

Figure 4: Regression Analysis between Relevance to Interest and Listening Ability

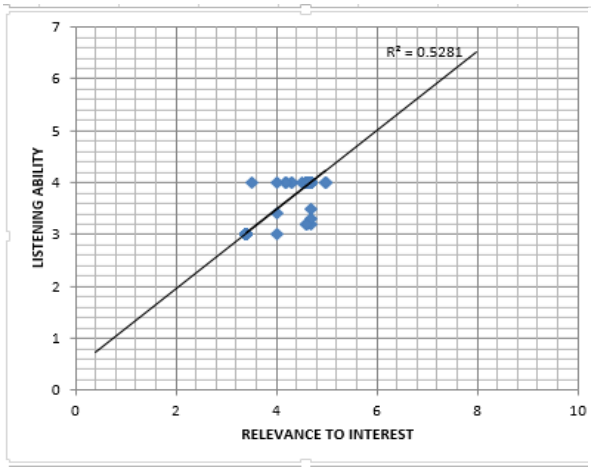

Figure 14 presents the regression analysis between relevance to interest and listening ability. As shown, a significant linear relationship exists between relevance to the interest of students and their listening ability in the implementation of PBL as a course experience. The empirical model obtained states: Relevance to Interest = **0.80974+ 8.952744** Listening Ability with an R-squared value of **52.81%**. The relationship indicates that students' interests which are relevant to the execution of activities in PBL yield **a 52.81%** change within students' ability to listen to the teachers' way of facilitating the class.

Coefficients

Listening Ability **8.952744**

Enjoyment (X) **0.80974**

Figure 7: Regression Analysis between Skills Development and Encouragement

Figure 7 presents the regression analysis between skills development and encouragement. As seen in the data, a significant linear relationship exists between skills developed in PBL and students' encouragement. Empirical model obtained states: Skills Development= **0.742626+ 2.137738** Encouragement with an R-squared value of **74.90%**. The relationship indicates that students' skills developed in the execution of activities in PBL yields **74.90%** change within students, encouragement in the PBL sessions and activities.

Coefficients

Listening Ability **2.137738**

Enjoyment (X) **0.742626**

OPPORTUNITIES AND CHALLENGES IN THE IMPLEMENTATION OF PBL

The data resulted in several themes leading the researcher to identify the challenges and opportunities that teachers had encountered in the implementation of the project-based learning experience. After attending the training with the Coalition for Better Education (CBE), 35 or 92 percent out of 38 teachers have implemented the PBL in the classrooms and relied upon it as an instructional method. Of the respondents, 5 or 13 percent out of 38 have used project-based learning before taking the training course with CBE. Participants have used PBL in a variety of ways in activities such as frog dissection, energy development, and consumption, research, planning for a theatrical event, investigating a new phenomenon, designing exhibits, and many others.

Opportunities in the Implementation

Half of the respondents or 50 percent mentioned that they have let go of the traditional methods of teaching and shifted the classroom structure into a "more facilitating" and "more embedded" one. Along with the comments about integrating lesson concepts, 39 percent of the respondents also shared how they adjusted to becoming facilitators of learning. One-third of the respondents or thirteen percent mentioned that they use applications taught in the training program. The tools that the majority of the respondents have used in the PBL process including its functions and use are as follows:

Technology Tools	Use

Internet	Research projects, online submission of assignments, classrooms discussions
MovieMaker	Projects
Crossword Puzzle	Quizzes, drills, motivation
Digital Storytelling	Projects, presentation
Productivity Tools	Documentation, communication (writing letters, producing flyers), presentation
Word- Matching	Class discussion
Photo Collage	Presentation, documentation
Social Media Site: Facebook	Giving out instructions for projects given out to students and announcement of schedule of activities

Table 11: Technology tools used by the teachers

PBL has also encouraged teachers to look for standards or bases in grading students' performances. The use of RUBI STAR for example was utilized by 50 percent of the respondents in grading student's products and performances. Using digital tools and creating a classroom climate for students to achieve maximum learning, as well as planning the whole process of the lesson to develop the teachers' ability to see the deeper perspective in learning are the opportunities that they have acquired in shaping their PBL. Hence, with PBL, they become the best facilitators and not just experts in the subjects that they are handling, moving from traditional teaching to a more student-centered teaching approach.

Challenges in the Implementation

Challenges	Number of Participants
Dealing with the curriculum competencies and standards	N=17
Colleagues	N= 17
Comparing achievement results of students	N= 14
Costly materials	N=14
Designing PBL- based activities	N=8
Access to ICT tools	N=8
Student motivation	N=8
Many outputs in in one go	N=8

Table 12: Challenges when implementing PBL

Although shifting from traditional to student-centered type became an opportunity for the teachers, it became a very challenging thing too. As mentioned by 13% of the respondents, shifting from traditional classroom classes to a more "open" and accepting classroom climate can lead to some minor problems, especially in planning and grouping sessions. On the other note, forty-two percent have also expressed their concern regarding standardized testing and PBL. They have expressed their frustration, describing the pressure that standardized testing places on them. Another challenge has also existed as the majority of them mentioned that PBL can be time constraining if not facilitated well. They said that respecting students' pacing on when and how will they finish an output or solve problems will sacrifice the time for other activities. Sometimes, the curriculum objectives for the grading period become difficult to achieve.

Many of them (47 percent) believed that the solution to the underlying cause of the challenges and problems will be instilling awareness on the part of the colleagues on how they can collaborate with the teacher in the delivery of the curriculum. The majority of them believed that giving them the training on PBL will help alleviate these challenges.

VI. CONCLUSION

Based on the findings of the study, the researcher concluded that the implementation of PBL in the classroom has a significant impact on the learning condition and interest of the students. Moreover, the teachers who are supplemented with training will significantly develop their teaching performance about content, classroom procedures, routines and management, and teacher-pupil interaction. Supplementary training services In PBL must adequately be provided to other teachers to support the findings.

RECOMMENDATIONS

The proposed training on the integration of subjects in the light of the K- 12 curriculum through PBL shall be forwarded to the Department of Education Region 7 for consideration and approval for immediate implementation. The Coalition for Better Education in partnership with the Department of Education and a funding agency shall consider the proposed training program for all schools in the Philippines. The teachers who are the respondents of the study must conduct a training session on PBL to the teachers and should be monitored by the Department of Education, Coalition for Better Education, and the funding agency in its extensive monitoring and evaluation plan. Teachers who will be training other teachers, as well as the participants, shall be given service credits as incentives for their effort. The DepEd officials must also be serious in monitoring the curriculum and implementation of schools in the integration of PBL in all subject areas. The USJ-R will conduct a training program for its neighboring schools in the integration of PBL in the curriculum. The parents of the students must also be oriented on the benefits of PBL to their children so that they will also act as primary supports in facilitating and managing the education of their children. They must also be exposed to PBL implementation so that they can see best the opportunity on how to teach and develop the potentials of their children.

Studies will also be recommended to further strengthen the findings of this research: (1) Relationship of PBL towards standardized achievement test of Students. (2) Behavioral and Social Competence of students' vis- a- vis PBL Implementation. Admissibly, PBL vis- a vis Career Alignment and Strength of Graduates.

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