Problem-Based Learning: A Learner-Centered Approach to Upsurge Academic Triumph in Social Science Classroom

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Abstract

Problem-Based Learning (PBL) is a useful learner-centered approach in which learners collaborate within small groups to solve an authentic ill-structured problem that has no right or wrong answer. However, facilitating and designing PBL can be challenging for teachers as well as for learning environment with learners with diverse needs. The main purpose of this action research is to upsurge the academic triumph of Grade 12 Senior High School Learners using PBL in teaching Social Science Classroom. Specifically, this action research sought to answer the following questions: (1) what is the level of learners' academic performance in terms of their quarterly grades in UCSP as to their 1st Quarter Grade and 2nd Quarter Grade?; (2) what is the mean difference between learners' academic performance in terms of their 1st and 2nd quarter grade in UCSP?; and (3) how do the learners describe their lived experiences during and after the implementation of problem-based learning as a learner-centered approach in teaching social science classroom? The study is limited to Grade 12 learners from Understanding Culture, Society, and Politics Class of Sta. Catalina Integrated National High School from September 2022 to October 2023. In the conduct of the action research, Mixed Method Research was used to gather necessary data and information. Mean and standard deviation were analyzed using descriptive statistics for quantitative data and thematic analysis for qualitative data gathered from focus group discussions. The findings have shown that PBL as a learner-centered approach to teaching social science, had a large and positive effect to upsurge the academic triumph of Grade 12 learners which marks Very Satisfactory on the level of their academic performance in UCSP Class. For an instance, the conduct of more studies on the different factors affecting PBL integration and specific effects of PBL on various learner domain is recommended to facilitate comparative educational research in the future.

Keywords: Problem-Based Learning; Learner-Centered Approach; Academic Triumph; Social Science Classroom; Mixed Method Research

1. Context and Rationale

Teaching and learning social science have evolved over the time. The rampant sole development of essential competences, the 3Rs – Reading, 'Riting and 'Rithmetic, is, at present-day, insufficient to cope with the fast-changing realm. The new normal education setting requires the sharpening of the 21st century skills, the 7C's, to wit: Critical thinking and problem solving; Creativity and innovation; Collaboration, teamwork, and leadership; Cross-cultural understanding; Communications, information, and media literacy; Computing and ICT literacy; and Career and learning self-reliance (Trilling & Fadel, 2019). These sets of skills help prepare students to grow with confidence, to succeed in this rapid transition, and to compete globally in the future. Hence, educators are encouraged to utilize one of the approaches in constructivism; that is, Problem-Based Learning (PBL).

PBL may improve learners' academic achievement and hone their 21st century skills as it reflects modern insights to learning. It has been implemented for almost five decades now and remain as one of the most innovative constructivist pedagogical approaches used worldwide. It prepares learners for the real-life challenges that they may encounter in the future (Moallem, 2019). These real-life challenges activate learners'

prior knowledge, elaborate initial discussion, and eventually elicit their interest of the situation. Thus, the use of PBL helps teachers to unveil learners' previous knowledge through stimulating problems. Further, when a certain problem exhausts the ideas of learners, it triggers their curiosity and initiates their information-seeking behavior. As they seek and organize relevant information, they close their own knowledge gaps that lead to understanding and learning new concepts, making them more self-reliant and responsible of their own learning (Moallem, 2019). As defined by Barrows (2016), PBL is a kind of instructional method wherein problem is at the heart of the instructional material that initiates learners' understanding. In PBL, the enigmatic nature of problem drives learners' curiosity and learning. In solving problems, learners work in groups to discuss and examine the problem; engender learning goals which will be subjected for further investigations; use learning goals to guide them in self-directed learning and in gathering data; and return to their group and analyze and synthesize the gathered information to come up with the best solution. This process leads to the formulation of different teaching and learning approaches, to wit: Project-Based learning (PjBL), Learning by Design (LBD), Inquiry-Based Learning (IBL), and Design Thinking (DT).

On the other hand, given the insufficiency of empirical research on PBL Pedagogy, the current action research aimed at determining the significance of problem-based learning pedagogy in upsurging learners' academic triumph in a social science classroom at Sta. Catalina Integrated National High School.

1.1 Action Research Questions

The main purpose of this action research is to upsurge the academic triumph of Grade 12 Senior High School Learners through the use of Problem-Based Learning Pedagogy in teaching Social Science Classroom.

Specifically, this action research sought to answer the following questions:

- What is the level of learners' academic performance in terms of their 1st and 2nd quarter grades in UCSP?
- What is the mean difference between learners' academic performance in terms of their 1st and 2nd quarter grades in UCSP?
- How do the learners describe their lived experiences during and after the implementation of problem-based learning as a learner-centered approach in teaching social science classroom?

2. Innovation, Intervention, and Strategy

In this action research, the researcher focuses on the utilization and implementation of Problem-Based Learning Pedagogy in teaching Understanding Culture, Society, and Politics to Grade 12 Senior High School Learners. The pedagogical approaches were used in Social Science Classes to upsurge the academic triumph among Grade 12 learners.

Problem Based Learning (PBL) model is a learning model where learners work on authentic problems with the intention to develop their own knowledge, develop inquiry and high-level thinking skills, develop self-reliance and confidence. PBL learning features include: (a) submitting questions/problems, (b) focusing on interdisciplinary linkages, (c) authentic inquiry, (d) producing products and exhibiting them, and (e) collaboration. In PBL learners are free to obtain key issues from their problems, defining their knowledge gaps and pursuing lost knowledge.

The teaching and learning process with the implementation of PBL includes selecting the content/material and skills to be learned, determining the learning resources used, writing the problem statement, determining motivation, determining the focus of the question and how to evaluate. PBL's learning design focuses on developing learners' critical thinking skills to upsurge their academic triumph. During the teaching learning process, the lecturer only plays the role as a facilitator, who plan the activities and support

the learning process taking place. This is in accordance with the opinion which states that in PBL the teacher or lecturer as a tutor or facilitator is tasked with developing the knowledge and skills of the community members or the learners.

3. Action Research Methods

This study employed a concurrent-triangulation design in which both quantitative and qualitative data deemed vital to understand the condition. And to interpret the qualitative, the thematic analysis was used, and an inter-coder asked to check the generated themes. Moreover, the quantitative results were analyzed using the Microsoft Excel Office 365 Data Analysis.

3.1 Participants and/or other Sources of Data and Information

The participants of this research were the Grade 12 UCSP Class of Sta. Catalina Integrated National High School - SHS Department. Thirty (30) participants were selected purposively because the target participants were selected based on the aspects and objective needed as the sample of the study.

On the other hand, this study employed a concurrent-triangulation design in which both quantitative and qualitative data deemed vital to understand the condition. And to interpret the qualitative, the thematic analysis was used, and an inter-coder asked to check the generated themes. Moreover, the quantitative results were analyzed using the Microsoft Excel Office 365 Data Analysis.

3.2 Data Gathering Methods

The researcher started in the process of researching for the pedagogical approach to be utilized in actual teaching and learning process, identifying the content and topics to be covered by the quarter through the use of the curriculum guide and the most essential learning competencies, then the planning of the implementation, followed by the implementation phase, analyzation and evaluation of the result, focus group discussion and lastly the interpretation of the evaluated documents.

This study used the descriptive research design to gather information about the significance of problem-based learning to upsurge the academic triumph of grade 12 senior high school learners in social science classroom. As explained by Glen (2016), descriptive method is a process of gathering, analyzing, classifying, and tabulating data about a prevailing phenomenon, practices, beliefs, processes, trends, cause, and effect relationship and then making adequate interpretation of the data collected with or without the aid of statistical method. This involves data gathering about existing conditions supported with descriptive analysis of gathered information from the said classroom intervention and focus group discussion. Also, the design ensured to answer the questions raised since it followed a certain process of collecting and obtaining the necessary and accurate information needed in making this study. Specifically, the information used in the study came from the researcher's data bank of recorded academic performance of grade 12 UCSP class and feedback of the research participants through a focus group discussion with the use of a designed FGD questions.

3.4 Data Analysis

There are three action research questions, and this part of the action research proposal presents that manner in which data gathered will be analyzed:
- Action Research Question # 1 – mean, standard deviation.
- Action Research Question # 2 – mean, standard deviation.4

- Action Research Question # 3 – mean, standard deviation, thematic analysis.

4. Discussion of Results and Reflection

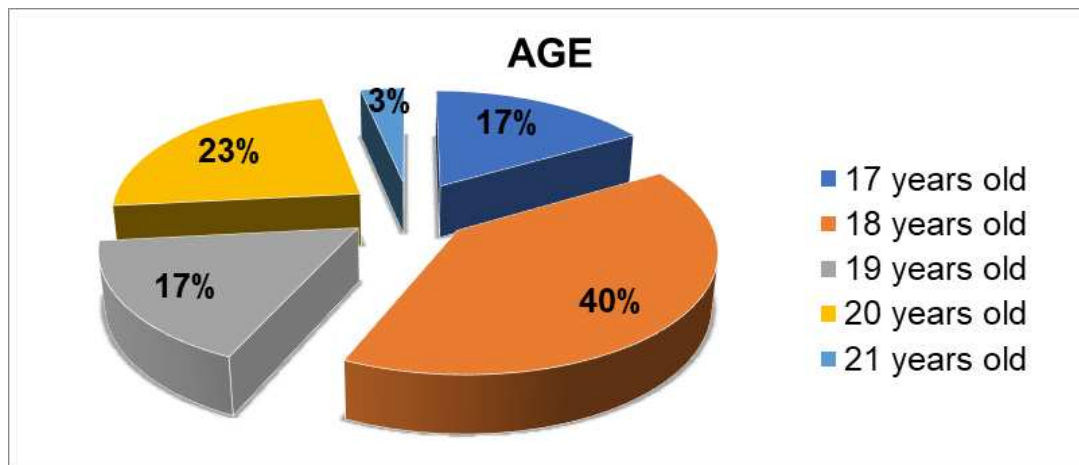4.1 Demographic Profile of the Respondents in terms of Age

Figure 1. Age of the Respondents

Figure 1 shows the demographic profile of the respondents in terms of their age. It shows that 40% or 12 respondents were 18 years old, 23% or 7 were 20 years old, 17% or 5 were 17 and 19 years old and on 3% or 1 were 21 years old. On the other hand, Figure 1 reveals that the majority of the respondents were 18 years of age.

4.2 Demographic Profile of the Respondents in terms of Gender
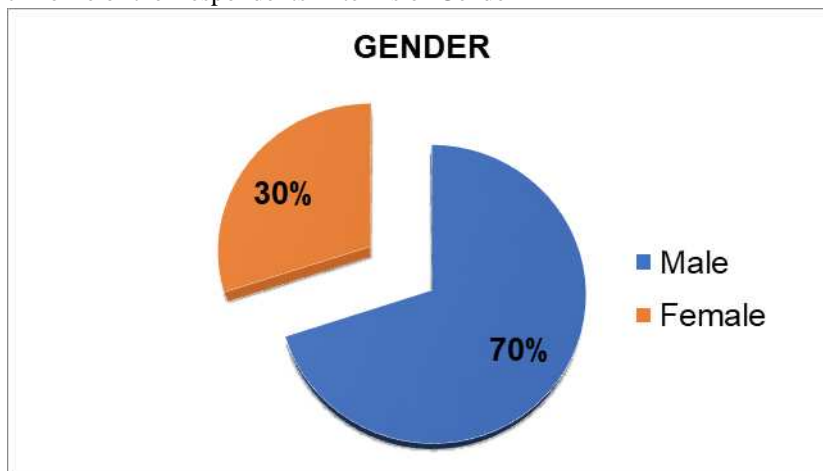

Figure 2. Demographic Profile of the Respondents in terms of Gender

As shown on Figure 2, it reflects the gender of the respondents wherein 70% or 21 were male and 30% or 9 were female. Furthermore, Figure 2 shows that most respondents were male.

Table 1 presents the Grade 12 Learner's 1st Quarter Academic Performance in Understanding Culture, Society, and Politics subject.

4.3 Academic Performance of Grade 12 Learners in Understanding Culture, Society, and Politics for First Quarter Period without the Problem-Based Learning Pedagogy

Academic Performance in UCSP for 1st Quarter Period

Grade	Frequency	Percentage
75 - 79	0	0%
80 - 84	30	100%
85 - 89	0	0%
90 - 100	0	0%
TOTAL	**30**	**100%**

Table 1. Academic Performance in UCSP for First Quarter Period

Table 1 presents the Grade 12 Learner's 1st Quarter Academic Performance in Understanding Culture, Society, and Politics subject.

The table shows the respondents' academic performance in UCSP for 1st quarter period, and it reveals that 100% or 30 has a grade ranging from 80-84 and 0% or 0 in count belongs 90-100, 85-89, and 75-79 respectively. Table 1 also reveals that the grade of the respondents in UCSP for 1st quarter period were ranging only form 80-84 and marked as satisfactory.

4.4 Academic Performance of Grade 12 Learners in Understanding Culture, Society, and Politics for Second Quarter Period Utilizing the Problem-Based Learning Pedagogy

Academic Performance in UCSP for 2nd Quarter Period

Grade	Frequency	Percentage
75 - 79	0	0%
80 - 84	0	0%
85 - 89	28	93%
90 - 100	2	7%
TOTAL	**30**	**100%**

Table 2. Academic Performance in UCSP for Second Quarter Period

Table 2 reflects the respondents' academic performance in UCSP for 2nd quarter period and it uncovers those 93% or 28 respondents has a grade ranging from 85-89 and 7% or 2 respondents belongs 90-100 ranging grades. The table also show the upsurging academic performance of the Grade 12 learners in UCSP Class. On the other hand, 7% of the respondents were marked Outstanding.

4.5 The Mean Difference of Academic Performance of Grade 12 Learners in Understanding Culture, Society, and Politics for First and Second Quarter Period

	Mean	Standard Deviation	Description
1st Quarter	82.27	1.05	Satisfactory
2nd Quarter	87.33	1.18	Very Satisfactory

Legend: 75-79 (Fairly Satisfactory); 80-84 (Satisfactory); 85-89 (Very Satisfactory); 90-100 (Outstanding)

Table 3. Mean Difference of Academic Performance in UCSP for Second Quarter Period

Table 3 shows the mean difference of grade 12 learners' academic performance in two quarter period. It uncovers that before the implementation of problem-based learning in the teaching and learning on grade 12 UCSP class showed the satisfactory level of academic performance (M=82.27, SD=1.05) and very satisfactory level academic performance after the integration and implementation of problem-based learning in the teaching and learning process (M=87.33, SD=1.18).

The action research question for qualitative data that requires qualitative data analysis was "how do the learners describe their lived experiences during and after the implementation of problem-based learning as a learner-centered approach in teaching social science classroom?" led to the researcher to develop interview questions for focus group discussion about participants' experiences with problem-based learning approach. In order to be able to grasp the concept of this intervention program, an understanding of participants' perceptions regarding this concept was needed.

4.6 Focus Group Discussion

Theme(s)	Sentences/Phrases	Participants
The Construct of UCSP ▪ What's the first word that comes to mind when you enter my UCSP Class? ▪ What thoughts, feelings, and associations come to mind first when you think about your academic performance in UCSP?	Difficult. Nababalitaan kasi namin na medyo strikto si Sir. Puros sauluhin ata ang mga pinag-aaralan dun. Hindi ako ganun ka-okay sa memorization kaya baka medyo mahirapan ako sa subject na 'yon.	SP-1
	Sakto lang. Halos 3 weeks pa lang naman nung nagstart ang klase, kaya hindi ko po sure. Pero mukang magiging ok naman. Basta maka 80 na grade ok na 'yon. 'wag lang line-off 7. Hehehe!	SP-2
	History? Hindi ko personally gusto ang history, ang dami kasing mga dates na need imemorized d'yan. Sinamahan pa ng culture at politics, hindi ako interesado sa mga ganyan. Hahahah! Pero ewan ko lang din, bahala na si Sir kung pano n'ya gagawing ok ang discussion. Peace Sir!	SP-3
	Pa-major. Mahirap daw sabi nung Ate ko na nagging student din si Sir. Muka naman s'yang exciting kasi sabi din ni Ate ehh magaling naman daw si Sir and base naman sa nakikita ko ehh ok naman talaga si Sir. Mukang	SP-4

	lang talagang masungit.	
▪ Are there any other points you'd like to make about this subject?	Smooth. Core subject 'to kaya wala kaming ligtas, whether we like it or not, we must take this subject as part of the requirement. Pwede na 'ko sa 80 na grades, madalas din naman kasi akong makakabsent dahil need ako minsan sa bahay at bukid. Hahahaha! Sana lang considerate si Sir sa mga gaya kong paabsent. Hahaha!	SP-5
	Kalma. Hahaha! Ako din pala-absent kaya ok na 'ko sa 80 na grade. Nag-eenjoy naman ako sa klase ni Sir kaya mukang wala naman akong magiging problema so far.	SP-6
The (Re)construct of UCSP ▪ What's the first word that comes to mind when you enter my UCSP Class? ▪ What thoughts, feelings, and associations come to mind first when you think about your academic performance in UCSP? ▪ Are there any other points you'd like to make about this subject?	Basic. Ang saya ng mga naging topics and ways ni Sir kung paano kami maeenganyong mag-aral sa subject n'ya. Mahirap in a way na 'pag hindi mo talaga inaral yung mga concepts ehh hindi ka talaga kakasagot. Ok na ok sa'kin ang subject na 'to. 'Yun lang.	SP-1
	Basic. Naging ok ang itinakbo ng mga sessions namin. Kahit nakakaabsent ako, nakakahabol naman ako dahil sa Project PAL ni Sir. Mabait s'ya, kasi tinatanggap pa rin n'ya mga output namin kahit late na ipasa. Hahahaha!	SP-2
	Inisihan. Akala ko dati history s'ya, hindi naman pala, nahahaluan lang pala ng history kase may mga concept sa topic na related sa history at sa iba pang subject. Naeenjoy namin ang mga activity ng walang kaba kahit mahigpit si Sir.	SP-3
	Easy. Hahahah! Inisihan lang ni Sir kase gets agad namin mga banat n'ya. 'Di ka mauubusan ng sagot kasi naeexplain ni Sir ng 'ayos sa mga katulad kong saktuhang student lang. At tama ang Ate ko, mabait at magaling si Sir kaya makakapasa ako sa subject n'ya.	SP-4
	Sana All. Hahahah! 'Gaya nung sagot ko noong nakaraan sana maging considerate si Sir, totoo naman pala. Madalas kasi ehh late ako mgrecite sa partner ko pero pinapayagan parin akong makarecite. Wala na 'kong masasabi at ok ang itinakbo ng aralan namin.	SP-5
	Basic. Akala ko lalagapak na 'ko dahil madalas late at kulang mga output ko. Pero nakasalba naman dahil kahit late ang performance task ehh inaaccept parin ni Sir ang mga gawa namin. Ang mahalaga ehh marami akong natutunang concept. Inisihan din kasi ni Sir mga banat n'ya sa discussion kaya madaling naiintindihan.	SP-6

Table 5. Theme Emerged from the Focus Group Discussion

The table shows the identified themes emerged from focus group discussions. For instance, during the construct of UCSP, to the question "What's the first word that comes to mind when you enter my UCSP Class?", Participant 1 replied, "Difficult. Nababalitaan kasi namin na medyo strikto si Sir. Puros sauluhin ata ang mga pinag-aaralan dun. Hindi ako ganun ka-okay sa memorization kaya baka medyo mahirapan ako sa subject na 'yon." A participant offered a broader perception noting, "Sakto lang. Halos 3 weeks pa lang

naman nung nagstart ang klase, kaya hindi ko po sure. Pero mukang magiging ok naman. Basta maka 80 na grade ok na 'yon. 'wag lang line-off 7. Hehehe!". Participant 3 answered:

> *"History? Hindi ko personally gusto ang history, ang dami kasing mga dates na need imemorized d'yan. Sinamahan pa ng culture at politics, hindi ako interesado sa mga* ganyan. Hahahah! Pero ewan ko lang din, bahala na si *Sir kung pano n'ya gagawing ok ang discussion. Peace Sir!"*

Meanwhile, Participant 4 responses, "Pa-major. Mahirap daw sabi nung Ate ko na nagging student din si Sir. Muka naman s'yang exciting kasi sabi din ni Ate ehh magaling naman daw si Sir and base naman sa nakikita ko ehh ok naman talaga si Sir. Mukang lang talagang masungit.". Participant 5 replied, "Smooth. Core subject 'to kaya wala kaming ligtas, whether we like it or not, we must take this subject as part of the requirement. Pwede na 'ko sa 80 na grades, madalas din naman kasi akong makakabsent dahil need ako minsan sa bahay at bukid. Hahahaha! Sana lang considerate si Sir sa mga gaya kong paabsent. Hahaha!". Moreover, lastly, Participant 6 noted that "Kalma. Hahaha! Ako din pala-absent kaya ok na 'ko sa 80 na grade. Nag-eenjoy naman ako sa klase ni Sir kaya mukang wala naman akong magiging problema so far."

This is strengthened by the work of Hmelo-Silver (2017), that educators use various method to identify the students' diverse needs in the learning environment such as scenarios, jigsaw method, and Socratic question techniques because problem-based learning process and encourages learners to become engaged with the problem.

On the other hand, on the (re)constructs of UCSP after the implementation of problem-based learning, participants' responses significantly change where in Participant 1 noted that "Basic. Ang saya ng mga naging topics and ways ni Sir kung paano kami maeenganyong mag-aral sa subject n'ya. Mahirap in a way na 'pag hindi mo talaga inaral yung mga concepts ehh hindi ka talaga kakasagot. Ok na ok sa'kin ang subject na 'to. 'Yun lang.". During FGD Participant 2 replied:

> Basic. Naging ok ang itinakbo ng mga sessions namin. Kahit nakakaabsent ako, nakakahabol na*man ako dahil sa Project PAL ni Sir. Mabait s'ya, kasi tinatanggap pa rin n'ya mga output namin kahit late na ipasa. Hahahaha!*

Participant 3 answered it: "Inisihan. Akala ko dati history s'ya, hindi naman pala, nahahaluan lang pala ng history kase may mga concept sa topic na related sa history at sa iba pang subject. Naeenjoy namin ang mga activity ng walang kaba kahit mahigpit si Sir.". Meanwhile, Participant 4 stated:

> Easy. Hahahah! Inisihan lang ni *Sir kase gets agad namin mga banat n'ya. 'Di ka* mauub*usan ng sagot kasi naeexplain ni Sir ng 'ayos sa mga katulad kong saktuhang student lang. At tama ang Ate ko, mabait at magaling si Sir kaya makakapasa ako sa subject n'ya.*

Also, Participant 5 explained, "Sana All. Hahahah! 'Gaya nung sagot ko noong nakaraan sana maging considerate si Sir, totoo naman pala. Madalas kasi ehh late ako mgrecite sa partner ko pero pinapayagan parin akong makarecite. Wala na 'kong masasabi at ok ang itinakbo ng aralan namin.". And lasrly, Participant 6 noted, "Basic. Akala ko lalagapak na 'ko dahil madalas late at kulang mga output ko. Pero nakasalba naman dahil kahit late ang performance task ehh inaaccept parin ni Sir ang mga gawa namin. Ang mahalaga ehh marami akong natutunang concept. Inisihan din kasi ni Sir mga banat n'ya sa discussion kaya madaling naiintindihan.".

McCoy (2016), learners learn in different ways and bring significant amounts of previous knowledge and experience along with diverse needs set to classroom. Learners need a learner-centered approach rather

than a teacher-centered learning environment in which the teacher is the manager of the learning environment, whereas the learner-centered approach empowers learners to become self-directed.

This study explored strategies facilitators used to engage learners to day-to-day learning activities. Facilitators are central to learner engagement and use instructional strategies to create learning that is active, collaborative, and foster diverse learners' cultural background and experience in which learners feel accepted and affirmed. Furthermore, facilitators use instructional strategies that will extend beyond their cognitive capabilities (because learners are reflecting, questioning, evaluating, and making connections between ideas and concepts).
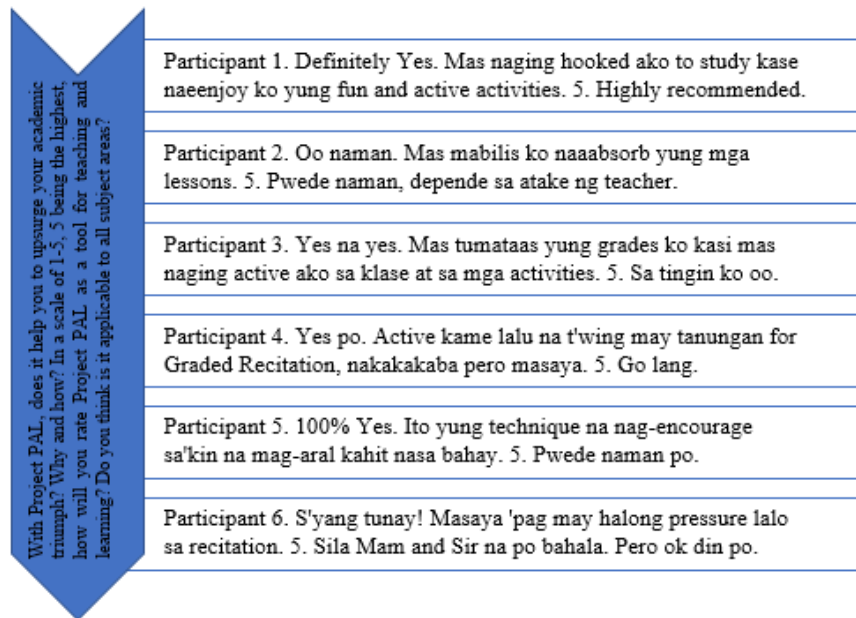

Figure 3. Participants' Perceived Effectiveness of Problem-Based Learning Pedagogy

AREA(S) and PROJECT TITLE	OBJECTIVES	PERSON(S) RESPONSIBLE	TIME FRAME	RESOURCES NEEDED/SOURCE OF FUND	
				EQUIPMENT/ MATERIAL NEEDED	SOURCE OF FUND
Project PAL (Peer-Assisted Learning)	- promote life-long learning among SHS learners. - engage learner to a meaningful and fun learning environment.	School Principal, Project Proponent and Senior High School Teachers	September 2022 to February 2023	- Laptop - Projector - Microsoft Office (MS Excel, Spread sheet or Worksheet) - Bond Paper - Printer	Personal Fund MOOE if applicable

Table 6. Proposed Action Plan for School Year 2023-2024

5. Reflections

The results connote that the integration and implementation of problem-based learning in teaching social science classroom to the 21st century learners are effective. There is a change in the level of respondents' academic performance as evident on their responses during the exit interview and final FGD session and the result of their 2nd Quarter grades in UCSP subject.

In connection with the above statements, participants found that shifting the power of learning or giving control to the learners to be beneficial. Critical questioning is another important methodology one participant emphasized that encourages learners to elaborate their understanding and assist in constructing learning.

Furthermore, by providing rubrics or the opportunity for learners to learn and construct their own rubrics at the beginning of the learning journey is significant for learners to take ownership of their learning and maintain engagement.

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