

Problem-Based Learning Material in Contemporary Issues ProBLem iCI: A Practical Workbook in Social Studies

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Abstract—The main purpose of the study was to determine the effect of the problem-based learning material in contemporary issues ProBLem iCI as a practical workbook on the learners' active learning and performance in Social Studies. This study aims to assess the extent of the ProBLem iCI as a learning material relative to its components; features; learners' active learning; and performance in Social Studies. The research also explores into investigating notable disparities in learners' performance in Social Studies. Furthermore, the study also finds the effect of the ProBLem iCI workbook on learners' active learning and performance in Social Studies. The study employed experimental research to assess the influence of ProBLem iCI workbook on learners' active learning and performance in Social Studies. Purposive sampling technique was used to one hundred (100) Grade 10 students at Pedro Guevara Memorial National High School. Descriptive and inferential statistics, including weighted mean, standard deviation, T-test, and Regression Analysis. The objectives, content, reflective exercise, evaluation, design, usability, appeal, clarity, appropriateness, and complexity as components and features of ProBLem iCI were very highly validated. Furthermore, the level of learners' active learning in terms of class participation, collaboration, self-reflection, task-completion, and reflective observation was very high. A notable difference in learners' performance in Social Studies between the formative and summative assessment was observed. Lastly, the ProBLem iCI as a practical workbook was found to be very effective on learners' active learning. A significant difference in learners' performance in Social Studies between the formative and summative assessment was noted. Thus, the null hypothesis is rejected. Significant effect of the use of the ProBLem iCI as a practical workbook on learners' active learning was observed, denoted by rejecting the null hypothesis. Lastly, no significant effect of the use of the ProBLem iCI as a practical workbook on learners' performance in summative test was observed. Thus, the hypothesis is accepted. Based on these results, it was recommended that to enhance the ProBLem iCI workbook's impact, regularly update and refine its content, design, and structure based on learner feedback. Maintain active learning strategies, expand reflective exercises, and integrate diverse, engaging methods. Support deeper concept exploration through advanced challenges. Prioritize clarity and user-friendliness, and incorporate exam prep tools to better align with varied learning needs and objectives.

I. INTRODUCTION

In an era characterized by rapid technological advancements and complex societal challenges, the demand for effective and innovative problem-solving strategies has never been greater. The responsibility of the teachers is to transfer the knowledge and help the students to acquire the skills that the 21st century

learners needed. Therefore, educators must encourage critical thinking, creativity, and flexibility in students in addition to imparting knowledge. Teachers play an important role in preparing students to navigate and prosper in an ever-changing environment by embracing innovative instructional methods.

Based on the P21 Framework for 21st Century Learning, it explains the skills, knowledge, and expertise that students must possess in order to excel in business and life; it is a combination of topic knowledge, particular skills, expertise, and literacies. Critical thinking, problem solving, communication, and cooperation are all part of the learning and inventive abilities that 21st-century learners must develop. Additionally, learning and inventive skills can assist kids prepare for more complex life and job contexts. In order to succeed in today's world, students need to learn critical thinking, problem-solving, communication, and teamwork.

Problem-Based Learning (PBL) encourages active learning, collaboration, critical thinking, and self-directed learning in small groups. To optimize efficacy, teachers should limit their engagement, allowing pupils to direct their own learning and collaborate interactively. (Recidoro and Naval, 2023). Problem-based learning (PBL) is a teaching style in which students are presented with real or simulated issues to help them understand a subject and build critical thinking abilities. Unlike traditional teaching approaches such as lectures or Socratic questioning, PBL encourages active learning by allowing students to investigate complicated, open-ended problems independently. Teachers serve as facilitators, leading students through the learning process rather than giving direct teaching (Andal & Hermosa, 2024). The goal of our education can be met by using problem-based learning to educate students for 21st century abilities such as innovation, creativity, and critical thinking.

Instructional and supplementary learning materials were updated solely to make courses easier by adhering to the MELC established by the Department of Education. These teacher-created extra learning resources inspired students and kept them interested in mathematics. Teaching-learning experiences for both teachers and students resulted in tailored teaching materials, one of which was the ProBLem iCI.

In this study, the researcher wants to find out the effectiveness of the teacher-made workbook called ProBLem iCI on the active learning and performance of Grade 10 students in Social Studies.

1.1 Statement of the Problem

Problem/s which were addressed by the research

This research aimed to determine the Effectivity of the Problem Based Material in Contemporary Issues (ProBLem iCI) on learner's Active learning and performance. Specifically, it seeks to answer the following questions:

1. What is the level of the ProBLem iCI's components in terms of:
 - 1.1 Objectives;
 - 1.2 Content;
 - 1.3 Reflective Exercise; and
 - 1.4 Evaluation?
2. What is the level of the ProBLem iCI's features in terms of:
 - 2.1 Design;
 - 2.2 Usability;
 - 2.3 Appeal;
 - 2.4 Clarity;
 - 2.5 Appropriates; and
 - 2.6 Complexity?
3. What is the level of learners' active learning in terms of:
 - 3.1 Class Participation;
 - 3.2 Collaboration;
 - 3.3 Self-Reflection;
 - 3.4 Task-Completion; and
 - 3.5 Reflective Observation?
4. What is the learners' performance in terms of:
 - 4.1 Formative Assessment; and
 - 4.2 Summative Assessment?
5. Is there a significant difference in the learners' performance in terms of formative and summative assessment with the use of the ProBLem iCI?
6. Is there a significant effect of the use of the ProBLem iCI on learners' active learning?
7. Is there a significant effect of the use of the ProBLem iCI on learners' performance in terms of summative assessment?

II. METHODOLOGY

The study employed experimental research to assess the influence of ProBLem iCI workbook on learners' active learning and performance in Social Studies. One hundred (100) Pedro Guevara Memorial National High School Grade 10 pupils were selected using the purposive sample technique. Descriptive and inferential statistics, including weighted mean, standard deviation, T-test, and Regression Analysis.

III. RESULTS AND DISCUSSION

This chapter present, analyzes and interprets the data gathered that showed significant difference on learners' performance in formative and summative test, significant difference on learners' performance, and significant effect on the use of problem-based learning material in contemporary issues on learners' active learning and performance.

Level of the Problem-Based Learning Material in Contemporary Issues

Problem-Based Learning Material in contemporary issues refers to instructional resources designed to facilitate Problem-Based Learning, an educational approach where students learn

by engaging with real-world problems. In this study problem base learning material compose of the component such as objectives, content, reflective exercise and evaluation. This component was statistically measured using mean and standard deviation.

Table 1 presents the evaluation of the ProBLem iCI's components in terms of Objectives, based on five key statements. The responses were measured using a Likert scale, and the results are expressed in terms of mean scores, standard deviations (SD), and verbal interpretations.

The overall weighted mean is 4.65, and the standard deviation of 0.54 indicates that, on average, respondents strongly agree that the objectives of the ProBLem iCI workbook are well-defined, well-structured, and effectively support student learning.

The workbook successfully provides well-planned and measurable objectives that align with educational standards. These results imply that the workbook can be confidently used as an instructional resource, as it effectively supports student learning and competency development.

TABLE 1. Level of the ProBLem iCI's components in terms of Objectives

STATEMENT	MEAN	SD	REMARKS
Each lesson in the Workbook is accompanied by specific objectives.	4.62	0.53	Strongly Agree
The objectives are well planned, formulated and organized.	4.67	0.49	Strongly Agree
The objectives are measurable and attainable.	4.66	0.55	Strongly Agree
The Objectives are aligned with the Most Essential Learning Competencies.	4.68	0.55	Strongly Agree
The objectives describe a direction for the students to acquire new knowledge and skills	4.64	0.59	Strongly Agree
Weighted Mean	4.65		
SD	0.54		
Verbal Interpretation	Very High		

This was also consistent with the statement of Orr et al. (2022) that objectives provide measurable criteria for assessing both learner performance and the effectiveness of instructional materials. They allow educators to identify areas where learners may be struggling and adjust teaching methods or content accordingly. This process supports continuous improvement in teaching practices and learning materials.

Table 2 presents the evaluation of the ProBLem iCI's components in terms of Content, based on five key statements. The responses were measured using a Likert scale, and the results are expressed in terms of mean scores, standard deviations (SD), and verbal interpretations.

The overall weighted mean is 4.67, and the standard deviation of 0.50 indicates that, on average, respondents strongly agree that the content of the ProBLem iCI workbook is clear, with logical flow of ideas and concept, catches and sustains learners' interest and adequate development of concept. The workbook successfully provides a very clear concept. These results imply that the workbook is both complex and centered around solving current, real-world issues, encouraging learners to engage deeply with the material and think critically.

TABLE 2. Level of the ProBLem iCI's Components in terms of Content

STATEMENT	MEAN	SD	REMARKS
The concepts are clearly presented.	4.72	0.45	Strongly Agree
There is a logical flow of ideas and concept.	4.64	0.48	Strongly Agree
The presentation of concepts catches and sustains the student interest.	4.66	0.54	Strongly Agree
Issues and topics are sustainable to the high school students.	4.68	0.53	Strongly Agree
The content includes adequate development of concepts.	4.66	0.50	Strongly Agree
Weighted Mean	4.67		
SD	0.50		
Verbal Interpretation	Very High		

Since the results show that the content was valid, it was consistent with the statement of Dringoli et al., (2021), workbooks that deliver knowledge in a logical order, starting with conceptual understanding followed by theoretical applications and example-based content, have been demonstrated to increase student learning results.

Table 3 presents the evaluation of the ProBLem iCI's components in terms of Reflective Exercise, based on five key statements. The responses were measured using a Likert scale, and the results are expressed in terms of mean scores, standard deviations (SD), and verbal interpretations.

The overall weighted mean is 4.65, and the standard deviation of 0.67 indicates that, on average, respondents strongly agree that the reflective exercise of the ProBLem iCI workbook help the learners to clearly understand the central issue, deepened awareness, engaged in meaningful self-exploration, and connected the problem to their own experiences or prior knowledge.

TABLE 3. Level of the ProBLem iCI's Components in terms Reflective Exercise

STATEMENT	MEAN	SD	REMARKS
The reflective exercise helped me clearly understand the central issue presented in the PBL material.	4.65	0.54	Strongly Agree
Reflecting on the problem deepened my awareness of its relevance to real-world situations.	4.73	0.51	Strongly Agree
The reflective activity engaged me in meaningful self-exploration.	4.54	0.64	Strongly Agree
I felt motivated to connect the Problem to my own experiences or prior knowledge.	4.64	0.59	Strongly Agree
The reflective exercise provided sufficient prompts to guide my thinking.	4.67	0.53	Strongly Agree
Weighted Mean	4.65		
SD	0.67		
Verbal Interpretation	Very High		

The workbook successfully provides sufficient prompts to guide learners' thinking. These results imply that the workbook is advanced and involves tackling contemporary problems through Problem-based Learning (PBL), with a strong emphasis on reflective exercises to help students deeply

analyze their problem-solving process and the broader significance of the issues they address.

The findings on the validation of assessment of the ProBLem iCI were supported by Rogers (2018), by assigning reflection exercises, students become more conscious of their own learning process. The teachers also discovered that they gained useful information that allowed them to tailor their instruction and feedback to the requirements of their students.

Table 4 presents the evaluation of the ProBLem iCI's components in terms of Evaluation, based on five key statements. The responses were measured using a Likert scale, and the results are expressed in terms of mean scores, standard deviations (SD), and verbal interpretations.

TABLE 4. Level of the ProBLem iCI's Components in terms of Evaluation

STATEMENT	MEAN	SD	REMARKS
The problem statement was well-defined and easy to evaluate in terms of scope and focus.	4.50	0.64	Strongly Agree
The structure of the workbook allowed for systematic evaluation of the issue.	4.62	0.55	Strongly Agree
The workbook engaged me actively in the evaluation of the problem.	4.73	0.45	Strongly Agree
The resources provided with the workbook were sufficient for a thorough evaluation of the issue	4.71	0.46	Strongly Agree
The workbook improved my ability to evaluate contemporary issues critically.	4.73	0.45	Strongly Agree
Weighted Mean	4.66		
SD	0.52		
Verbal Interpretation	Very High		

The overall weighted mean is 4.66, and the standard deviation of 0.52 indicates that, on average, respondents strongly agree that the evaluation of the ProBLem iCI workbook is well-defined, easy to evaluate, systematical, and sufficient through evaluation of issue. The workbook successfully sufficient and engages the learners actively in the evaluation of the problem and sufficient. These results imply that the workbook is not just about tackling contemporary issues through PBL, but also about evaluating the entire process, including how well learners approached the problem, the quality of their solutions, and their ability to assess their own and others' work. The focus on evaluation suggests that students will engage in continuous feedback and reflection to refine their problem-solving abilities and improve their understanding of the issue at hand. Findings on the validation of ProBLem iCI's components in terms of evaluation were supported by Hoadley and Galant (2016) that investigated three uses for the workbook: a practice tool, an evaluation tool, and a monitoring tool. The authors emphasized the workbook's high degree of curricular conformance, indicating that it would serve as an excellent monitoring tool for assessing student achievement.

Level of the ProBLem iCI's features

Features are aspects that define how the instructional material is structured, delivered, and aligned with learning goals. In this study feature include variables such as design, usability, appeal, clarity, appropriateness and complexity, and was measured using mean and standard deviation.

Table 5 presents the evaluation of the ProBLem iCI's features in terms of design, based on five key statements. The responses were measured using a Likert scale, and the results are expressed in terms of mean scores, standard deviations (SD), and verbal interpretations.

The weighted mean is 4.65, and the standard deviation of 0.52 indicating that respondents strongly agree that the design of the ProBLem iCI workbook is effective and well-structured. The result implies that strong layout, readability, and integration of visuals contribute to a positive learning experience. While the overall rating is very high, small refinements in the use of visuals and color scheme may further improve its effectiveness. These results validate the workbook as a well-designed educational tool that supports student learning and engagement.

TABLE 5. Level of the ProBLem iCI's features in terms Design

STATEMENT	MEAN	SD	REMARKS
The layout of the workbook is clear and easy to navigate.	4.73	0.45	Strongly Agree
The fonts and text size used in the workbook are appropriate and easy to read.	4.68	0.47	Strongly Agree
The workbook effectively integrates images, and other visual elements to aid in understanding.	4.60	0.59	Strongly Agree
The color scheme used in the workbook enhances the learning experience and does not cause distractions.	4.60	0.57	Strongly Agree
The workbook's design encourages Students to take initiative and think critically.	4.66	0.54	Strongly Agree
Weighted Mean	4.65		
SD	0.52		
Verbal Interpretation	Very High		

The general design of educational resources, such as workbooks, can influence student interest and achievement. Brownell (2014) argued that careful design features can improve student achievement.

Table 6 presents the evaluation of the ProBLem iCI's features in terms of usability, based on five key statements. The responses were measured using a Likert scale, and the results are expressed in terms of mean scores, standard deviations (SD), and verbal interpretations.

TABLE 6. Level of the ProBLem iCI's features in terms of Usability

STATEMENT	MEAN	SD	REMARKS
I find the workbook to be user-friendly and supportive of my learning process.	4.77	0.42	Strongly Agree
The workbook is easy to navigate, and I can find the content I need without difficulty.	4.62	0.55	Strongly Agree
The instructions for the activities and exercises in the workbook are clear and easy to understand.	4.62	0.60	Strongly Agree
The workbook offers a variety of tasks and activities that cater to different learning styles and preferences.	4.48	0.63	Strongly Agree
The usability of the workbook enhances my learning experience, making it easy for me to engage with the material and complete the activities.	4.76	0.43	Strongly Agree
Weighted Mean	4.65		
SD	0.54		
Verbal Interpretation	Very High		

The weighted mean is 4.65, and the standard deviation of 0.54, indicating that respondents strongly agree that the usability of the ProBLem iCI workbook is user-friendly, easy to navigate and understand. The result implies that high-level PBL material based on contemporary issues, is also designed to be user-friendly. Its features are optimized to ensure that learners can easily interact with the material, understand the problems, and engage with the learning process effectively. The focus on usability ensures that the workbook enhances the learning experience, making it both functional and engaging for the students.

In connection, Matienzo (2022) conducted research on the use of additional worksheets in mathematics education. In particular, the clarity and usability of material. In addition, the degree of the student's mathematical performance before and after the test. The findings revealed that the majority of teachers who evaluated the extra worksheet rated its accuracy, appropriateness, clarity, and usefulness as extremely acceptable. Furthermore, there is a considerable difference between the students' mathematics performance before and after the test. This means that students' mathematics performance improved after using the additional worksheet.

TABLE 7. Level of the ProBLem iCI's features in terms Appeal

STATEMENT	MEAN	SD	REMARKS
Topics are arranged in manner that will be easy for the students to understand the lesson.	4.71	0.52	Strongly Agree
The problem-based activities used simple word and grammar.	4.68	0.60	Strongly Agree
Workbook stimulates the interest of the student in Social Studies	4.63	0.65	Strongly Agree
Workbook is presented at a space that allows for reflection and review.	4.67	0.60	Strongly Agree
Topics presented are on the level of the students and encourage higher order thinking skills.	4.68	0.58	Strongly Agree
Weighted Mean	4.67		
SD	0.59		
Verbal Interpretation	Very High		

Table 7 presents the evaluation of the ProBLem iCI's features in terms of appeal, based on five key statements. The responses were measured using a Likert scale, and the results are expressed in terms of mean scores, standard deviations (SD), and verbal interpretations.

The weighted mean is 4.67, and the standard deviation of 0.59, indicating that respondents strongly agree that the appeal of the ProBLem iCI workbook is both attractive and engaging. The result implies that it is designed to appeal to students by being engaging, motivating, and relevant. Its content and structure are crafted in a way that not only challenges students but also makes the learning process enjoyable and effective, enhancing their experience with Problem-based Learning on contemporary issues.

The findings on the evaluation of appeal of the ProBLem iCI was supported by Ganesh (2014), who discusses the effectiveness of comic strips as supplemental material for teaching computer networks. The author discovered that comic strips bring theoretical concepts to life that are otherwise abstract. Thus, by incorporating comic books as a

supplemental element, we bring a fun element to the teaching-learning process. This increases student involvement.

Table 8 presents the evaluation of the ProBLEm iCI's features in terms of clarity, based on five key statements. The responses were measured using a Likert scale, and the results are expressed in terms of mean scores, standard deviations (SD), and verbal interpretations.

TABLE 8. Level of the ProBLEm iCI's features in terms Clarity

STATEMENT	MEAN	SD	REMARKS
The instructions for each activity in the workbook are clear and easy to understand.	4.71	0.50	Strongly Agree
The language used in the workbook is simple and appropriate for my level of understanding.	4.73	0.45	Strongly Agree
The content of the workbook is organized in a logical manner that makes it easy to follow.	4.64	0.58	Strongly Agree
The examples provided in the workbook help clarify the concepts and activities.	4.69	0.49	Strongly Agree
The learning objectives for each section are clearly stated and help me understand what I am expected to learn and achieve by the end of the activities.	4.69	0.46	Strongly Agree
Weighted Mean	4.69		
SD	0.50		
Verbal Interpretation	Very High		

The weighted mean is 4.69, and the standard deviation of 0.50, indicating that respondents strongly agree that the appeal of the ProBLEm iCI workbook presents in a way that is easy to comprehend and free from ambiguity. The result implies that it deals with advanced, real-world problems (contemporary issues) in a Problem-based Learning format, it is designed to ensure that the content is presented in a very clear and easily understandable way. The structure, language, and supporting materials are all crafted to help students focus on problem-solving without getting bogged down by unclear or confusing information.

According to Roska et al. (2017) discovered that students who reported more exposure to clear and organized instruction had higher levels of academic motivation, spent more time studying, participated in class more frequently, and were more prepared for class.

Table 9 presents the evaluation of the ProBLEm iCI's features in terms of appropriateness, based on five key statements. The responses were measured using a Likert scale, and the results are expressed in terms of mean scores, standard deviations (SD), and verbal interpretations.

With a weighted mean of 4.65 and a standard deviation of 0.56, the respondents overwhelmingly concur that the ProBLEm iCI workbook is highly appropriate for its target audience, context, and purpose. It fits well with the learners' needs, the subject matter, and the learning objectives. The result implies that the content, structure, and activities are perfectly suited for the learners, the subject of contemporary issues, and the problem-based learning approach.

The workbook is well-crafted to ensure that it provides meaningful, relevant, and accessible learning experiences in a way that fits both the learners' needs and the context in which it is used.

TABLE 9. Level of the ProBLEm iCI's features in terms Appropriateness

STATEMENT	MEAN	SD	REMARKS
The problem presented in the material was appropriate for the topic being explored.	4.69	0.51	Strongly Agree
The material addressed relevant and timely contemporary issues.	4.70	0.50	Strongly Agree
The level of complexity in the problem matched my abilities and knowledge.	4.50	0.67	Strongly Agree
The material was appropriate for helping me develop new skills or knowledge.	4.65	0.56	Strongly Agree
The Workbook was appropriate for addressing the contemporary issue effectively. Positive learning experience.	4.70	0.50	Strongly Agree
Weighted Mean	4.65		
SD	0.56		
Verbal Interpretation	Very High		

Table 10 presents the evaluation of the ProBLEm iCI's features in terms of complexity, based on five key statements. The responses were measured using a Likert scale, and the results are expressed in terms of mean scores, standard deviations (SD), and verbal interpretations.

The weighted mean is 4.69, and the standard deviation of 0.55, indicating that respondents strongly agree that the appropriateness of the ProBLEm iCI workbook is appropriately challenging for its intended audience, offering a level of difficulty that is neither too easy nor too overwhelming. The result implies an advanced, complex content in the form of Problem-based Learning on contemporary issues, offering highly challenging tasks that push learners to engage deeply with multifaceted problems. The workbook's complexity is designed to foster higher-order thinking, problem-solving, and interdisciplinary learning, making it appropriate for learners seeking to develop their critical thinking and analytical skills.

TABLE 10. Level of the ProBLEm iCI's features in terms Complexity

STATEMENT	MEAN	SD	REMARKS
The material included data, case studies, or examples with an appropriate level of complexity.	4.64	0.54	Strongly Agree
The complexity of the tasks fostered productive discussions and debates.	4.69	0.54	Strongly Agree
The complexity of the material's features enhanced my understanding of the issue.	4.77	0.42	Strongly Agree
The level of complexity in the features was suitable for my learning goals.	4.67	0.62	Strongly Agree
The activities required balancing multiple objectives or perspectives.	4.66	0.59	Strongly Agree
Weighted Mean	4.69		
SD	0.55		
Verbal Interpretation	Very High		

Level of Learners' Active Learning

Learners' active learning refers to an instructional approach where students actively engage with the learning material through participation, exploration, and critical thinking rather than passively receiving information. In this study learners active learning include variables such as class participation, collaboration, self-reflection, task completion, reflective observation.

TABLE 11. Level of Learners' Active learning in terms of Class Participation

STATEMENT	MEAN	SD	REMARKS
The Workbook encouraged me to actively participate in the learning process.	4.69	0.54	Strongly Agree
I felt comfortable sharing my ideas and opinions during class	4.69	0.54	Strongly Agree
The material encouraged me to take responsibility for my participation in class.	4.69	0.51	Strongly Agree
I was able to reflect on my participation and improve my contributions to the class	4.63	0.61	Strongly Agree
The material helped me balance listening and speaking during class participation.	4.59	0.59	Strongly Agree
Weighted Mean	4.66		
SD	0.56		
Verbal Interpretation	Very High		

Table 11 presents the evaluation of the learners' active learning in terms of class participation, based on five key statements. The responses were measured using a Likert scale, and the results are expressed in terms of mean scores, standard deviations (SD), and verbal interpretations.

The weighted mean is 4.66, and the standard deviation of 0.56, indicating that respondents strongly agree that the class participation of learners' active learning is highly engaged and actively involved in the learning process during class. The result implies that the learners extremely engaged and actively contribute to all aspects of the class—discussions, activities, problem-solving, and collaboration. Their participation enhances the learning environment, helps them internalize and apply the material, and leads to a more dynamic and effective classroom experience.

According to Severe et al. (2024), past research has shown that making classrooms more active and student-centered increases learning, which typically involves encouraging student talk in the classroom.

Table 12 presents the evaluation of the learners' active learning in terms of collaboration, based on five key statements. The responses were measured using a Likert scale, and the results are expressed in terms of mean scores, standard deviations (SD), and verbal interpretations.

TABLE 12. Level of Learners' Active learning in terms of Collaboration

STATEMENT	MEAN	SD	REMARKS
The PBL material encouraged effective collaboration with my classmates.	4.60	0.68	Strongly Agree
The activities required teamwork to address the problem.	4.63	0.58	Strongly Agree
The material facilitated open communication and interaction among group members.	4.63	0.60	Strongly Agree
The Workbook helped us define clear roles and responsibilities within the group.	4.67	0.53	Strongly Agree
Collaboration in class improved my understanding of the contemporary issue.	4.66	0.50	Strongly Agree
Weighted Mean	4.64		
SD	0.58		
Verbal Interpretation	Very High		

The weighted mean is 4.64, and the standard deviation of 0.58, indicating that respondents strongly agree that the

collaboration of learners' active learning is highly effective at working together in groups or pairs to solve problems, share knowledge, and engage in collective learning. The result implies that learners deeply engaged in teamwork, actively contributing, sharing ideas, and working together effectively. They learn from each other, solve problems collectively, and create an environment where everyone's contributions are valued, leading to enhanced understanding and learning outcomes.

As shown in Nahar et al. (2022) study on strengthening students' collaborative thinking skills by the deployment of a cooperative learning type, namely a quantum teaching model. It came to the conclusion that students' ability to think collaboratively can be enhanced by utilizing the quantum education paradigm. As a result, improving teachers' skills in producing quantum teaching learning materials must occur concurrently with government policy programs or independently through teacher deliberation activities.

Table 13 presents the evaluation of the learners' active learning in terms of self-reflection, based on five key statements. The responses were measured using a Likert scale, and the results are expressed in terms of mean scores, standard deviations (SD), and verbal interpretations.

TABLE 13. Level of Learners Active learning in term of Self-Reflection

STATEMENT	MEAN	SD	REMARKS
The Workbook prompted me to reflect on how I managed my time during the activity.	4.68	0.47	Strongly Agree
I reflected on how effectively I balanced my individual work and group collaboration.	4.71	0.50	Strongly Agree
The material helped me reflect on the knowledge and skills I gained through the activity.	4.68	0.53	Strongly Agree
I had the chance to think about how my learning process evolved during the task.	4.65	0.58	Strongly Agree
The activities encouraged me to consider what areas I could improve in future learning.	4.69	0.51	Strongly Agree
Weighted Mean	4.68		
SD	0.52		
Verbal Interpretation	Very High		

The weighted mean is 4.68, and the standard deviation of 0.52, indicating that respondents strongly agree that the self-reflection of learners' active learning is regularly and effectively engaging in self-reflection about their own learning process, understanding, and progress. The result implies that learners are exceptionally thoughtful, introspective, and proactive in reflecting on their learning process. They regularly assess their progress, set goals, make improvements, and take responsibility for their learning, which results in a deeper, more meaningful understanding and continuous growth.

Engaging students in self-reflection is a potentially successful pedagogical strategy for improving arithmetic learning (Choi et al., 2017).

Table 14 presents the evaluation of the learners' active learning in terms of task completion, based on five key statements. The responses were measured using a Likert scale, and the results are expressed in terms of mean scores, standard deviations (SD), and verbal interpretations.

The weighted mean is 4.68, and the standard deviation of 0.54, indicating that respondents strongly agree that the task completion of learners' active learning is efficiently and effectively completing tasks related to their learning. The result implies that learners are exceptionally efficient, committed, and engaged in completing tasks. They produce high-quality work consistently, manage their time well, and take full ownership of their responsibilities, demonstrating persistence, problem-solving abilities, and a focus on continuous improvement.

TABLE 14. Level of Learners Active learning in term of Task Completion

STATEMENT	MEAN	SD	REMARKS
I was fully engaged in completing the tasks, which helped me understand the issue better.	4.70	0.48	Strongly Agree
I was able to effectively manage my time to 4.67 complete all tasks.	4.67	0.53	Strongly Agree
The Workbook provided enough time for me to 4.70 complete each task thoroughly.	4.70	0.54	Strongly Agree
Completing the tasks required me to think 4.66 critically and problem-solve effectively.	4.66	0.54	Strongly Agree
I successfully completed the tasks by applying the 4.66 knowledge and skills I have learned.	4.66	0.59	Strongly Agree
Weighted Mean	4.68		
SD	0.54		
Verbal Interpretation	Very High		

According to Tifferet (2020) discovered in a research of the effects of grade framing on task completion that when the task grade was framed as potentially losing points, respondents reported greater student outcome levels than when it was presented as perhaps increasing the grade.

Table 15 presents the evaluation of the learners' active learning in terms of reflective observation, based on five key statements. The responses were measured using a Likert scale, and the results are expressed in terms of mean scores, standard deviations (SD), and verbal interpretations.

TABLE 15. Level of Learners' Active learning in terms of Reflective Observation

STATEMENT	MEAN	SD	REMARKS
The workbook prompted me to reflect on the steps 4.69 I took to solve the problem.	4.69	0.51	Strongly Agree
I had opportunities to observe and reflect on my 4.63 problem-solving strategies throughout the activity.	4.63	0.60	Strongly Agree
I had opportunities to observe and reflect on my 4.66 problem-solving strategies throughout the activity	4.66	0.57	Strongly Agree
The material encouraged me to reflect on the new 4.70 knowledge I gained throughout the activity.	4.70	0.54	Strongly Agree
I observed how my understanding of the 4.69 contemporary issue deepened as I worked through the problem.	4.69	0.53	Strongly Agree
Weighted Mean	4.67		
SD	0.55		
Verbal Interpretation	Very High		

The weighted mean is 4.67, and the standard deviation of 0.55, indicating that respondents strongly agree that the reflective observation of learners' active learning is highly

engaged in reflecting on their learning experiences. The result implies that learners are exceptionally skilled at reflecting on their learning process. They critically analyze their actions, evaluate their effectiveness, use reflections to guide their improvement, and continuously refine their strategies for learning. This approach not only leads to a deeper understanding of the subject matter but also contributes to ongoing personal growth and mastery of new skills.

Accordingly, Mazerolle et al. (2015) discovered that when supervised mentorship is feasible, favorable conditions exist, and academic standing is taken into consideration, observational learning can benefit students. Our participants liked opportunities for observational learning, as long as they were limited and deliberate.

Learners' Performance

Learners' performance is the extent to which students achieve educational objectives based on their academic achievements, skills, competencies, and engagement in reflective exercise. In this study learner's performance include variables such as formative and summative assessment.

Table 16 evaluates learners' performance based on their formative assessment scores, categorized into different performance levels. The interpretation considers frequency, percentage distribution, weighted mean, standard deviation (SD), and verbal interpretation.

TABLE 16. Learners' performance in terms of formative assessment

Formative	Frequency	Percentage	Descriptive Equivalent
41-50	1	1.00%	Outstanding
31-40	21	21.00%	Very Satisfactory
21-30	45	45.00%	Satisfactory
11-20	33	33.00%	Fairly Satisfactory
1-10	0	0.00%	Poor
Total		100.00%	
Weighted Mean		24.26	
SD		7.20	
Verbal Interpretation		Satisfactory	

The findings indicate that students generally performed at a satisfactory level, with a weighted mean of 24.26. While a significant portion (66%) achieved good or higher, one-third (33%) still require additional support. Strategies such as differentiated instruction, targeted feedback, and interactive reflective exercise could further enhance student performance and help more learners achieve excellence.

Based on the findings of the study of Bulunuz et al. (2016) found that students perform better on standardized scientific tests than on formative assessment probes in general. According to research findings, students should be exposed to teaching approaches centered on "formative assessment" that enhance the development of students' skills in explaining, understanding, and reasoning rather than multiple-choice assessments in scientific classes.

Table 17 evaluates learners' performance based on their summative assessment scores, categorized into different performance levels. The interpretation considers frequency, percentage distribution, weighted mean, standard deviation (SD), and verbal interpretation.

The findings indicate that students generally performed at a very satisfactory level, with a weighted mean of 36.68. While a significant portion (99%) achieved good or higher, one-tenth (1%) still require additional support.

Learners have demonstrated excellent results in evaluations designed to measure their overall learning achievements.

TABLE 17. Learners' performance in terms of summative assessment

Summative	Frequency	Percentage	Descriptive Equivalent
41-50	23	23.00%	Outstanding
31-40	62	62.00%	Very Satisfactory
21-30	14	14.00%	Satisfactory
11-20	1	1.00%	Fairly Satisfactory
1-10	0	0.00%	Poor
Total		100.00%	
Weighted Mean		36.68	
SD		5.70	
Verbal Interpretation		Very Satisfactory	

They exhibit a deep understanding of the content, high critical thinking skills, and consistently meet or exceed the learning objectives of the course or program. This level of performance indicates that learners have successfully acquired and applied the knowledge and skills expected of them.

While summative tests at the conclusion of the course are important for measuring student learning, forecasting student performance on summative tests is difficult since a variety of known and unknown factors might influence student performance (Jones and Oh, 2024). Identifying inadequacies that have a major impact on student performance in summative tests would help to improve student academic attainment. As a result, low-stakes formative assessment may be valuable for gathering information and feedback from students about the current teaching and learning situation, as well as predicting student performance on high-stakes summative tests.

TABLE 18. Test of Difference in the Learners' Performance in terms of Formative and Summative Assessment

Formative		Summative		95% CI						
Indicator	M	SD	M	SD	Mean Difference	L	U	t	df	p
Performance	24.2	7.2	36.6	5.7	12.42	-14.0	-10.8	-15.3	9	0.00
	6	0	8	0		27	13	37	9	0*

Note: * $p < .05$.

This statistical analysis examines whether there is a significant difference between students' performance in formative and summative assessments by comparing their means and conducting a t-test for dependent samples.

The mean difference between the two assessments is 12.42, indicating that learners performed significantly better in summative assessments than in formative assessments. The p-value is 0.000, which is highly significant ($p < .05$), confirming that the observed difference is not due to chance but represents a meaningful statistical difference. The significant increase in scores from formative ($M = 24.26$) to summative ($M = 36.68$) assessments suggests that students

tend to perform better in final evaluations compared to ongoing assessments. The difference of 12.42 points implies that learners might be progressing in their learning over time, benefiting from feedback and instructional adjustments between formative and summative assessments.

In connection, by Adewale and Anjorin (2015) who highlight the significant positive impact of formative assessment on learners' performance, particularly in fostering self-regulation, motivation, and overall achievement. While summative assessments provide essential evaluations of learning outcomes, integrating formative assessment practices can lead to more profound educational benefits.

Table 19 shows the effect of the use of the ProBLem iCI on learners' active learning.

TABLE 19. Test of Effect of the use of the ProBLem iCI on Learners' Active Learning

95% CI							
Use of ProBLem iCI	Learner's active learning	Beta	SE	LL	UL	β	p
	Class Participation	0.960	0.064	0.832	1.088	0.831	0.000*
	Collaboration	0.946	0.070	0.807	1.086	0.802	0.000*
ProBLem iCI	Self-Reflection	0.972	0.054	0.864	1.080	0.872	0.000*
	Task-Completion	0.940	0.066	0.810	1.071	0.819	0.000*
	Reflective Observation	0.935	0.065	0.806	1.065	0.820	0.000*

Note: * $p < .05$.

This analysis examines the effect of using the ProBLem iCI problem-based learning interactive courseware and instructional materials on learners' active learning by analyzing its effect on five key components of active learning. The findings indicate that the use of ProBLem iCI significantly enhances learners' active learning in all measured aspects. The strongest effect is on self-reflection showing that ProBLem iCI encourages students to critically evaluate their learning and improve their understanding. The positive effect on collaboration and class participation implies that the ProBLem iCI fosters interaction, discussion, and teamwork among students. The high effect on task completion shows that learners using ProBLem iCI take responsibility for their learning and complete assigned activities effectively.

According to Tifferet (2020) discovered in a research of the effects of grade framing on students' active learning that when the task grade was framed as potentially losing points, respondents reported greater student outcome levels than when it was presented as perhaps increasing the grade. Furthermore, openly framing the grade's consequence (rather than requiring students to compute it) had a greater favorable impact on student results than implicit framing.

TABLE 20. Significant effect of the use of the ProBLem iCI on learners' performance in terms of summative assessment

95% CI							
Use of ProBLem iCI	Learner's performance	Beta	SE	LL	UL	β	p
ProBLem iCI	Summative assessment	3.70	6.47	-9.143	16.540	0.05	0.56
		0	2	3	8	9	

Note: * $p < .05$.

This table presents the statistical analysis examining whether the use of ProBLem iCI (Problem-Based Learning Interactive Courseware and Instructional Materials) has a significant effect on learners' performance in summative assessment.

The results indicate that the use of ProBLem iCI does not have a statistically significant effect on learners' summative assessment performance. The statistical analysis does not provide sufficient evidence that the use of ProBLem iCI significantly improves learners' summative assessment performance ($\beta = 0.058$, $p = 0.569$). However, this does not mean that ProBLem iCI is ineffective, instead, its benefits may be better observed in active learning engagement rather than traditional test scores.

In connection, retrieving information during practice tests enhances long-term memory retention more effectively than passive study methods. Implementing practice tests within workbooks can lead to better performance in summative assessments. According to Wynne et al. (2015), summative examinations only motivate some students and widen the gap between higher and lower achieving students; additionally, tests encourage even the highest achieving students toward performance goals rather than learning goals, which are essential for continuous learning.

IV. CONCLUSION AND RECOMMENDATIONS

Based on the findings above, the following conclusions were hereby drawn: A significant difference was shown in the use of the ProBLem iCI workbook and learners' performance. Therefore, it was concluded that the null hypothesis was rejected. This indicates that the use of the ProBLem iCI workbook has a measurable impact on how well students understand and retain the subject matter. All the outcomes showed a significant effect of the ProBLem iCI to learners' active learning. Therefore, it was concluded that the null hypothesis was rejected. This indicates that this workbook is successfully promoting greater engagement with the learning process. No significant effect was shown in the use of the ProBLem iCI to learners' performance in terms of summative assessment. Therefore, it was concluded that the null hypothesis was accepted. This indicates did not meaningfully impact the learners' ability to perform on final exams or major evaluations.

In the formulated conclusions from the findings, it was recommended that:

Include maintaining or enhancing the components of the ProBLem iCI workbook, expanding reflective exercises, showcasing success to attract new participants, regularly collecting feedback for continuous improvement, and exploring new technologies or methods to keep the content engaging.

Include continuing to prioritize the features of the ProBLem iCI workbook, ensuring the design remains user-friendly and appealing, maintaining clarity, and regularly assessing the complexity to ensure it aligns with participant needs and expectations.

Include maintaining these active learning strategies, encouraging further engagement through diverse activities,

and continually assessing to ensure these aspects remain impactful and motivating for learners.

Provide opportunities for deeper exploration of concepts and continue supporting strengths in summative assessments by offering advanced challenges and real-world applications to maintain and deepen mastery of the subject.

Increase the use of the ProBLem iCI workbook, ensuring its content is regularly updated and aligned with learning objectives and gather continuous feedback to refine its design and structure, providing more targeted exercises that promote deeper understanding and retention of the subject matter.

Incorporate varied learning strategies to cater to different learning styles and continuously gather feedback from learners to refine the workbook for even greater engagement and effectiveness.

To improve its impact, consider integrating more focused review materials, practice assessments, or exam preparation strategies within the workbook to better support learners in major evaluations.

Future researchers may conduct studies regarding the problem-based learning material workbook in Social Studies, because this will help the education sector to see the importance of learning materials in the curriculum implementation.

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