

## Scenario-Based Learning: Effects on Students' Performance in Contemporary World

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### Abstract

The study aimed to investigate the effectiveness of using scenario-based learning on the performance of the freshmen students taking up Contemporary World in College of Teacher Education of Jose Rizal Memorial State University, Main Campus, Zamboanga del Norte during the second semester of Academic Year 2024- 2025. The study utilized the quasi- experimental design method of research, utilizing the pretest- posttest equivalent group. There were 39 students in the experimental group where the scenario-based learning in teaching Contemporary World was utilized while the control group with 38 students was exposed to the traditional method of teaching Contemporary World. The researcher-made test questionnaire comprised of 50-item test was used to determine the pretest and posttest performance of the students in both groups. The statistical methods used were the z- test, standard deviation, frequency count, Mann-Whitney U test, Wilcoxon signed rank test and Cohen's d. Findings revealed that students in the experimental group performed better than the control group which also revealed that there was a significant difference between their performances. Thus, the performance of the experimental group was greatly influenced by scenario-based learning suggesting the effectiveness of employing scenario-based learning in teaching social science courses such as Contemporary World.

**Keywords:** *Scenario-based Learning, Contemporary World, Globalization, Global Economy, Market Integration*

### Introduction

Teaching the course Contemporary World poses significant challenges for educators, particularly in the idea that this subject delves into contemporary world issues where students are intended to explore current situations. A study by Wollmann & Lutter (2022) shows that many students struggle to relate abstract concepts such as globalization, economic policy, and international relations to their daily lives, resulting in disengagement and low motivation. With this, teachers are thus required to continuously update their strategies to meet the fast pace of global changes. On the other hand, some educators have successfully used creative methods like scenario-based learning (SBL), which improves student engagement through real-world issues.

Archer-Kuhn et al (2020) found that SBL encourages critical thinking and helps students connect academic content with real-life experiences. Research findings also suggest that student motivation in social sciences depends on factors like perceived value, extrinsic rewards, and relationships with peers and teachers. Aldana (2021) supports the effectiveness of SBL in social sciences, as it allows students to experience realistic challenges and improve their decision-making skills, retention, and comprehension.

However, the application of SBL has not been thoroughly explored in Jose Rizal Memorial State University-Main Campus, Dapitan City. With this, a key gap noted by the researcher is the lack of a standardized teaching methodology for SBL, with its success depending largely on teacher expertise. Thus, this study sought to address that gap by implementing various scenario-based approaches and proposing a standard framework for Higher Education Institutions. The study compares the effectiveness of SBL versus traditional teaching methods in the Contemporary World course, using a quasi-experimental design with pretest-posttest equivalent groups at JRMSU-Dapitan Campus.

### Literature Review

This study is grounded on the Situated Learning Theory of Lave and Wenger (1991, as quoted by Besar, 2018) and the Situated Cognition Theory of Brown, Collins, and Duguid (1989, as quoted by Kurt, 2021), which focus on the fact that learning occurs most effectively within real-world contexts. These theories contend that knowledge is developed through social interaction and participation in meaningful, real-world activities. Scenario-Based Learning (SBL) is consistent with this view by engaging students in authentic situations that necessitate the application of theoretical principles. Students achieve deeper understanding, maintain knowledge longer, and are more motivated as they connect lessons to their daily lives (Zainuddin et al., 2023).

SBL enhances higher-order thinking, critical analysis, and group problem-solving and, therefore, is a highly effective teaching methodology, particularly for subjects that have real-world relevance (Makransky & Mayer, 2022). Students

learn effectively when engaged in simulations, case studies, and realistic tasks mirroring real-world challenges (Errington, 2005; Ally, 2015). Still, teaching SBL efficiently can be challenging for teachers. It takes time, skills, and resources to prepare meaningful scenarios, and it may be challenging to assess students' performance because of the subjective process of decision-making skills (Keegan et al., 2017; Gulikers et al., 2016). Scenario-based learning involves three main approaches: the skills-based approach, the problem-based approach, and the speculative-based approach.

### **Problem-Based Approach**

Problem-Based Approach (PBA) is a student-centered instructional method where learners engage with real-life, complex problems to build critical thinking, collaboration, and research skills. In social science education, PBA enhances understanding by connecting theoretical knowledge with practical societal issues like inequality or governance. It fosters interdisciplinary learning, teamwork, and communication while encouraging a sense of social responsibility. Though effective, challenges such as time-consuming planning, difficulty in problem design, and students' struggle with self-directed learning exist. Success depends on well-structured problems, active teacher support, and integrating traditional methods when necessary (Rivera et al., 2020; Lee et al., 2020; Kim & Lee, 2023).

### **Skills-Based Approach**

Skills-Based Approach (SBA) prioritizes the acquisition of functional skills—like critical thinking, research, and communication—over memorization. In social science education, SBA allows students to link theoretical concepts to practical issues in real life, improving their understanding and active citizenship. Research indicates it develops interdisciplinary thinking, teamwork, and complex societal problem-solving skills (Jones et al., 2018; Arunkumar, 2025). Additionally, SBA promotes lifelong learning through equipping learners to cope with changing social environments and the changing needs of the workforce. Though positive, some challenges involve theory versus skill balance and the application of proper assessment (Harrison, 2020; Thompson, 2019).

### **Speculative-Based Approach**

The speculative-based Approach in social science education provokes students to consider possible futures and different circumstances, which enhances creativity, critical thinking, and empathy. The speculative-based methodology helps prepare students to deal with sophisticated global problems, work collaboratively across disciplines, and be responsive to societal transformation by imagining innovative solutions (Morgan, 2025; Volpe, 2024). This approach also develops student agency, enhances critical analysis of the past, and increases collaborative learning. While it enhances engagement and critical understanding, it needs to balance creative thinking with academic rigor and scaffolding for those who are not used to speculative tasks (Hayes, 2019; Williams & Cooper, 2021).

## **Materials and Methods**

This research utilized quasi-experimental design with pretest-posttest equivalent group to evaluate scenario-based learning's effectiveness as an approach in teaching "The Contemporary World" at Jose Rizal Memorial State University-Main Campus. Two groups were utilized: experimental group subject to scenario-based learning and a control group instructed by the traditional approach. Scenario-based learning was directed to three aspects—skill-based (globalization), problem-based (global economy), and speculative-based (market integration). The study was triggered by mediocre performance of students in "The Contemporary World", noted by instructors, which is most probably because they lack interest and concentration. Education students were selected as the participants for this reason, as they are supposed to discover effective and interesting teaching methods. The experimental and control groups were first-year students of the College of Teacher Education, with the latter being BSEd Physical Education majors and the former being BSEd English majors. A number of statistical measures were used to test the data: Z-test contrasted real scores against the university norm; standard deviation calculated dispersion of scores; frequency count identified group sizes; Cohen's d calculated effect size; and Mann-Whitney U and Wilcoxon signed-rank tests were used to compare performance, since data was not normally distributed. All tests were run at a level of significance of 0.05 to establish validity of results.

## **Results**

### **Pretest Performance of the Control Group**

Table 1 indicates the pretest achievement of the learners in the control group. Testing was on the three broad subjects of the selected course and these are, Globalization, Global Economy, and Market Integration. These contained particular item numbers and the total of 50. It made 75 percent as expected performance level (HM) or

for all of these topics, a total of 15 point must be achieved both for Globalization and for Market Integration which contains 20 items each and 7.5 for global economy with 10 items.

**Table 1 Pretest Performance of the Learners in the Control Group (n=38)**

Topics	No. of Items	HM	AM	SD	Z-Value	D
Globalization	20	15	10.05	2.31	-2.14	Good
Global Economy	10	7.5	4.03	1.65	-2.10	Good
Market Integration	20	15	8.55	2.49	-2.59	Good
<b>Total</b>	<b>50</b>	<b>37.5</b>	<b>22.63</b>	<b>5.06</b>	<b>-2.94</b>	<b>Good</b>

HM Hypothetical Mean SD Standard Deviation  
AM Actual Mean D Description

### Pretest Performance of the Experimental Group

Table 2 shows the experimental group's pretest performance on three subjects: Globalization, Global Economy, and Market Integration. The level of attainment anticipated, which was 75% of the total items, was not achieved on any of the subjects. The actual mean scores were 10.95 in Globalization, 5.21 in Global Economy, and 9.82 in Market Integration, while the hypothetical means were 15, 7.5, and 15 respectively. This means that the students had less-than-expected prior knowledge in every section. The general performance was also low, with the total actual mean being 25.97 as opposed to the total hypothetical mean of 37.5, and with a standard deviation of 5.18. The z-value of -2.23 as calculated also affirms that the group's performance was considerably below the expected performance. In spite of these findings, the performance levels across each domain were still characterized as "Good," perhaps indicating a relative as opposed to an absolute assessment of the scores.

**Table 2 Pretest Performance of the Learners in the Experimental Group (n=39)**

Topics	No. of Items	HM	AM	SD	Z-Value	D
Globalization	20	15	10.95	2.27	-1.78	Good
Global Economy	10	7.5	5.21	1.39	-1.64	Good
Market Integration	20	15	9.82	2.81	-1.84	Good
<b>Total</b>	<b>50</b>	<b>37.5</b>	<b>25.97</b>	<b>5.18</b>	<b>-2.23</b>	<b>Good</b>

HM Hypothetical Mean SD Standard Deviation  
AM Actual Mean D Description

### Significant difference in the pretest performance of the students

Table 3 shows the outcome of a Mann-Whitney U test between the control and experimental groups' pretest performance on three subject matters. The results indicate no statistical difference in Globalization ( $p = 0.133$ ), as both sets of students had similar performances with means of 10.95 (experimental) and 10.05 (control). Though, major differences occurred in Global Economy ( $p = 0.004$ ) and Market Integration ( $p = 0.035$ ) where the experimental group performed better than the control group. The pretest overall performance also demonstrated a significant difference ( $p = 0.008$ ), in favor of the experimental group (Mean = 25.97, SD = 5.18) compared to the control group (Mean = 22.63, SD = 5.06). These findings suggest that, prior to any intervention, the experimental group scored statistically higher in two out of three subject matters and generally, thus leading to the null hypothesis being rejected.

**Table 3 Test of Difference between the Control and Experimental Groups' Pretest Performance**

Topics	Group	Mean	SD	Mann-Whitney U-computed	p-value	Interpretation
Globalization	Control	10.05	2.31	1669	0.133	Not Significant
	Experimental	10.95	2.27			
Global Economy	Control	4.03	1.65	1803	0.004	Significant
	Experimental	5.21	1.39			
Market Integration	Control	8.55	2.49	1275	0.035	Significant
	Experimental	9.82	2.81			

<b>Total</b>	<b>Control</b>	<b>22.63</b>	<b>5.06</b>	<b>1222</b>	<b>0.008</b>	<b>Significant</b>
	<b>Experimental</b>	<b>25.97</b>	<b>5.18</b>			

### Posttest Performance of the Control Group

Table 4 shows the control group posttest score (n=38) for Globalization, Global Economy, and Market Integration. Even though each topic had a hypothesized mean (HM) of 75% or 15 for Globalization and Market Integration, and 7.5 for Global Economy, the actual mean scores (AM) were significantly lower at 11.5, 5.58, and 8.39 respectively. The overall total mean score of 25.47 was lower than the expected total HM of 37.5. While all levels of performance were labeled "Good," statistical analysis paints a different picture. The Z-values from -1.25 to -2.70 with a combined Z of -2.45 show a wide disparity between expected and actual results at the 0.05 level. The standard deviations also show differing consistency of performance, the widest of which was in Market Integration (SD = 2.49), indicating differences in student comprehension. These results indicate the underperformance of the control group as a whole and suggest the necessity to use more adaptive, student-oriented teaching practices.

**Table 4 Posttest Performance of the Learners in the Control Group (n=38)**

Topics	No. of Items	HM	AM	SD	Z-Value	D
Globalization	20	15	11.5	2.62	-1.34	Good
Global Economy	10	7.5	5.58	1.54	-1.25	Good
Market Integration	20	15	8.39	2.44	-2.70	Good
<b>Total</b>	<b>50</b>	<b>37.5</b>	<b>25.47</b>	<b>4.90</b>	<b>-2.45</b>	<b>Good</b>

HM Hypothetical Mean SD Standard Deviation  
AM Actual Mean D Description

### Posttest Performance of the Experimental Group

Table 5 shows the experimental group's posttest scores, employing as a standard a 75% Hypothetical Mean (HM), that is, 15 for both Globalization and Market Integration, and 7.5 for Global Economy, for a total of 37.5. While the experimental group did not exactly achieve the HM in any of the subject areas, their scores were nearly there, with actual means of 14 for Globalization, 7.05 for Global Economy, and 11.28 for Market Integration, labeled as "Very Good," "Very Good," and "Good," respectively. Total mean score was 32.33 (SD = 5.68), graded "Very Good." The Z-value of -0.91, being less than the critical value, suggests that the deviation from the expected mean was not significant statistically. The standard deviation indicates moderate variability, showing some individual differences in performance, but overall the result represents a firm group performance. These findings suggest that the teaching style, or specifically scenario-based learning, was effective in encouraging greater engagement and better understanding, although additional differentiation could assist in closing continuing performance gaps.

**Table 5 Posttest Performance of the Learners in the Experimental Group (n=39)**

Topics	No. of Items	HM	AM	SD	Z-Value	D
Globalization	20	15	14	2.37	-0.42	Very Good
Global Economy	10	7.5	7.05	1.57	-0.29	Very Good
Market Integration	20	15	11.28	2.68	-1.38	Good
<b>Total</b>	<b>50</b>	<b>37.5</b>	<b>32.33</b>	<b>5.68</b>	<b>-0.91</b>	<b>Very Good</b>

HM Hypothetical Mean SD Standard Deviation  
AM Actual Mean D Description

### Significant difference between the posttest performance of the students in the control and experimental groups

**Table 6 Test of Difference between the Control and Experimental Groups' Posttest Performance**

Topics	Group	Mean	SD	Mann-Whitney U-computed	p-value	Interpretation
Globalization	Control	11.5	2.62	1104.5	0.000	Significant
	Experimental	14	2.37			
	Control	5.58	1.54	1125	0.000	Significant

Global Economy	Experimental	7.05	1.57			
Market Integration	Control	8.39	2.44	1046.5	0.000	Significant
	Experimental	11.28	2.68			
<b>Total</b>	<b>Control</b>	<b>25.47</b>	<b>4.90</b>	<b>1012.5</b>	<b>0.000</b>	<b>Significant</b>
	<b>Experimental</b>	<b>32.33</b>	<b>5.68</b>			

Table 6 presents the findings of the Mann-Whitney U test of the control and experimental groups' posttest performance on the topics of Globalization, Global Economy, and Market Integration, as well as their overall scores. For all areas, the p-values were 0.000, which means statistically significant differences at the 0.05 level. The calculated U-values—1104.5 for Globalization, 1125 for Global Economy, 1046.5 for Market Integration, and 1012.5 for the overall scores—are all in the direction of the experimental group. These findings further affirm that the experimental group performed significantly higher than the control group on all the topic areas following the intervention, indicating the success of the instructional method employed.

#### Significant difference between the pretest and posttest performance of the students in the control group

**Table 7 Test of Difference between the Pretest and Posttest of the Students in the Control Group**

Topics	No. of Items	HM	Pretest		Posttest		Cohen's d	Interpretation	Wilcoxon-value	p-value	Interpretation
			AM	SD	AM	SD					
Globalization	20	15	10.05	2.31	10.95	2.27	0.39	Small effect	741	0.000	Sig
Global Economy	10	7.5	4.03	1.65	5.21	1.39	0.78	Medium effect			
Market Integration	20	15	8.55	2.49	9.82	2.81	0.48	Small Effect			
<b>Total</b>	<b>50</b>	<b>37.5</b>	<b>22.63</b>	<b>5.06</b>	<b>25.97</b>	<b>5.18</b>					

HM Hypothetical Mean SD Standard Deviation  
AM Actual Mean D Description

Table 7 presents a comparison of the pretest and posttest scores of the control group on the subjects of Globalization, Global Economy, and Market Integration, which shows statistically significant gains even in the absence of a focused intervention. The results of the Wilcoxon tests for the three subjects gave p-values of 0.000, showing significant gains. Mean scores rose from 10.05 to 10.95 in Globalization, 4.03 to 5.21 in Global Economy, and 8.55 to 9.82 in Market Integration. Effect sizes (Cohen's d) also indicated a medium effect in Global Economy (0.78) and small effects in Globalization (0.39) and Market Integration (0.48), indicating that learning took place to some extent through incidental means like environmental exposure, peer-to-peer interactions, or general classroom discussion. The total score also increased from 22.63 to 25.97, affirming a statistically significant improvement. These results emphasize the influence of informal learning factors, pointing out that even without formal instruction, students can make measurable academic gains.

#### Significant difference between the pretest and posttest performance of the students in the experimental group

**Table 8 Test of Difference between the Pretest and Posttest of the Students in the Experimental Group**

Topics	No. of Items	HM	Pretest		Posttest		Cohen's d	Interpretation	Wilcoxon-value	p-value	Interpretation
			AM	SD	AM	SD					
Globalization	20	15	11.5	2.62	14	2.37	1.00	Large effect	780	0.000	Significant
Global Economy	10	7.5	5.58	1.54	7.05	1.57	0.95	Large effect			
Market Integration	20	15	8.39	2.44	11.28	2.68	1.13	Large effect			
<b>Total</b>	<b>50</b>	<b>37.5</b>	<b>25.47</b>	<b>4.90</b>	<b>32.33</b>	<b>5.68</b>					

HM Hypothetical Mean SD Standard Deviation  
AM Actual Mean D Description

Table 8 shows how the performance of the experimental group improved significantly from pretest to posttest in the social studies topics of Globalization, Global Economy, and Market Integration. Mean scores showed improvement across all the fields: Globalization (from 11.5 to 14), Global Economy (5.58 to 7.05), and Market Integration (8.39 to 11.28), with huge effect sizes (Cohen's  $d = 1.00, 0.95,$  and  $1.13$  respectively) reflecting significant learning gains. These effect sizes are both statistically significant and practically relevant, highlighting the efficacy of the intervention. The overall mean score increased from 25.47 ( $SD = 4.90$ ) to 32.33 ( $SD = 5.68$ ), backed by a  $p$ -value of 0.000 for the Wilcoxon test. The comparison of standard deviations indicates differing consistency, with greater homogeneity in Globalization and Global Economy but greater heterogeneity in Market Integration. These results emphasize the effectiveness of the intervention while indicating the necessity for differentiated instruction to meet diverse learning needs.

### **Significant difference between the mean gain scores of the students in the control and experimental groups**

**Table 9 Test of Difference on the Mean Gain between the Control and Experimental Group**

Group	Mean Gain	Standard Deviation	Mann-Whitney U-computed	p-value	Interpretation
Control	2.84	4.84	1230	0.024	Significant
Experimental	5.87	5.41			

Table 9 illustrates the comparison of the experimental and control groups' mean gain scores, revealing the effect of instructional intervention on learning. The control group had a low mean gain of 2.84, reflecting little improvement, implying that teaching alone is not enough. The experimental group, however, had a greater mean gain of 5.87, reflecting the positive effect of scenario-based learning. The control group had a standard deviation of 4.84, reflecting lower variation in performance, whereas the experimental group's standard deviation of 5.41 reflects more variation in the manner in which students responded. The Mann-Whitney U test with a  $p$ -value of 0.024 ensures that the difference between groups is statistically significant and that the observed improvements in the experimental group resulted from the intervention.

### **Discussion**

The study offers compelling evidence on the effectiveness of applying scenario-based learning to teach social science subjects, namely Globalization, Global Economy, and Market Integration. Both the control and experimental groups commenced the study with comparable baseline knowledge, as revealed by their pretest scores which were uniformly graded as "good" even though they were consistently below the projected performance level of seventy five percent. This common foundation enabled the proper comparison of the effect of the subsequent teaching interventions. Whereas the control group experienced traditional instruction, the experimental group was taught through a more engaging and context rich approach employing scenario-based learning. Right from the start, it was evident that both groups possessed a basic understanding most likely derived from their senior high school background, especially for those in the Humanities and Social Sciences strand. Nevertheless, this initial foundation was not sufficient by itself to guarantee success, which underscored the significance of the teaching approach employed during the intervention period.

Firstly, both the groups were initially scoring below the 75 percent threshold set as the Hypothetical Mean (HM) during the pretest period. The control group recorded mean scores of 10.05 in Globalization, 4.03 in Global Economy, and 8.55 in Market Integration, all "Good" but lower than the HM. The experimental group also recorded slightly better but still poor scores of 10.95, 5.21, and 9.82, respectively. These statistics indicate that both groups of students came into the study with some basic knowledge of the topics. This initial knowledge would have been shaped by previous exposure to social science ideas, particularly in those in the Humanities and Social Sciences strand at senior high school. Though below target, the labeling of their performance as "Good" highlights formative assessments as means for creating baselines, not measuring mastery (Brookhart, 2017).

Curiously, initial comparisons showed that there were strong differences in two of the three topics between the two groups well before any intervention had taken place. The experimental group scored significantly higher than the control group in Global Economy and Market Integration ( $p = 0.004$  and  $p = 0.035$ , respectively), although the difference in Globalization was not statistically significant ( $p = 0.133$ ). This initial lead, though small, indicates heterogeneity in prior knowledge or perhaps differences in student demographics or motivation. But it was in the posttest stage that the worth of scenario-based learning became most apparent.

Following the instructional intervention, there was a slight improvement in the performance of the control group. Posttest scores for the control group increased to 11.5 in Globalization, 5.58 in Global Economy, and 8.39 in Market Integration, with a total mean of 25.47. These were once again classified as "Good," although they were still below the desired level of performance. The Cohen's *d* statistics—0.39 for Globalization, 0.78 for Global Economy, and 0.48 for Market Integration—suggest that the gains were small, with only one topic having a medium effect size. These minimal gains can be explained by general classroom exposure or incidental learning, e.g., peer talk or media exposure. This is corroborated by research by Hattie and Donoghue (2016), who observed that learning may be possible even outside the classroom, especially through environmental exposure and peer interaction.

On the other hand, scenario-based instruction elicited significant and stable gains across all three fields in the experimental group. The posttest mean scores were 14 for Globalization, 7.05 for Global Economy, and 11.28 for Market Integration, with a total mean of 32.33. Not only did these scores converge more closely with the Hypothetical Mean, but the classification also moved to "Very Good" for two of the three topics. The high effect sizes across all subjects—1.00 for Globalization, 0.95 for Global Economy, and 1.13 for Market Integration—suggest that the gains in learning were not only statistically significant but also educationally significant. As per Johnson (2020), learning environments using scenarios promote reflective thinking and active learning, and this seems to be supported by the results here.

Additional testing with the Mann-Whitney U test replicated the statistically significant benefit accruing to the experimental group during the posttest. All the comparisons—per individual topics as well as on total scores—had *p*-values of 0.000. This validates that the gains of the experimental group were not by chance and are directly attributed to the instructional approach implemented. These findings concur with the findings of Keegan et al. (2017), in which they discovered that students taught in scenario-based settings attained higher outcomes in knowledge retention and conceptual comprehension than students who were instructed through traditional approaches.

Standard deviation analysis also informs about the consistency of performance. In the control group, the overall posttest standard deviation was 4.90, whereas in the experimental group, it was slightly greater at 5.68. This difference suggests a wider range of results in the experimental group, which could imply that although the method was generally effective, individual responses were different. As Battista (2017) implies, this underscores the need to address individual differences in learning even within effective instructional models.

When looking at the mean gain scores—comparing pretest and posttest results—the experimental group again outperformed the control group by a wide margin. The control group's mean gain was 2.84 with a standard deviation of 4.84, while the experimental group's mean gain was 5.87 with a standard deviation of 5.41. The difference was statistically significant ( $p = 0.024$ ), reinforcing the conclusion that scenario-based learning leads to greater academic improvement. As noted by Elliott-Kingston et al. (2016), involving students in realistic situations not only provokes higher-order thinking but also enhances long-term learning through experiential experiences.

The implications of the research are significant. For teachers, the research indicates that depending on sole delivery of lecture-based practices might not be enough to address the learning requirements of contemporary diverse students. The chronic underperformance of the control group despite classroom education suggests an intervention need. The design of the curriculum and policymakers in the educational sector ought to give some serious thought to the incorporation of scenario-based learning as a standard feature of instruction design, particularly for courses that need practice-based relevance and context knowledge.

Furthermore, these results imply the necessity of ongoing training for teachers in active and experiential learning techniques. As Ghosh and Francia III (2021) noted, even control groups can improve through incidental learning. Nonetheless, systematic and deliberate methods such as SBL can amplify those gains, especially when done by well-trained teachers who can adapt situations to their students' surroundings and requirements.

Another critical implication is the function of assessment. Summative assessments, such as standardized tests, neglect incremental gains measured through posttests. Implementing formative assessments and examining effect sizes and mean gains give a more subtle view of student progress. These are used so that educators can spot students who need extra assistance and modify instruction accordingly.

The findings laid out in this chapter substantiate a resounding message: teaching methods make a difference. As students are activated through pertinent, real-life situations that require analysis, problem-solving, and decision-making, they learn better, understand more deeply, and recall longer. This corroborates OECD (2019) studies calling for the attainment of 21st-century skills through relevant and experiential learning.

To sum up, the results give firm empirical evidence in favor of scenario-based learning as being superior to conventional methods. Statistical significance, effect sizes, and mean gain comparison all indicate the large benefits of student learning and engagement. Results prompt educators to reconsider the method of teaching nuanced global concepts and underscore the significance of embracing teaching models that not only inform but transform. Potential

future research includes the long-term retention of the knowledge acquired in SBL and its effects on problem-solving capabilities in real-world contexts. Yet, the present findings already present a strong argument for adopting active, student-focused learning as a foundation of good education.

## Conclusion

In conclusion, the results of the study clearly show that students who were taught using scenario-based learning significantly outperformed those who followed traditional methods. Although both groups started with a similar level of knowledge and showed improvement after separate interventions, the experimental group achieved much higher gains in understanding and performance. With that, scenario-based approach in teaching is far more effective in helping students grasp complex topics than the traditional method of teaching. The approach not only supported better learning outcomes but also encouraged deeper thinking and problem-solving skills. Moreover, the theories used in this study is evidently existing and applicable in teaching in today's time and age considering the fact that the results of this study corroborate with their concepts. Therefore, integrating scenario-based approaches such as problem-based, speculative-based, and skill-based learning, into classroom instruction can lead to meaningful and lasting improvements in student learning. The evidence suggests that scenario-based learning is an effective strategy for promoting higher-order thinking and academic success in today's educational landscape.

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