# Enhancing graph interpretation skills of Grade 9 students in learning microeconomics through I<sup>2</sup> strategy

<sup>1</sup>Jojenn P. Calingacion, <sup>1</sup>Alyssa Lira M. Dacera, <sup>1</sup>Melissa G. Castro, <sup>1</sup>Joshua C. Lubay, <sup>1</sup>Rona Flor Fatima C. Bug-os, <sup>1</sup>Jay C. Bansale

<sup>1</sup>Faculty of Teacher Education, Visayas State University, Baybay, Leyte, Philippines

\*Corresponding Author Email: <u>jay.bansale@vsu.edu.ph</u>

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#### Abstract

This action research aimed to enhance the graph interpretation skills of 35 Grade 9 Apitong students of Baybay National High School in learning microeconomics through the I<sup>2</sup> strategy. Utilizing a mixed-methods research design, the study incorporated pre-and post-assessments to evaluate students' graph interpretation skills. Quantitative data were analyzed using the Wilcoxon signed-rank test to assess significant differences in performance, while thematic analysis was employed to gain insights into students' experiences with the I<sup>2</sup> strategy. The findings revealed a significant improvement in students' graph interpretation skills after the implementation of the strategy. Thematic analysis results highlighted mastery of graphing skills, and enhanced learning experience and skill master in interpreting graphs. Notably, the I<sup>2</sup> strategy proved instrumental in enhancing the ability of Grade 9 students, who initially had a poor understanding and interpretation of graphs in learning microeconomic concepts.

**Keywords:** graphs; graph interpretation skills; microeconomics; l<sup>2</sup> strategy; teaching strategy

#### **INTRODUCTION**

One of the most vital skills in studying economics is learning to read and interpret graphs appropriately and efficiently. Economics uses graphs to illustrate the relationships and connections between variables or concepts (Reed, 2024). Given that economics increasingly uses scientific and mathematical methods, an individual's mathematical background, specifically in constructing and interpreting graphs, plays a role in the achievement of this course. Studying economics requires students to imagine, draw, and convert data to graphs and vice versa (Johari et al., 2018). Thus, students need to be familiar with the graphs used in economics.

In the Philippines, Economics is one of the curricula offered in the K to 12 programs of the Department of Education. This course aims to provide the students with an understanding of the basic ideas, concepts, and principles along with contemporary economic issues to help them shape their knowledge, skills, and attitudes, which are critical in their lives and their disposition towards their country and the larger community. However, given the nature of the subject, its complex concepts, and terminologies, not to



mention the numerical calculations, most students would find this discipline difficult (Quirao et al., 2023).

In the same study conducted by Quirao et al. (2023), they identified challenges encountered by students among Grade 10 junior high school students in the Central Philippines in learning economics. The study shows that most students struggle to grasp microeconomic concepts due to their lack of quantitative literacy and visualization skills in supply and demand, market equilibrium, and market structure.

Furthermore, interpreting graphs is one of the difficulties most students face in learning microeconomics. Graph interpretation skill is the ability to accurately understand and analyze information presented in graphical forms, such as charts, graphs, and diagrams (Aksoy et al., 2019). Graph interpretation skills are affected by many factors, including aspects of students' cognitive abilities, prior knowledge, contextual understanding, and inferential processes (Lemmer et al., 2017; Taşar & Heron, 2023). Prior knowledge and contextual understanding significantly impact graph interpretation competence, including familiarity with the subject matter and graph characteristics. Students with insufficient prior content knowledge and graphing skills often encounter difficulties seeing the context graphs intended to depict (Bahtaji, 2020).

Furthermore, the inadequate prior knowledge and mathematical skills that students need to learn microeconomics may contribute to their challenges with numerical concepts in economics. According to Johari et al. (2018), students faced problems learning microeconomics courses due to their inability to perform basic mathematical and statistical tasks. Such a reality is evident in Grade 9 Apitong students of Baybay National High School. According to one of the Grade 9 teachers in Social Studies, these students have poor prior knowledge of graphing skills, which results in poor interpretation of the graphs in economics. In addition, after a series of observations, the researchers noticed that most of these students had difficulty interpreting graphs in microeconomics, particularly on the topics of supply and demand, market equilibrium, and market structure, reflected on their quizzes and major examinations

These findings highlight the importance of introducing instructional strategies that motivate and engage students in learning, especially when faced with challenging mathematical concepts and calculations (Ring & Oberrauch, 2024). Therefore, teachers should be encouraged to innovate their teaching strategies and methodologies to foster active student participation and quality learning (Quirao et al., 2023). The I<sup>2</sup> strategy is an instructional approach that emphasizes visualization skills to enhance students' graph interpretation abilities in learning microeconomics. Developed by the Biological Sciences Curriculum Study (BSCS) Science Learning, this strategy scaffolds students' efforts to extract meaning from data presented in graphs, figures, sketches, and other forms of data representation (BSCS, 2012a, b). The  $I^2$  strategy is designed to help students develop a deeper understanding of the relationships between variables and effectively communicate these relationships through visual representations. It promotes mastery of graphing skills by guiding students through a step-by-step process. This scaffolding approach ensures that students can gradually build their understanding, reducing the cognitive load associated with interpreting complex data. As students become more familiar with each step, their confidence in handling graphs increases, leading to improved performance. Additionally, the I<sup>2</sup> strategy fosters engagement by making learning more interactive and relevant. By linking graph interpretation to real-world applications, students can see the practical significance of the skills they are developing. This relevance boosts their motivation and

interest in the subject, making them more likely to actively participate in lessons and retain the information.

With these observations, researchers aimed to enhance the graph interpretation skill of Grade 9 Apitong students of Baybay National High School in learning microeconomics through the I<sup>2</sup> strategy. Specifically, this study sought to answer the following questions: 1) What is the level of students' graph interpretation skills before and after the intervention? 2) Is there a significant difference in students' graph interpretation skills in learning microeconomics before and after the intervention? 3) How does the I<sup>2</sup> strategy enhance the students' graph interpretation skills in learning microeconomics?

# METHOD

#### **Research design**

The researchers employed a mixed-methods approach for this study, blending elements of both qualitative and quantitative research. This approach allowed for a more comprehensive understanding of the research problem by leveraging the strengths of both methodologies.

For the quantitative data, a one-group pretest-posttest design was utilized. This involved a 15-item assessment featuring graphs related to microeconomics, which participants analyzed and interpreted. The validity of the test instrument was established through content validity to ensure that the items accurately measured the intended construct. To achieve this, the instrument was reviewed by a panel of three experts: a department head of Social Studies, a master teacher in Social Studies, and a Social Studies teacher with over five years of teaching experience. Their expertise and feedback were instrumental in refining the test items to align with the study's objectives and adhere to established educational standards.

After the test instrument was validated, it underwent pilot testing with students from another Grade 9 section at Baybay National High School. The results from this pilot test were analyzed to assess the reliability of the instrument. The researchers employed Cronbach's alpha to measure internal consistency, determining how closely related the items were as a group. The reliability analysis yielded a coefficient of 0.817, indicating a good level of internal consistency. This result confirmed that the test items were well-aligned in measuring the intended construct and were suitable for evaluating the effectiveness of the intervention. For the qualitative data, a focus group discussion (FGD) was conducted to explore participants' experiences and perceptions regarding how the I<sup>2</sup> strategy influenced their graph interpretation skills in learning microeconomics. The researchers organized the student participants into groups of ten and facilitated the discussions using pre-designed guide questions.

#### Respondents

The participants in this study were 35 Grade 9 students from the 9-Apitong section at Baybay National High School, consisting of 30 males and five females. The school is located at 30 de Diciembre Street, Zone 12, Baybay City, Leyte, Philippines, and is the largest high school in the city in terms of both population and land area. The researchers used purposive sampling to select participants. This method was suitable for small populations with a clear research purpose, allowing the researcher to target individuals with specific attributes relevant to the study (Bisht, 2024). Initially, five sections took a pretest, and the 9-Apitong section, which had the lowest mean percentage score (34%), was chosen due to its notable challenges in graph interpretation skills.

#### Data analysis

The researchers analyzed all the data collected from the respondents using various statistical tools. For descriptive statistics, the computed mean percentage score (MPS) was used to analyze the pretest and posttest results. The MPS served as the basis for determining students' graph interpretation skills before and after the intervention. For inferential statistics, the Wilcoxon Signed-Rank Test—a non-parametric statistical hypothesis test that does not assume normality in data distribution—was utilized to compare paired data from before and after the intervention, evaluating the changes resulting from the implemented procedure (Holmes, 2020).

Meanwhile, qualitative data gathered from the focus group discussion were analyzed using thematic analysis as proposed by Braun and Clarke (2006). To ensure interpretative validity, the themes were validated through peer debriefing, in which researchers discussed the findings with colleagues. This process also involved member checking, where researchers returned to the participants to share the identified themes and gather feedback or additional insights (Dawadi, 2020). Additionally, inter-coder reliability was employed, wherein multiple researchers independently analyzed the data to determine consistency in their interpretations.

## **Research intervention and procedure**

The recent study by Johari et al. (2018) revealed the importance of emphasizing visualization skills during teaching and learning to improve students' ability to understand economic concepts. By emphasizing visualization skills, educators can also improve the cognitive power of students to make it easier for them to understand abstract economic concepts. It can also help students deal with a lot of data and graphs that require them to draw, imagine, and convert data to graphs and vice versa (Riley & Biernat, 2018). By that, the researchers believe that one of the strategies that would help enhance students' graph interpretation skills is the Identify and Interpret (I<sup>2</sup>) strategy.

The Identify and Interpret (I<sup>2</sup>) strategy is a teaching strategy that helps make sense of graphs, figures, sketches, and other ways to represent data. This strategy helps in breaking down the information into smaller parts. The Biological Sciences Curriculum Study (BSCS) developed the Identify and Interpret (I<sup>2</sup>) strategy to scaffold students' efforts to bring out the meaning of data presented in graphs, figures, sketches, and other forms of data representation found in scientific papers and textbooks, concerning Biological Sciences Curriculum Study (BSCS) Science Learning, an independent nonprofit organization recognized as a national leader in research, teacher professional learning, leadership development, and, of course, instructional materials.

According to a Science Education Curriculum Study, by breaking down the knowledge into smaller sections, the Identify and Interpret (I<sup>2</sup>) technique assists students in making sense of it. Using the I<sup>2</sup> strategy, students first identify changes, trends, or differences. Each observation is indicated with an arrow, and a "What I See" (WIS) comment is subsequently written. All that has to be said in these remarks are the observations made by the student, such as rising numbers in a data table or a graph with a positive slope. Students should explain the significance of their observations by writing a "What It Means" (WIM) comment for each observation once they have completed all their observations and written their WIS comments. When students are proficient with WIS and WIM comments, they will "write a caption" for the table, graph, or figure. A caption serves as a summary of all the information and demonstrates students' comprehension. Moreover, the I<sup>2</sup> strategy scaffolds students' efforts to understand graphs and other figures found in scientific papers and textbooks (Cooper, 2017). When used with small group discussion, it fosters the kind of student talk that promotes learning of both content and scientific practices (Tanner, 2009). The following figures illustrate the implementation of  $I^2$ .

## Step 1: Identify ("What I see" comments)

- Identify any changes, trends, or differences in the graph or figure.
- Draw arrows and write a "What I see" comment for each arrow.
- Be concise in your comments. These should be just what you can observe.



Figure 1. Sample graph for Step 1: Identify ("What I see" comments)

## Step 2: Interpret ("What It means" comments)

- Interpret the meaning of each "What I see" comment by writing a "What it means" comment.
- Do not try to interpret the whole graph or figure.



Figure 2. Sample graph for Step 2: Interpret ("What It means")

## Step 3: Writing a Caption

- Write a caption for the graphs or figure.
- Start with a topic sentence that describes what the graph or figure shows.
- Then, join each "What I see" comment with its "What it means" comment to make a sentence.
- Build a coherent paragraph out of your sentences.

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at the price of 3php per candy, the producers are willing to supply 15 pieces.

Figure 3. Sample graph for Step 3: Writing a Caption

The standard lesson plan utilized by Baybay National High School teachers served as the foundation for the lesson plans crafted by the researchers for the intervention. Each lesson plan was reviewed and approved by the cooperating teacher before implementation. The researchers identified topics under the second quarter of Grade 9 Social Studies (Araling Panlipunan) that focused on graphs in microeconomics. There were five topics discussed in this quarter, and three assess the students' ability to understand and interpret graphs. The intervention was implemented over four weeks, with each week focusing on a specific learning competency. Each session lasted for one hour. The I<sup>2</sup> strategy was integrated into the analysis and abstraction phases of the lesson plan. The researchers facilitated student activities throughout the intervention.

During the analysis phase, students were grouped and given a graph to interpret. The teacher utilized guiding questions to help students identify patterns in key graph features, such as the variables on the axes, and interpret these patterns. When students provided general or incomplete interpretations, the teacher used prompts to encourage the application of economic concepts and terms in their WIM statements. Student discussions of their WIS and WIM statements allowed the teacher to facilitate discourse that enhanced their understanding of economic principles and content knowledge (Lucci & Cooper, 2019).

To assess the effectiveness of the intervention, the researchers conducted both a pretest and a post-test to measure any changes in student performance. After completing the intervention, the gathered data were thoroughly analyzed to determine whether there were significant improvements in students' academic performance in learning microeconomics.

# **RESULTS AND DISCUSSION**

As illustrated in Figure 4, the mean percentage score for the pretest was 34%, significantly lower than the post-test mean percentage score of 74%. This improvement was evident in students' classroom proficiency levels, which ranged from approaching proficiency to proficient throughout the implementation period. This notable increase suggests that the intervention effectively enhanced students' graph interpretation skills, demonstrating a significant improvement in their ability to analyze and interpret graphical data in microeconomics. Furthermore, this result supports the findings of Lucci and Cooper (2019), which suggest that utilizing the I<sup>2</sup> strategy aids students in data interpretation.



Figure 4. Mean percentage scores (MPS) of Grade 9 Apitong students in pretest and post-test

To substantiate the claim that the level of graph interpretation skills in the post-test was higher than in the pretest, the researchers examined whether there was a significant difference in students' performance before and after the intervention. Initially, the data distribution was assessed for normality using the Shapiro-Wilk test, which yielded a significant result (W = 0.712, p < 0.001) (see Table 2). This finding indicates that the data were not normally distributed. Consequently, a non-parametric test, the Wilcoxon Signed-Rank Test, was employed to analyze the pretest and post-test performance of Grade 9-Apitong students.

Table 2	. Normality	test (Sha	piro-Wilk)
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			W	р
Pretest	-	Post-test	0.712	<.001

*Note.* A low p-value suggests a violation of the assumption of normality

The Wilcoxon Signed-Rank Test revealed a significant difference between the pretest scores (Mdn = 4) and the post-test scores (Mdn = 11) (see Table 3), with p < .001 (see Table 4). These results confirm that the intervention significantly improved students' graph interpretation skills. Specifically, implementing the I<sup>2</sup> strategy effectively enhanced the ability of Grade 9-Apitong students to interpret graphs in the context of learning microeconomics.

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11.11

	N	Mean	Median
Pretest	35	5.03	4

35

#### Table 3. Mean and median scores of the pretest and post-test

Table 4. Wilcoxon Signed Rank Test on statistical difference before and after the implementation of the I<sup>2</sup> strategy

			Statistic	р	r
Pretest	Post Test	Wilcoxon W	0	<.001	1.00

Note.  $H_a \mu_{Measure 1 - Measure 2} < 0$ 

Post-test

Complementing this, qualitative data were gathered via Focus Group Discussions (FGDs) to capture student perspectives and provide contextual depth to the quantitative findings. A thematic analysis was conducted based on insights from an FGD with Grade 9-Apitong students who participated in the study. This analysis offers qualitative evidence to address the research question: How does the  $I^2$  strategy enhance students' graph interpretation skills in learning microeconomics?

Through a thematic analysis of the Focus Group Discussion (FGD), the researchers identified several key themes that reflect students' experiences and insights. These themes include mastery of graphing skills, simplified and engaged learning, and confidence enhancement in graph interpretation. This study delves into these themes, comprehensively exploring how the I<sup>2</sup> strategy enhances the graph interpretation skills of Grade 9-Apitong students in learning microeconomics.

Table 5. Mastery of graphing skills through I <sup>2</sup> strategy		
Themes	Codes	Initial Code/Illustrative responses
Mastery of Graphing Skills	Real-life application of graphing skills	"Yes, it helps me a lot because we have had financial problems recently. Thanks to the I <sup>2</sup> strategy, we overcame that problem" -S3. "Mas nakatigo ko sa demand tungod sa I <sup>2</sup> strategy example, kung motaas ang presyo, mo gamay ang demand." -S6 <i>(I understand demand better because of the I<sup>2</sup> strategy. For example, if the</i> <i>price increases, the demand decreases.)</i> "It helped me know the value of having an income in our family business." - S8. "Nakahibaw kog unsaon paggamit sa graph ng pwede pud ni naho ma apply sa tinuod nga kinabuhi." -S1 <i>(I learned how to use graphs and can also apply this in real life)</i>

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Proficiency in identifying and using graph elements	"Ang ako experience kay mas naka mao ko sa graph kay sayon siya ma kat- on ug sayon siya I drawing/label." -S4 ( <i>My experience with graphs has improved because they are easy to learn and</i> <i>easy to draw/label</i> ) "Natutunan ko ang mga tawag sa parts ng graph at ang mga gamit nito." -S7 ( <i>I learned the names of the parts of the graph and their uses</i> ) "I learned that equilibrium occurs at the midpoint, which can be helpful when selling something" – S9.
Improved ability in reading and interpreting graphs	<ul> <li>"Ang ako experience ato mas naka hibaw ko kung unsay pasabot sa graph ug mas napadali ang akong pagsabot." -S6</li> <li>(My experience with that helped me understand what the graph means and made my understanding easierS6)</li> <li>"Sauna dili pa ko kahibaw unsaon pag solve sa problem. Lisudan pa ko kaayo. Unya dako kaayog tabang ang mga activity ni sir kay tungod ato nakahibaw nako unsaon pag solve sa problem ug nasayunan nako." -S7</li> <li>(Before, I did not know how to solve the problem. I found it very difficult. However, the activities from sir helped me a lot because I learned how to solve and understand problemsS7)</li> </ul>

Participants emphasized that the I<sup>2</sup> strategy significantly improved their ability to identify and interpret different microeconomic graphs. They noted better comprehension of demand and supply curves, equilibrium points, and other parts of the graph, which contributed to a more accurate analysis. This is supported by the findings of Mathai et al. (2025), which suggest that targeted instruction on these elements can significantly improve students' ability to analyze and interpret graphs effectively. In addition, students emphasized how the I<sup>2</sup> strategy helped them apply their knowledge in graph interpretation to practical situations, especially when it comes to understanding economic concepts like demand and price and financial decision-making. Additionally, students reported that the I<sup>2</sup> strategy made it easier to understand and solve problems while analyzing graphs. Thus, this mastery prepared the way for more complex economic analysis. Another stated,

#### "I learned how to use graphs and can also apply this in real life"-S1.

This highlights the practical utility of graphing skills in financial decision-making. Barone et al. (2024) emphasized the importance of graph literacy in enhancing financial decision-making, suggesting significant implications for financial educators. Moreover, Anderson & Krathwohl's Revised Bloom's Taxonomy also supported this by emphasizing the value of "Applying" as a cognitive skill. When students apply concepts, they move beyond memorization, fostering deeper understanding and retention of knowledge. This theme shows how the I<sup>2</sup> strategy improved both students' academic learning and practical skills, connecting what they learned in theory to real-life situations.

Theme	Codes	Initial Code/Illustrative responses
Enhanced Learning		"I asked sir how to do it, and I slowly started learning it. Now I am confident that I know how to do and read it" -S4.
	Simplifies learning	"Yes, I have noticed a slight improvement in my ability and gained a bit of confidence now that I know how to use the I <sup>2</sup> strategy and how to graph." -S10.
		"Sauna wala ko kahibaw unsa nang mga point, demand, supply, supply curve. Tungod sa I² strategy nakahibaw nako kung unsay pasabot sa demand and supply." -S3
		(Before, I did not know what points, demand, supply, and supply curve meant. Because of the I <sup>2</sup> strategy, I now understand the meaning of demand and supplyS3)
Skill Mastery		"I like I <sup>2</sup> because understanding graphs is fun and easy" -S3
	Effective Instruction	"Nakamao ko sa gipasabot ni sir." -S1 (I easily understood what sir explainedS1)
	Confidence in Graph	I asked sir how to do it, and I slowly started learning it. Now I am confident that I know how to do and read it" -S4.
	interpretation	"Yes, I have noticed a slight improvement in my ability and gained a bit of confidence now that I know how to use the I <sup>2</sup> strategy and how to graph." -S10.

Table 6. Simplified and engaged learning during the implementation of the I<sup>2</sup> Strategy

The interactive and structured approach of the I<sup>2</sup> strategy was commended for making difficult ideas easier to understand. Students believed their difficulty in analyzing graphs lessened when graph-related tasks were divided into smaller, more manageable steps. Simplifying lesson content by minimizing extraneous information helps students focus on core concepts, improving comprehension and engagement (Halliday et al., 2024). Adjusting lessons from the students' perspective can decrease cognitive load and enhance understanding (Plotinsky, 2019). Additionally, interactive activities make learning more engaging (Yeh et al., 2019), and the role of effective teaching combined with the I<sup>2</sup> strategy significantly contributed to students' improved understanding of graph interpretation.

# Before, I did not understand demand and supply, but since we were given an activity with step-by-step instructions, it became easier for me to understand. -S2.

The results highlight the strength of the I<sup>2</sup> strategy in transforming complex subjects into easy-to-understand content, facilitating immediate comprehension. Students reported better understanding when lessons were broken into steps, systematically enhanced by their participation in activities. Their teacher's instruction positively influenced them as they reinforced these concepts. The interactive nature of the strategy made learning enjoyable and effective, reflecting the students' ability to easily learn and apply new knowledge (McLaren et al., 2017). This is supported by Xu et al. (2023), who found that students perceiving higher levels of teacher support exhibited increased engagement in learning activities. This synergy between the I<sup>2</sup> strategy and the effective teaching method

highlights the need for innovative strategies in education, especially instructional methods that will maximize achievement among students and a better understanding of the material.

The I<sup>2</sup> strategy significantly increased students' confidence in graph interpretation by assisting them in overcoming their early challenges. Initially, many students struggled to grasp concepts such as demand, supply, and curves Sartika et al. (2019). One student stated,

Sauna wala ko kahibaw unsa nang mga point, demand, supply, and supply curve pero tungod sa I<sup>2</sup> strategy, nakahibaw nako kung unsay pasabot sa demand and supply. (S3) ("Before, I did not know what points, demand, supply, and the supply curve were, but because of the I<sup>2</sup> strategy, I now understand what demand and supply mean.") -S3

Gradual exposure and supervised practice allowed students to break down complex tasks. This shows how the I<sup>2</sup> strategy is not only about competence building but also about confidence building. Although some students have difficulty in analyzing microeconomics concepts (Brückner et al., 2020), through repeated use of the I<sup>2</sup> strategy, students master and are proud of their improvement.

The I<sup>2</sup> strategy, focused on simplifying and breaking down complex concepts, proved effective in grasping microeconomics graphs. The I<sup>2</sup> approach helped me better understand graph interpretation and plotting, which often posed a challenge. As a result, students gained greater confidence in plotting points and understanding the relationship between variables, highlighting the importance of tailored strategies for mastering difficult microeconomics concepts (Mishra et al., 2023).

The results from the thematic analysis highlight how the I<sup>2</sup> strategy significantly improved the graph interpretation skills of Grade 9 students. By breaking complex graphs into manageable steps, the I<sup>2</sup> strategy promoted mastery and engagement, fostering an improved understanding of the graphs. Students reported feeling more competent and selfassured, indicating that the technique enhanced their graph interpretation skills. Additionally, learning became more relevant and significant due to the connection to realworld applications, which increased motivation and interest in learning microeconomics. While some students initially struggled with the new approach, the systematic nature of the I<sup>2</sup> strategy ultimately helped them overcome these obstacles and achieve significant improvements in their graph interpretation skills. The themes identified in the FGDs, such as mastery of graphing skills, align with the observed improvement in test scores. For example, students' increased confidence and competence in graph interpretation were reflected in their higher performance on assessments.

#### **CONCLUSION**

The study demonstrated a significant improvement in students' graph interpretation skills following the implementation of the I<sup>2</sup> strategy. These findings were supported by Lucci and Cooper (2019), who demonstrated the effectiveness of the I<sup>2</sup> Strategy in helping students develop analytical and interpretative skills when working with graphical data. Similarly, the results of this research indicate that the I<sup>2</sup> Strategy significantly improved the graph interpretation skills of Grade 9 students in microeconomics, as evidenced by the substantial increase in mean percentage scores (MPS) from 34% (pretest) to 74% (posttest) and the statistically significant improvement confirmed by the Wilcoxon Signed-Rank Test (p < 0.001). In addition, Lucci and Cooper discovered that the I<sup>2</sup> Strategy enhances evidence-based thinking and helps students see patterns in data, reducing misconceptions in

scientific learning. In this study, a similar pattern occurred, with students showing better confidence in identifying key graph elements, analyzing economic patterns, and using graphical representations in problem solving. Thus, this highlights the I<sup>2</sup> Strategy's usefulness as a pedagogical tool in both science and economics education. Furthermore, this is also consistent with the study of Johari et al. (2018), which emphasized the importance of visualization skills in teaching and learning to improve students' understanding of economic concepts. Using the I<sup>2</sup> strategy in teaching microeconomics significantly enhanced students' ability to understand economic concepts through graphs. Implementing I<sup>2</sup> strategy greatly impacts students' learning experiences as it helps in enhancing students' skills and ability particularly in terms of graph interpretation. This strategy helps students by breaking down the information from graphs, figures, sketches, and other ways to represent data into smaller manageable parts. By incorporating this strategy into lesson plans, educators can create a more engaging, interactive, and fostered improvement in attaining learning outcomes. Educators can use the I<sup>2</sup> (Identify and Interpret) strategy to enhance students' graph analysis and comprehension skills. Structured activities centered on recognizing graph elements and analyzing their importance help in improving students' graph interpretation skills.

Based on the study's findings, this research paves the way for future studies that may explore the applicability of the I<sup>2</sup> strategy in other areas of economics or different subjects where graph interpretation is essential. The researchers also suggest to future researchers to innovate other strategies that would enhance the graph interpretation skills of the students not only specified in microeconomics but also other subjects such as math and science.

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# **AUTHOR CONTRIBUTION**

Author 1: Jojenn P. Calingacion – Led the implementation process Author 2: Alyssa Lira M. Dacera – Conceptualization Author 3: Melissa G. Castro - Methodology Author 4: Joshua C. Lubay – Quantitative Analysis Author 5: Rona Flor Fatima C. Bug-os – Thematic Analysis Author 6: Jay C. Bansale – Review and Supervision

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