

# Enhancing Collaboration Skills through Case Method Teaching Materials

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**Abstract.** This study aims to test the effectiveness of case method teaching materials. These materials focus on the Introduction to Macroeconomics course. The expected effectiveness of the developed teaching materials is an improvement in the collaboration skills (one of the core skills of the 21st century) of students using the case method-based teaching materials. This research employs an experimental between-group design. The data obtained are analyzed using an independent sample t-test. The statistical test results indicate a significant difference in collaboration skills between the experimental group and the control group, with the group using the case method-based teaching materials demonstrating higher collaboration skills.

**Keywords:** case method, collaboration skills, 21st century.

## 1 Introduction

In the rapidly evolving landscape of the 21st century, collaboration skills have emerged as one of the critical competencies necessary for personal, academic, and professional success [1], [2]. The ability to work effectively in teams, share knowledge, and coordinate efforts towards common goals is increasingly valued in diverse fields, from education to business to technology [3]–[5]. Given the emphasis on these skills, educational institutions face the challenge of developing pedagogical approaches that not only impart knowledge but also cultivate these essential abilities in students.

One promising pedagogical approach that addresses this need is the case method [6]. Originating in the early 20th century at Harvard Business School, the case method involves

presenting students with real-world scenarios that require critical thinking, problem-solving, and decision-making [7]. This method encourages active learning, where students engage in discussions, analyze different perspectives, and develop solutions collaboratively [8]. By immersing students in complex, realistic situations, the case method not only enhances their understanding of the subject matter but also fosters key skills such as collaboration, communication, and leadership.

The significance of collaboration in educational settings is well-documented. According to Johnson and Johnson [9], collaborative learning promotes higher-level thinking, enhances student satisfaction with the learning experience, and improves retention of information. Vygotsky's [10] social constructivist theory also underscores the importance of social interactions in cognitive development. He posits that learning is inherently a social process, where individuals construct knowledge through interactions with others. This theoretical framework supports the integration of collaborative activities in educational practices to enhance learning outcomes.

In the context of economics education, the introduction of the case method can be particularly impactful. The dynamic nature of macroeconomic concepts, which often involve interconnected variables and complex systems, lends itself well to case-based learning. By exploring real-world economic issues through case studies, students can develop a deeper understanding of macroeconomic principles and their applications. Moreover, working in groups to analyze and solve case problems can significantly improve their ability to collaborate effectively, an essential skill in today's interconnected global economy.

Empirical evidence supports the effectiveness of the case method in enhancing collaboration skills. A study by Hmelo-Silver [11] found that problem-based learning, which shares many similarities with the case method, significantly improved students' collaborative abilities. Similarly, Dochy et al. [12] reported that students engaged in case-based learning demonstrated better teamwork and communication skills compared to those in traditional lecture-based courses. These findings suggest that integrating the case method into the curriculum can provide a valuable means of developing collaboration skills alongside disciplinary knowledge.

Despite the recognized benefits, the implementation of the case method in educational settings is not without challenges [13]. Instructors need to be adequately trained to facilitate case discussions effectively, and students must be prepared to engage actively in the process. Additionally, the development of high-quality case materials that are relevant and challenging requires significant time and effort. However, the potential gains in student engagement and skill development make these challenges worthwhile.

This study aims to contribute to the growing body of literature on the case method by examining its impact on collaboration skills within the context of an Introduction to Macroeconomics course. By employing an experimental between-group design, this research seeks to provide empirical evidence on the effectiveness of case method teaching materials in enhancing students' collaborative abilities. The findings are expected to offer valuable insights for educators seeking to implement innovative teaching strategies that prepare students for the demands of the 21st-century workforce.

## 2 Method

### 2.1. Participant

The population of this study consists of economics students enrolled in the Introduction to Macroeconomics course, spanning four study programs: Economics Education, Business Education, Office Administration Education, and Educational Sciences. Meanwhile, the sample for this study is divided into two groups: Class A, which serves as the experimental group, and Class B, which serves as the control group. Each group comprises 27 respondents (Table 1).

**Table 1.** Research Respondents

No	Group	Number
1	Group A	27
2	Group B	27
<b>Total</b>		<b>54</b>

### 2.2 Data Collecting and Analysis

The data for this study were collected using an observation instrument filled out by observers during the learning process. The statistical analysis used in this study is the independent sample t-test [14], [15]. This statistical test was chosen because the study employs an experimental between-group design, involving two groups: one serving as the experimental group and the other as the control group [16]. One of the prerequisites for conducting an independent sample t-test is the homogeneity of variance [14], [15]. To test this assumption, the researcher used Levene's test.

## 3 Results and Discussion

Based on Table 2, it is evident that Group A has higher communication skills scores ( $n = 27$ ,  $\bar{x} = 4.74$ ) compared to Group B ( $n = 27$ ,  $\bar{x} = 3.89$ ). Group B has a larger data spread, with a standard deviation of 0.58, whereas Group A has a standard deviation of 0.45. The complete descriptive statistics are presented in Table 2..

**Table 2.** Statistic Descriptive

Group	N	Minimum	Maximum	Mean	Std. Deviation
Group A	27	4	5	4.74	0.45
Group B	27	3	5	3.89	0.58

To assess whether the homogeneity of variance assumption is met, the researcher used Levene's test. Table 3 shows that the homogeneity of variance assumption is satisfied ( $F = 0.02$ ,  $p > 0.05$ ). Once it was established that the assumption test was met, the results of the independent sample t-test could be analyzed. Table 3 indicates a significant difference between Group A and Group B,  $t(52) = 6.06$ ,  $p < 0.05$ . However, it represented an effect of  $d = 0.51$  [1.02, 2.27] (Table 4).

**Table 3.** Levene's Test and independent sample t-Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
<b>Equal variances assumed</b>	0.02	0.9	6.06	52	0.00	0.85	0.14	0.57	1.13
<b>Equal variances not assumed</b>			6.06	48.91	0.00	0.85	0.14	0.57	1.13

**Table 4.** Effect Size

	Coefficient t	Point Estimate	95% Confidence Interval	
			Lower	Upper
Cohen's d	0.52	1.65	1.02	2.27
Hedges' correction	0.52	1.63	1.01	2.23
Glass's delta	0.58	1.48	0.80	2.13

The significant difference in collaboration skills between the experimental and control groups underscores the effectiveness of the case method in fostering collaborative learning. This finding aligns with previous research that highlights the benefits of active learning strategies in enhancing teamwork and communication skills. For instance, Hmelo-Silver [11] found that

problem-based learning, a method closely related to the case method, significantly improved students' ability to work collaboratively. Similarly, Dochy et al. [12] reported that students engaged in case-based learning demonstrated better teamwork and communication skills compared to those in traditional lecture-based courses. From a theoretical perspective, these results can be interpreted through the lens of Vygotsky's [10] social constructivist theory, which posits that learning is inherently a social process. According to Vygotsky, individuals construct knowledge through interactions with others, and collaborative activities play a crucial role in cognitive development. The case method, by requiring students to work together to analyze and solve complex problems, provides a rich environment for these social interactions, thereby facilitating the development of collaboration skills. Moreover, the findings of this study support the notion that the case method not only enhances students' understanding of macroeconomic concepts but also promotes the development of essential 21st-century skills. Collaboration is increasingly recognized as a critical competency in the modern workforce, and educational approaches that cultivate this skill are of paramount importance. The ability to work effectively in teams, communicate ideas clearly, and coordinate efforts towards common goals is vital in various professional contexts, from business and technology to healthcare and education [9].

The significant improvement in collaboration skills observed in the experimental group can be attributed to several factors inherent in the case method. First, the case method encourages active participation and engagement, as students must analyze real-world scenarios, discuss different perspectives, and develop solutions collaboratively. This active engagement fosters a sense of responsibility and accountability among students, which is crucial for effective teamwork. According to Johnson and Johnson [9], cooperative learning environments where students feel accountable to their peers lead to higher levels of engagement and collaboration. Second, the case method requires students to develop critical thinking and problem-solving skills, which are essential for effective collaboration. Analyzing complex, real-world problems necessitates the integration of diverse viewpoints and expertise, fostering an environment where students must communicate and collaborate effectively to arrive at viable solutions. This process not only enhances their understanding of the subject matter but also strengthens their ability to work collaboratively [11]. Third, the case method provides opportunities for students to develop leadership skills. In collaborative learning environments, students often take on different roles and responsibilities, such as leading discussions, coordinating group activities, and presenting findings [17]. These experiences help students develop leadership skills and confidence, which are crucial for effective teamwork. Studies have shown that students who engage in collaborative learning activities exhibit higher levels of self-efficacy and leadership skills [12].

Despite the positive findings, it is important to acknowledge the challenges associated with implementing the case method in educational settings. Developing high-quality case materials that are relevant, challenging, and engaging requires significant time and effort from instructors [18]. Additionally, facilitating effective case discussions demands skill and experience, as instructors must guide students through complex problems while encouraging active participation and critical thinking. Therefore, professional development and support for instructors are essential for the successful implementation of the case method [19]. Furthermore, the success of the case method in enhancing collaboration skills also depends on students' readiness and willingness to engage in collaborative learning [20]. Some students

may be resistant to group work due to previous negative experiences or a preference for individual learning. Addressing these challenges requires creating a supportive and inclusive learning environment where all students feel valued and motivated to contribute. Instructors can foster such an environment by setting clear expectations, providing structured activities, and offering continuous feedback and support.

The findings of this study have important implications for educators and policymakers. Integrating the case method into the curriculum can provide a valuable means of developing collaboration skills alongside disciplinary knowledge. Given the growing recognition of collaboration as a critical 21st-century skill, educational institutions should prioritize pedagogical approaches that promote active, collaborative learning. This can be achieved by incorporating case-based learning activities across various subjects and levels of education, from primary schools to higher education institutions.

## 4 Conclusion

This study demonstrates the significant impact of case method teaching materials on enhancing students' collaboration skills in an Introduction to Macroeconomics course. The findings contribute to the growing body of literature on the effectiveness of active learning strategies and highlight the importance of integrating collaborative learning activities in educational practices. By fostering critical thinking, problem-solving, and leadership skills, the case method not only enhances students' understanding of the subject matter but also prepares them for the demands of the 21st-century workforce. Future research should continue to explore the impact of the case method in different contexts and identify best practices for its implementation to maximize its benefits for students.

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