



The Implementation of Jigsaw Methods in Enhancing English Language Comprehension among Health Polytechnic Students

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Abstract

The purpose of this research is to find out how much students at Health Polytechnic benefit from using jigsaw techniques to better understand written English. In order to effectively communicate and understand medical principles and procedures, having a strong grasp of the English language is crucial in the healthcare industry. The study looked at how well 78 students from Poltekkes Kemenkes Surabaya learned using a Reading Proficiency test, traditional methods, and pre- and post-test experimental designs. It also used T-tests to look at the results. For a subset of the larger topic, which improves the group's ability to solve problems and make informed decisions. When students from different backgrounds have mastered a subject, they get together to share what they've learned and help each other out. The use of a group strategy not only leads to better overall comprehension, but also to the growth of interpersonal and communicative skills. The purpose of this research is to determine if teaching English using the jigsaw method is effective for students at Health Polytechnics. The study will rely on statistical methods.

Keywords: Jigsaw Method, Reading Proficiency, Cooperative Learning Strategy

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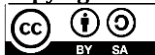
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INTRODUCTION

For those who are not fluent in English or who have only a basic grasp of the language, reading laboratory manuals written in English can be a daunting challenge. There are numerous techniques for improving students' comprehension of what they read; one of these is the jigsaw approach. Students work together in small groups to gather data, share ideas, and solve problems using this cooperative learning strategy (Ayu et al., 2021). To be successful in reading manuals, you need more than just a firm grasp of reading strategies and the English language. Reading comprehension can also be affected by the students' motivation, interest in the subject matter, the quality of instruction, and other personal factors (Guthrie et al., 2012; Berger & Hänze, 2015). Learning to read English textbooks using the jigsaw method has been the focus of much academic inquiry in recent years. Using the jigsaw method has been shown to help students better comprehend what they read (Effendi-Hasibuan et al., 2020), among other benefits. Successful implementation of this strategy, however, also depends on factors such as the

learning environment, student characteristics, and the quality of teaching (Istanto et al., 2022; Berger & Hänze, 2015).

While numerous studies have investigated the effectiveness of the Jigsaw cooperative learning approach in different educational contexts and fields, there is a scarcity of research examining its implementation and outcomes specifically among students in Health Polytechnics. Istanto et al., (2022) have discussed the validation and reliability of self-efficacy in English learning among Health Vocational students through the utilization of the Jigsaw learning strategy. However, there is a lack of comprehensive information regarding the wider dynamics, challenges, and outcomes associated with the implementation of this strategy within the context of health polytechnic education. It is crucial to gain a comprehensive understanding of how students pursuing health-related fields, who may possess unique learning needs, perceive and derive advantages from the implementation of the Jigsaw technique. Furthermore, the aforementioned studies predominantly examine the general effects of the Jigsaw method or its application in settings that are not directly relevant to health polytechnic environments. There exists a knowledge deficit regarding the potential application of this method in addressing linguistic obstacles unique to health disciplines, such as the utilization of medical terminologies in the English language. Furthermore, there is a lack of research on the connections among English language comprehension, cooperative learning, and domain-specific competencies that are essential for health polytechnic students. Therefore, there exists a prospect to further explore the utilization, difficulties, and subtle ramifications of the Jigsaw technique in enhancing English language comprehension among students enrolled in Health Polytechnic institutions.

The effectiveness of Jigsaw strategies in enhancing students' comprehension of texts has been the subject of previous research. What role do things like student motivation and interest play in determining how well they learn? How do factors like instructor skill and student background affect the Jigsaw approach's efficacy? The purpose of this study is to determine if the Jigsaw method can significantly contribute to student reading comprehension when applied to the reading strategies presented in English textbooks. Although there are studies showing the effectiveness of the Jigsaw method in enhancing reading comprehension (Ayu et al., 2021), there are still relatively few studies that attempt to experience it in a specific context, particularly in regards to what factors influence the success of the application of this method. Jigsaw methods have been shown to improve students' comprehension of text, but there are a number of variables that influence their success (Guthrie et al., 2012; Berger & Hänze, 2015). Reading comprehension in English is essential in many academic fields, including science (Effendi-Hasibuan et al., 2020). However, there is a dearth of studies that investigate the adaptability of the Jigsaw approaches to a wide range of learning environments.

Research studies have demonstrated that the implementation of the Jigsaw cooperative learning approach has a positive impact on students' ability to comprehend texts. The effectiveness of the subject matter is contingent upon various factors, including but not limited to student motivation, interest, instructor proficiency, and student background. Significant research has demonstrated the effectiveness of the Jigsaw method in enhancing reading comprehension. Nevertheless, there is a dearth of research investigating the utilization of this approach within particular settings, such as the Health Polytechnic milieu. As evidence, we will draw from a number of previous studies in the field, including Ayu et al.'s (2021) investigation of the Jigsaw method's effectiveness in enhancing students' reading comprehension and Berger & Hänze's (2015) investigation of the bearing of expert teaching quality on students' jigsaw-related academic performance. Therefore, The objective of this study is to examine the effects and suitability of the Jigsaw method in improving reading comprehension skills in English textbooks across diverse academic disciplines. By drawing upon previous research findings, the study intends to

offer a comprehensive understanding of the method's suitability and potential obstacles in different educational settings.

METHOD

In this study, pre-test and post-test experimental designs were utilized, and the experimental groups utilized the Jigsaw method, while the control groups did not. This method enables a comparison of the learning outcomes attained by both of the different groups. The investigation was carried out over the course of a period of twelve months, beginning in August 2022 and ending in July 2023. 78 students from Poltekkes Kemenkes Surabaya are participating as research subjects in this study. These students are learning English, and their levels of comprehension are all over the place. They were split up into two groups, the first being an experimental group consisting of 39 students and the second being a control group consisting of 39 students. Locate and choose the student population that will serve as the focus of the research. They will be split into two groups: the research group, which will be trained using the Jigsaw method, and the control group, which will receive conventional training or have no intervention at all. The Jigsaw method will be used to train the research group.

The pre-test and post-test versions of the Reading Proficiency test were utilized in the research project in order to determine whether or not the Jigsaw method was successful when applied. Reading proficiency tests are the reading portion of the TOEFL prediction test and are frequently used to measure students' reading skills in academic settings. These tests can be found in a variety of standardized exams. This is an international standard test that is used to evaluate the level of English proficiency possessed by students whose first language is not English. Reading ability is being measured here. Reading Proficiency post-test was used for the measurement of reading skills after application of this method, while the pre-test was used to measure the level of early reading skills students had prior to the application of the Jigsaw method. The pre-test was called the Reading Proficiency test. In the experimental group, the Jigsaw method has been put into practice. Before the beginning of the intervention, every student, in both the research group and the control group, will have the opportunity to demonstrate their level of reading ability on a pre-test. This will provide a preliminary overview of their reading ability before the intervention is administered.

Students are organized into smaller groups according to this strategy, and each member of these groups is given a different section of the English textbook to read. Each individual in the group is responsible for learning and becoming proficient in the portion of the task that falls under his purview. After that, they communicated their findings to the other members of the group in order to achieve a holistic comprehension of the manual. The Jigsaw method is taught to the research group as part of their training. The procedure consists of a number of stages, such as the following: (1) The explanation of the jigsaw technique (2) The formation of small learning teams in the classroom (3) The implementation of the procedure The breaking up of the reading material into several smaller groups, Discussions held internally in smaller working groups with the goal of better comprehending and summarizing certain sections of the assigned reading material. To better share their expertise, smaller groups will collaborate with larger ones. Discussion in the classroom about the books being read, with direction from the instructor. The students were initially organized into what were referred to as small working groups after they were separated into smaller groups. (teams focused on learning). A particular section of the reading material is distributed to each of the smaller working groups. Every one of the smaller work groups investigates and gets a grasp on the sections of the reading material that have been assigned to them. The members of the small workgroup are working together in order to comprehend and summarize the

various components of the reading materials that they have acquired. Students who have been working on the same sections of the reading in their previous groups come together to form a new group called a mixed group. Students collaborate within mixed groups to share what they know about a common reading assignment, compare how well they understand the material, and talk about the topic in greater depth. The entire class convened in one location to continue their conversation about the reading materials, and the instructor acted as the moderator for this gathering. The teachers will give the students either an activity or a question to evaluate their level of comprehension after they have finished reading the assigned material. Students will reflect on their own learning and how working with peers from a variety of backgrounds helps improve their overall comprehension. Active learning that is also student-centered and collaborative, jigsaw learning is a method. In the current investigation, this strategy was implemented as part of an intervention in the research group with the intention of enhancing the participants' comprehension of the English manual.

Learning is provided to members of the control group in accordance with traditional methods, which may or may not include the Jigsaw method. They engage in activities such as reading textbooks written in English and possibly taking regular English classes. The first step in the educational process typically involves the instructor delivering an introduction to, or lecture on, the subject matter that their students will be studying. Students are given a reading or written material to read on their own, such as an English textbook, and they are instructed to do so either inside or outside of the classroom setting. After the students have finished reading, the teachers will facilitate a class discussion in which the students can either share what they have learned or ask the teacher questions regarding the material. For the purpose of evaluating the students' level of comprehension, additional reading-related activities or exercises may be assigned to them. The teachers use a test or some other type of written assignment to evaluate the student's level of comprehension regarding the assigned reading.

Throughout the course of the student's education, teachers will keep an eye on how well the student is progressing and will offer additional direction when required. It is possible for teachers to solicit feedback from students or ask them to reflect on their own learning. The results of the students' learning were measured by collecting data on the students' read proficiency both before and after the test. Following the implementation of the Jigsaw method, these data were subjected to the T-test in order to determine whether or not the Jigsaw method resulted in any statistically significant differences between the experimental group and the control group. T-tests were used to conduct an analysis on the data gathered from both the before and after tests. The findings of the statistical study were examined in order to ascertain whether or not there was a discernible gap in the levels of comprehension possessed by the two distinct groups of students.

RESULT AND DISCUSSION

Table 1 Normality test

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Unstandardized Residual is normal with mean 0.000 and standard deviation 5.64.	One-Sample Kolmogorov-Smirnov Test	.265	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

It can be safely assumed that the data is translated normally since the normality test result's significance value was $0.265 > 0.05$ in the reading test. The normality test shows that the reading test data follows a normal distribution. This is a necessary condition in

many statistical analyses to guarantee reliable results. In this setting, a normal distribution indicates that the data is free of major distortions.

		Levene Statistic	df1	df2	Sig.
Pre-test	Based on Mean	4.311	1	76	.041
	Based on Median	2.823	1	76	.097
	Based on Median and with adjusted df	2.823	1	64.409	.098
	Based on trimmed mean	3.973	1	76	.050
Post-test	Based on Mean	3.464	1	76	.067
	Based on Median	3.356	1	76	.071
	Based on Median and with adjusted df	3.356	1	75.285	.071
	Based on trimmed mean	3.437	1	76	.068

The significance values of 0.98 and 0.71 for the pre- and post-test homogeneity tests, respectively (> 0.05), allow us to draw the conclusion that the data is consistent. Homogeneity of data is a metric for evaluating how consistent or uniform the data is. The homogeneity test shows that the pre- and post-test data in this study are consistent with one another. Because of this, it is possible to make valid comparisons between the control group and the intervention group.

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre-test - Post-test	-10.33333	3.86164	.61836	-11.58513	-9.08153	-16.711	38	.000

Data collected before and after using the Jigsaw method to better understand English-language textbooks showed a significant difference (T-test, $0.000 < 0.05$) suggesting that the learning outcome had changed. We compared the means of the two groups using the T-test. According to the results of the T-Test, the Jigsaw method was able to significantly improve test-takers' performance from the beginning to the end of the learning process. It demonstrated the method's efficacy in enhancing Polytechnic Health students' comprehension of textbooks written in English.

DISCUSSION

The results of the paired samples T-Test present strong evidence indicating that the implementation of the Jigsaw method had a significant impact on students' aptitude to comprehend English-language textbooks. The observed mean difference of -10.33333 in pre- and post-test scores indicates that, on average, there was a positive change of approximately 10.33333 units in scores following the implementation of the Jigsaw method. In addition, the p-value of 0.000 exhibits a high level of statistical significance, thereby bolstering the confidence in the observed result. A p-value of such magnitude

generally suggests that the observed outcomes are improbable to have arisen solely due to random variation.

In the context of Polytechnic Health students, it can be inferred that the efficacy of the Jigsaw method extends beyond its general effectiveness, as it specifically aids these students in navigating and comprehending the intricate content presented in English-language textbooks pertaining to their respective field of study. The effectiveness of the Jigsaw method can be attributed to its focus on cooperative learning, peer teaching, and the division of complex content into smaller, more manageable sections. These elements have the potential to improve comprehension. Therefore, educators within the field of Polytechnic Health may contemplate the integration of the Jigsaw method as a strategic instrument to enhance students' reading and comprehension abilities.

The main results of this research highlight the efficacy of the Jigsaw method in improving students' understanding of English-language textbooks, specifically within the Polytechnic setting. The studies conducted by Abed (2019), Barbosa et al. (2020), and Sembiring (2022) collectively demonstrate the efficacy of the Jigsaw method in enhancing reading comprehension, thereby corroborating the principal outcomes. According to Marzban and Akbarnejad (2013), cooperative reading strategies, such as the Jigsaw method, were found to be advantageous, particularly among college students. According to Abed (2019), the Jigsaw approach demonstrated notable effectiveness when used with English as a Foreign Language (EFL) students. This aligns with previous research that highlights the method's efficacy in enhancing English comprehension. Guthrie et al. (2012) and Opdecam & Everaert (2018) have emphasized the significance of the Jigsaw method in fostering reading engagement, thereby indicating the wider implications of this approach that extend beyond mere comprehension. The versatility of the Jigsaw approach in various academic settings and subjects has been emphasized in studies conducted by Istanto et al. (2022) and Sanaie et al. (2019). The significance of the method and its value as an innovative pedagogical approach are emphasized by Berger and Hänze (2015) as well as Caroline V and Samuel (2017). Effendi-Hasibuan et al. (2020) argue that adaptability is crucial when implementing the Jigsaw technique in diverse classrooms, despite acknowledging its effectiveness. The authors, Halimah and Sukmayadi (2019), underscored the advantages of incorporating it into teacher training programs, specifically highlighting its positive impact on teacher abilities. Jainal and Shahrill (2021) underscore the favorable outcomes associated with the utilization of the strategy across various domains, particularly in the realm of tourism, thereby emphasizing its applicability in diverse contexts. Habók and Magyar (2019) and Kim (2016) both allude to the interconnectedness between language proficiency, attitude, and the efficacy of reading strategies, thereby suggesting the broader implications arising from the principal findings. In conclusion, the primary study highlights the efficacy of the Jigsaw method in the context of Polytechnic Health students. This finding is supported by the existing body of literature, which further substantiates the method's credibility by emphasizing its wide-ranging applicability, the underlying principles it fosters, and its profound implications in terms of reading proficiency and attitude.

Research shows that using the Jigsaw method can improve students' ability to understand what they read. Abed (2019), Barbosa et al. (2020), and Sembiring (2022), to name a few, have all discovered that students' reading comprehension improves when taught in this way. Marzban and Akbarnejad (2013) found that Jigsaw and other cooperative reading strategies helped Iranian college students better understand what they read. Students of English as a Foreign Language (EFL) may find the Jigsaw approach especially useful. According to Abed (2019), it helped EFL students at Birzeit University understand what they read. In a similar vein, Esnawy (2016) reported positive results, indicating the strategy has promise for EAP (English for Academic Purposes) reading and research essay writing. Because of its collaborative nature, the Jigsaw approach

encourages not only learning, but also participation and teamwork among students. Both Guthrie et al. (2012) and Opdecam & Everaert (2018) highlight the significance of reading engagement and the ways in which instructional contexts like the Jigsaw method can promote it. The Jigsaw approach has also been field-tested in a variety of academic settings. Istanto et al. (2022) looked at how it affected students' perceptions of their own English-learning abilities in the health professions. Similarly, Sanaie et al. (2019) analyzed the impact of the Jigsaw teaching strategy versus traditional lectures on the self-regulated learning and academic motivation of health students to provide a nuanced view of the contexts in which the method may be most useful.

The Jigsaw technique, a well-regarded cooperative learning strategy, has consistently received praise for its effectiveness in improving reading comprehension. According to Abed (2019), it was determined that the intervention demonstrated superiority over conventional instructional approaches. The potential of fostering collaboration and enhancing academic and interpersonal proficiencies is acknowledged by Barbosa et al. (2020), thereby echoing this sentiment. Berger and Hänze (2015) as well as Caroline V and Samuel (2017) express support for the jigsaw classroom due to its notable impact on student understanding and the imperative nature of pioneering pedagogical approaches. Ayu et al. (2021) identifies the difficulties encountered by Indonesian students in the domain of English reading comprehension. In order to address these challenges, the authors propose the implementation of the Jigsaw technique, supported by supplementary materials. According to Esnawy (2016), the technique is perceived as a valuable pedagogical tool that fosters the development of critical thinking, communication, and collaboration skills. Effendi-Hasibuan et al. (2020) contends that the successful implementation of this approach in diverse Indonesian classrooms necessitates adaptability in light of inherent challenges. The technique also has an impact on teacher education. Halimah and Sukmayadi (2019) emphasize the advantages it brings to teachers' abilities and advocate for its inclusion in teacher training programs. Jainal and Shahrill (2021) emphasize the positive influence of the strategy on the learning experiences of students in the field of tourism, highlighting its broad applicability. Law (2014) underscores the significance of structured learning environments and their ability to effectively address the diverse needs of students when combined with innovative approaches such as the Jigsaw method. However, Law also acknowledges the presence of challenges in certain regions, such as Hong Kong. Namaziandost et al. (2019) propose the implementation of a learner-centered approach in the instruction of English as a Foreign Language (EFL). They emphasize the importance of providing teacher training in Cooperative Learning (CL) methodologies and the need for policy endorsement. Opdecam and Everaert (2018) also advocate for a reversion to fundamental cooperative learning principles in order to augment student satisfaction and academic performance. Istanto et al. (2022) emphasizes the significance of Jigsaw's contribution to enhancing students' self-efficacy in English proficiency within the health vocational context. The cumulative results of these studies enhance the status of the Jigsaw technique as a highly influential educational instrument.

The study of reading comprehension and the effective methods of instruction in this area have been subjects of substantial academic research. The study conducted by Habók and Magyar (2019) presented an extensive examination of reading strategies and comprehension in the context of younger English as a Foreign Language (EFL) learners. The research emphasized the interconnectedness of proficiency, attitude, and the utilization of strategies. According to Kim (2016), there is evidence supporting the notion that proficient readers perceive reading as highly valuable, despite any discomfort they may experience. This highlights the intricate connection between reading proficiency and attitude. The authors Afflerbach et al. (2013) introduced a comprehensive methodology for cultivating reading abilities, which takes into account both cognitive and affective

aspects such as metacognition, motivation, and self-efficacy. In a similar vein, Guthrie et al. (2012) emphasized the significance of comprehending the interrelationship among motivation, engagement, and reading achievement. Likewise, Muijselaar et al. (2017) underscored the early implementation of reading strategies to augment comprehension, highlighting the enduring advantages and the influence of metacognitive strategies. The aforementioned statement highlights Bouklata's (2023) perspective regarding the significance of inclusive methodologies that consider socio-economic and educational factors in the advancement of reading skills. In the realm of education, Oo and Habók (2022) advocated for the implementation of reflective teaching practices, with a specific emphasis on the use of the Reflective-Based Questioning Approach (RBQA), as a means to enhance student academic performance. Singer and Alexander (2017) shed light on the intricacies involved in the transition from traditional to digital reading, emphasizing the need for a more profound comprehension and further investigation into this paradigm shift. The significance of customized instruction in second language (L2) reading strategies for the context of higher education was underscored by Yapp et al. (2021). They cautioned against exclusively relying on strategies from the first language (L1) and advocated for broader adoption of these interventions. Collectively, these studies offer a comprehensive viewpoint on the intricate aspects of reading comprehension and the methods to augment it.

This study examines the application of the Jigsaw method, a cooperative learning strategy, in enhancing English comprehension skills among students at Health Polytechnic. The results of this study contribute to the existing body of pedagogical literature on the subject matter and have various implications. Confirmation of the Effectiveness of Cooperative Learning (CL): The findings of this study align with previous research, indicating that the implementation of CL has the potential to not only improve academic achievements but also effectively tackle social problems, such as bullying. Through placing a strong emphasis on collaboration and fostering mutual understanding, the CL educational approach effectively equips students with the necessary skills and competencies to navigate and overcome the complex challenges they will encounter in the real world. According to Afflerbach et al. (2013), motivation, engagement, and context are essential elements that play a crucial role in the development of reading comprehension. The utilization of the Jigsaw strategy appears to address these factors, potentially enhancing students' inherent motivation and subsequently enhancing their engagement with reading. The successful implementation of the Jigsaw strategy in various settings, ranging from health polytechnics to nurse training, demonstrates its adaptability and wide-ranging suitability in diverse educational contexts. The efficacy of the learning environment is not solely dependent on the understanding of the subject matter, but also on the instructional approach employed. The future of digital learning necessitates an examination of how Jigsaw could be modified to suit the needs of virtual classrooms, given the increasing trend towards online education. Previous scholarly investigations, exemplified by the work of Singer and Alexander (2017), have demonstrated variations in reading comprehension abilities when comparing digital and print mediums. This underscores the significance and necessity of conducting further research in this area. In Bouklata's (2023) study, the author explores the potential impact of native languages on academic discourse, highlighting the cultural and linguistic factors at play. This phenomenon prompts inquiries regarding the potential influence of native languages on collaborative approaches such as Jigsaw, particularly within contexts characterized by multiple languages. Although the Jigsaw method displays potential, there is a need for further investigation, particularly in examining its integration with other instructional approaches, utilization of digital resources, and application in diverse cultural settings. Jainal and Shahrill (2021) place significant emphasis on the examination of the effectiveness of the Jigsaw strategy, particularly in relation to societal and cultural

nuances. The study also addresses the challenges that teachers may encounter when implementing cooperative learning strategies. It is incumbent upon educators to comprehend the characteristics and needs of their students, and subsequently employ the most effective pedagogical approaches that are specifically tailored to the distinctive dynamics of their classroom settings. An area that has received relatively limited attention is the influence of the Jigsaw method on educators themselves. According to Halimah and Sukmayadi (2019), the proposed approach has the potential to not only be advantageous for students but also to improve the pedagogical competence of educators. In summary, this research highlights the potential of the Jigsaw method in improving English comprehension, particularly in specialized domains such as health polytechnics. The findings obtained from this study have the potential to provide valuable guidance to various educational stakeholders, ranging from policymakers to educators, in enhancing curricula, instructional strategies, and classroom approaches to achieve the best possible outcomes for students.

The research on the Jigsaw method as a way to help students work together to learn has both positive and negative results. The main goal of the study was to find out how well the Jigsaw method helped Health Polytechnic students understand English better. A lot of different situations have shown that the Jigsaw method helps people understand and work together better, but there are some things that make it less useful or general. Any way of teaching, including the Jigsaw method, can work better or worse depending on the situation. What this means is that the strategy might work well in some places or with some students, but not so well in others. How hard it is to implement: As an overall method, cooperative learning is not simple. To use and adapt the method effectively, teachers need to have a deep understanding of their students and how the classroom works. Every classroom is different, and the Jigsaw method might not work for all of the students. It's important to know how to deal with this kind of diversity, which needs more research. It's still not clear how important self-efficacy is to whether or not the Jigsaw method works in the end. How students use the Jigsaw method may depend on how confident they are that they can learn English or any other subject. Since more and more schooling is happening online, it's important to look into how well the Jigsaw method works in virtual classrooms. It is not clear how the dynamics of working together to learn change when it happens online. Another problem is that students' first languages might get in the way, especially when they are doing comprehension tasks. Even though this study didn't directly look at it, this is a very important thing to think about when trying to make cooperative learning work. More research needs to be done to see how the Jigsaw method compares to other ways of learning with others or to just understanding what they are saying. There are cultural and social factors that might affect how well the Jigsaw method works. It might help to know if the method works for everyone by using it on a global or cross-cultural level. There is a lot of attention on how the Jigsaw method affects students, but not as much on how it affects teachers and how they teach. To sum up, the Jigsaw method shows promise in some situations and has a number of supporters in the academic world. However, it needs more in-depth research to fully understand its pros and cons.

Based on the detailed summary, it is clear that the focus is on how well and what possible benefits the Jigsaw method might have for improving English comprehension. Effendi-Hasibuan et al. (2020) said that the Jigsaw method might not work for all students because of the different kinds of students that are in school. We need to do more research to figure out how to change the Jigsaw method to fit the needs and backgrounds of different students. Istanto et al. (2022) looked at how the Jigsaw method affected students' faith in their own ability to learn English. We still need to learn more about the role of self-efficacy and how it relates to how well the Jigsaw method works. Intrinsic motivation is important for reading, but we need to learn more about how intrinsic and extrinsic

motivation work together and balance each other when using Jigsaw to learn English. As more and more people around the world choose to learn online, it is important to look at how well the Jigsaw method works in virtual classrooms versus traditional ones. Bouklata's research from 2023 shows how native languages might affect academic conversation. It might be interesting to study how mother tongues affect cooperative learning games like Jigsaw, especially in classrooms where students speak more than one language. Researchers need to look at Jigsaw and other cooperative learning methods side by side. This would help you understand the pros and cons of each method better. Jainal and Shahrill (2021) say that differences in culture and society can affect how well the Jigsaw strategy works. In order to fully grasp these subtleties, a Jigsaw-based cross-cultural or global study would be very helpful. Halimah and Sukmayadi (2019) explain why the Jigsaw method is important for people who want to become teachers in the future. It would be helpful to do more research on how the Jigsaw method changes teachers, their ways of teaching, and how well they do their jobs. Jigsaw has been looked into a lot, but Muijselaar et al. (2017) say that overall comprehension strategies need more research. In the future, researchers may look into how the Jigsaw method could be improved by using digital tools or technologies, combining old and new ways of teaching. Based on the references, the research seems to be solid and broad. By adding to these areas that have already been mentioned, we can add to what is known about how well the Jigsaw method works and how it can be used in different learning situations.

This study takes a critical look at the Jigsaw method, which is a cooperative learning strategy, to see if it can help Health Polytechnic students understand English better. The Jigsaw method, which is based on cooperative learning (CL), stresses how important it is for students to understand and work together. Students who are actively involved in their education do better in school, are more motivated, and have better attitudes about learning. These kinds of cooperative learning strategies are based on constructivist learning theories. The important part that motivation, engagement, and understanding the context play in reading comprehension has made the potential success of methods like Jigsaw even more clear. This is especially important when thinking about the wide range of jobs in health studies, like nursing, sanitation, and medical electrical engineering, to name a few. Students can greatly benefit from having better social skills, independence, and confidence.

In spite of this, it is clear that more in-depth research is needed to fully understand how cooperative learning works. The Jigsaw method might have trouble with things like the different types of students, the effect of digital versus print comprehension, and students who want to learn English for reasons other than money. The effect of first languages on academic speech is another important point of disagreement. Muijselaar et al. (2017) say that there is a clear need to learn more about broader comprehension strategies, even though there has been a lot of empirical focus on the Jigsaw method. Comparative studies, like the action research by Jainal and Shahrill (2021), are very helpful because they show how societal and cultural factors can change how well these methods work.

Also, the conversation isn't just between students. The Jigsaw method's potential to help future teachers develop their pedagogical knowledge and social skills is still an interesting but little-studied area. Scholarly works like Abed, T. B. (2019) and Afflerbach et al. (2013) have only scratched the surface. There is still a lot to learn. So, while the Jigsaw strategy looks like a good way to help people understand and work together better, it needs a lot more complex and in-depth research before we can fully understand how useful it could be.

CONCLUSION

The results of this study highlight the promise of the Jigsaw approach for improving students' grasp of the English language. Evidence from a wide range of studies shows that collaborative learning approaches like Jigsaw are effective in helping students develop the knowledge, skills, and dispositions they'll need to succeed in a variety of contexts, including healthcare training. The purpose of this research was to determine whether or not the Jigsaw technique was successful in helping Polytechnic Health students better comprehend textbooks written in English. Using the T-test, we see that results significantly improved after implementing the Jigsaw approach. This result indicates that this strategy has the potential to improve students' understanding.

The cited works constitute a comprehensive literature review. Reading comprehension, group study, and EFL writing practice are just a few of the topics covered in these articles. Abed's (2019) article is notable because it details how the Jigsaw method helps university EFL students improve their reading comprehension. Ayu et al. (2021) and Barbosa et al. (2020), among others, also back the idea of using the Jigsaw technique to improve reading skills and comprehension.

Articles outside of Jigsaw's scope also provide useful context. Readings like Guthrie et al.'s (2012) investigation of the conditions favorable to reading motivation and success may help lay the groundwork for appreciating the value of strategies like Jigsaw. Overall, the story suggests that the Jigsaw method of cooperative learning has the potential to significantly improve students' reading comprehension, an observation borne out by a wide range of scholarly studies.

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AUTHOR CONTRIBUTION STATEMENT

The researchers initiated the study by constructing a comprehensive literature review, subsequently progressing to the stages of data collection, analysis, and the formulation of conclusive findings. The study's authors emphasize various aspects that merit additional investigation. This study aims to evaluate the efficacy of the Jigsaw technique across diverse cultural contexts through a comparative analysis of multiple case studies. The study was supported by a comprehensive understanding of pedagogical frameworks, which ensured alignment with contemporary educational theories. The process of obtaining qualitative data from in-depth interviews conducted with students enrolled in health polytechnic programs. The process of formulating and executing survey administration and data collection protocols for quantitative research is a crucial aspect of study development and implementation. Conducting an extensive literature review of previous research pertaining to the utilization of Jigsaw techniques in the context of English language comprehension.

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