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Optimising Pedagogical Approaches: Integrating Jigsaw as a Strategy to Overcome Learning Challenges for First-Year Students in Business Education at a University of Technology

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ABSTRACT

In this empirical study, the researcher discussed the challenges faced by first-year students in teaching and learning business education and how to enhance the challenge. This paper aimed to explore how integrating Jigsaw can optimise pedagogical approaches in business management education, potentially leading to better learning outcomes for first-year students. By highlighting this strategy, the research sought to offer practical insights into improving educational practices and student achievement in business education. The study was grounded in social constructivism theory, which asserts that student development is socially situated and that knowledge is constructed through interaction. This qualitative study was premised on an interpretivism paradigm where 12 students participated in the research. Semi-structured focus group interviews were administered to collect data from participants, and a thematic approach was used to analyse data. Participants responded to two questions: What challenges do first-year students face in learning business education, and how does Jigsaw as a teaching and learning strategy enhance the teaching and learning of business education? The study found that the teaching and learning of business education remains a serious challenge. In light of the findings, the study suggests that appropriate measures, such as Jigsaw interventions, should be considered to mitigate the possibility of poor academic performance in business education. The study adds to pedagogical scholarship by illustrating how cooperative learning can address academic challenges in diverse higher education contexts.

Keywords: *Business Education, First-year students, Jigsaw strategy*

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INTRODUCTION

The Jigsaw teaching approach positively impacts students' academic achievement and retention in Business Education.[1] Okeke and Dikeocha, Khan et al., and Safkolam et al. argue that the Jigsaw is a more effective pedagogical method because it promotes active learning, collaboration, and peer

[1] Amaka U. Okeke and Lucy Udoka Dikeocha, "Effect of Jigsaw Teaching Approach on Students'academic Achievement and Retention in Business Education Practicum in Colleges of Education, South East, Nigeria," *African Journal of Educational Management, Teaching and Entrepreneurship Studies* 10, no. 1 (2023): 236–48; Roswanna Safkolam, R. Ahmad Zaky El Islami, and Indah Juwita Sari, "The Effects of Jigsaw Technique on Learning Achievement and Retention of Science Teacher Students," *Shanlax International Journal of Education* 11, no. 2 (March 1, 2023): 37–42, https://doi.org/10.34293/education.v11i2.5959.

teaching, which in turn enhance deeper understanding and knowledge retention.[2] In another study, David and Igweh examined the Jigsaw instructional strategy among business education students at the tertiary level.[3] The researchers found that the Jigsaw instructional strategy enhances critical thinking, creativity, and practical application of knowledge, thus improving academic performance. They also noted that it builds self-confidence and effective communication skills among students, which are vital for academic success. The authors argued that the Jigsaw instructional strategy promotes active participation and enhances learning outcomes.

The move from high school to university is a key milestone in each student's academic experience. First-year students enter an unfamiliar setting, a higher education (HE) institution, filled with educational, social, and personal challenges.[4] The transition to university presents significant hurdles for first-year students in the business education module, with many failing to meet course requirements and proceeding to the next year's level, which prolongs their studies. Akram, Kamran, and Ahmad assert that students face a series of challenges in their first year of study.[5] The transition into HE is particularly challenging for students due to various difficulties and requirements.[6] The learning environment is different from what exists in high schools.[7] Factors such as academic rigor, poor time management, and a disconnect between high school and classroom dynamics contribute to these challenges.

Soundy, Mphahlele, and Malatji affirmed the report from the Council of Higher Education regarding students' first-year university experiences.[8] Students are unable to cope with the rigors of academics during the transition. Moreover, increasing student numbers and diversity have complicated the issue of the successful transition to university.[9] As a result, students may experience stress and alienation, which leads to academic attrition.[10]

Retaining students and facilitating a seamless transition are essential for reducing academic failure and dropout rates. However, the Business Management module is notable for its rigorous coursework, focus on practical skills, application requirements, and competitive nature. The purpose of this study is to analyse the specific challenges that business education students experience and provide appropriate support measures. Numerous research has been carried out on the teaching and learning of marketing using cooperative learning techniques. The study by Okeke and Dikeocha investigated the low academic achievement and retention rates in Business Education, attributing this issue to the traditional lecture-based teaching methods often employed.[11]

In addition, Khan et al.'s study addressed the effectiveness of the Jigsaw strategy compared to conventional lecture methods in improving students' academic achievement and motivation.[12] The study found that students taught using the Jigsaw method demonstrated higher performance on tests than those taught with the conventional method. The authors argued that the Jigsaw technique greatly elevates students' achievement and enhances their motivation for the subject. The effects of Jigsaw and peer-

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[2] Okeke and Dikeocha, "Effect of Jigsaw Teaching Approach on Students'academic Achievement and Retention in Business Education Practicum in Colleges of Education, South East, Nigeria"; S Khan et al., "Effect of Jigsaw Strategy on Academic Achievement and Motivation of Science Students: Evidence from Classroom Intervention," *Kurdish Studies* 12, no. 1 (2024): 3455–62; Safkolam, Zaky El Islami, and Sari, "The Effects of Jigsaw Technique on Learning Achievement and Retention of Science Teacher Students."

[3] David Seyi and A. O. Igweh, "Qualitative Study on Jigsaw Instructional Strategy among Entrepreneurship Education Students at Tertiary Level of Education in Nigeria: Features, Methods and Way Forward," *Zamfara International Journal of Education* 4, no. 1 (2024): 279–86.

[4] Soundy Patricia Nthabiseng, Lydia Kgomotso Mphahlele, and Khashane Stephen Malatji, "Transition from High School to University: Challenges Faced by First-Year B.Ed. Students at a University of Technology in South Africa," *E-Journal of Humanities, Arts and Social Sciences*, February 12, 2024, 112–22, https://doi.org/10.38159/ehass.2024524.

[5] Huma Akram, Muhammad Kamran, and Naseer Ahmad, "An Examination of the Encountered Challenges of Pakistani International Students in China: A Case Study of First-Year Students.," *Pakistan Journal of Social Sciences (PJSS)* 40, no. 4 (2020).

[6] P. Naidoo and A. Mabaso, *Teaching and Learning in Diverse Classrooms* (Cape Town: Learning Edge Press, 2022).

[7] Naidoo and Mabaso, *Teaching and Learning in Diverse Classrooms*.

[8] Nthabiseng, Mphahlele, and Malatji, "Transition from High School to University: Challenges Faced by First-Year B.Ed. Students at a University of Technology in South Africa."

[9] Council on Higher Education, *The State of the First-Year Experience in South African Universities* (Pretoria: Council of Higher Education, 2022).

[10] Naidoo and Mabaso, *Teaching and Learning in Diverse Classrooms*.

[11] Okeke and Dikeocha, "Effect of Jigsaw Teaching Approach on Students'academic Achievement and Retention in Business Education Practicum in Colleges of Education, South East, Nigeria."

[12] Khan et al., "Effect of Jigsaw Strategy on Academic Achievement and Motivation of Science Students: Evidence from Classroom Intervention."

tutoring teaching methods on academic performance in Business education and the finding marked that both Jigsaw and peer-tutoring methods of teaching have significant effects on the academic performance of students.[13]

The argument made was that Jigsaw and peer-tutoring teaching methods should be used by lecturers to teach students in business education. Another study worth mentioning was conducted by Costouros, which investigated whether incorporating Jigsaw cooperative learning activities at an introductory level would benefit students, specifically in terms of improving students' performance and learning experience.[14] Research proved that students experienced a higher degree of social relatedness, engaged students in the learning process, and enhanced deeper-level material processing.

While the preceding research had contributed to the teaching and learning of business education, none of them focused on using a Jigsaw technique to improve academic performance among first-year business education students at a university of technology. This paper therefore problematises that first-year business education students get stuck in the system for one to two years as a consequence of systemic flaws, preventing them from moving through their courses at the anticipated pace and graduating in record time. Common indicators such as dropout rates and time-to-degree often overlook the reality that many students experience interruptions, change institutions or programmes, or study intermittently due to various structural and contextual challenges. In light of the preceding background, this study aims to employ the Jigsaw strategy to improve business education students' learning and enhance academic performance. The questions underlying this study are:

- What challenges do first-year students face in learning business education, and
- How does Jigsaw as a teaching and learning strategy enhance the teaching and learning of business education?

THEORETICAL FRAMEWORK

The study is informed by social constructivist learning theory, grounded in Vygotsky's view that learning is a socially mediated process. This perspective emphasises that knowledge is actively constructed through interaction with others and engagement with more knowledgeable individuals.[15] Social interaction is therefore considered essential to learning, as it allows students to develop and expand their knowledge based on their personal experiences. According to social constructivist scholars, learning entails more than just acquiring and absorbing new information; it is a process of changing preconceived notions to incorporate new knowledge. Notably, Vygotsky contends that learning takes place between what students may accomplish on their own and what can be achieved with support, which is referred to as the zone of proximal growth.[16]

Social constructivists are of the view that learning occurs through social and group interactions. Additionally, researchers who promote a student-centered approach attest that teamwork facilitates inquiry, sharing ideas, addressing issues, collaboration, and problem-solving.[17] Social constructivism theory is relevant to this study since it holds that effective teaching and learning are primarily dependent on students' interaction and social relationships, which accentuate understanding of the allocated tasks. I have chosen this theory because social constructivist theory demonstrates that students learn through interaction with other students.

The theory holds the premise students learn more effectively when they participate, socialise, and engage with their peers and lecturers. As a result, business education students will be introduced to more beneficial learning experiences while maintaining good academic performance. Furthermore, social constructivism acknowledges the diversity of students' backgrounds and beliefs and values

[13] Nurrin Fadilla Rokhmah and Waspodo Tjipto Subroto, "Application of Cooperative Learning Jigsaw Type to Improve Learning Outcomes of Economic Introduction and Business," *International Journal of Educational Research Review* 4, no. 2 (2019): 238–44.
[14] Teresa Costouros, "Jigsaw Cooperative Learning versus Traditional Lectures: Impact on Student Grades and Learning Experience.," *Teaching & Learning Inquiry* 8, no. 1 (2020): 154–72.
[15] Naidoo and Mabaso, *Teaching and Learning in Diverse Classrooms*.
[16] Peter Doolittle, "Vygotsky's Zone of Proximal Development as a Theoretical Foundation for Cooperative Learning," *Journal on Excellence in College Teaching* 8, no. 1 (1997).
[17] N Kalu-Uche and C P Emeka, "Jigsaw Learning Teams, Teacher-Led Discussion and Secondary School Students'Academic Performance In Biology," *Journal of the Nigerian Academy of Education* 14, no. 1 (2020).

student-centered learning. In line with the social constructivism theory of learning, the Jigsaw approach enables students to create knowledge while interacting with their peers.[18]

METHODOLOGY

This qualitative study employs a constructivist paradigm, recognising that students' perspectives of educational experiences are shaped by their cultural backgrounds, social relationships, and personal views. Twelve participants were purposefully selected based on their experience of being delayed in their studies beyond the expected timeframe. As first-year Business Education students majoring in Business Management at a university of technology in South Africa, they offered relevant and reflective insights into the challenges they faced and the impact of the Jigsaw strategy. While the sample size allowed for in-depth, repeated engagement, a limitation is that the findings may not represent the full range of student experiences and are not intended for broad generalisation.

Data was collected using an interactive and dynamic approach aligned with the constructivist paradigm, acknowledging the subjective nature of reality. The researcher conducted three rounds of semi-structured interviews with each participant over a semester, each lasting approximately two hours. The interviews explored the challenges students face in the teaching and learning of Business Education and their experiences with the Jigsaw teaching strategy.

Thematic analysis was used to evaluate the data, identifying key themes and patterns related to student challenges and the effectiveness of the Jigsaw approach. Member checking was applied to enhance credibility, allowing participants to verify the researcher's interpretations and strengthen the study's trustworthiness.

Ethical clearance was obtained from the University of South Africa (UNISA) Ethics Committee (Reference 2018/11/14/40845621/50/MC). Participation was voluntary, and informed consent was obtained, ensuring anonymity and ethical compliance throughout the study.

PRESENTATION OF FINDINGS

The semi-structured interviews with business education student participants revealed three themes:

Theme	Descriptors
Limited resources	Lack of prescribed textbooks & library resources, Limited access to laptops and internet, financial constraints affecting resource acquisition
Disengagement and Isolation	Lack of engagement in class activities, Dominance in group discussions, Unequal workload distribution in group tasks
Communication barriers	Misinterpretation of instructions, Over-reliance on text messages, Lack of structured dialogue in groups
Impact of Jigsaw Strategy	Availability of Resources: Encouraged shared access to learning materials, reducing disparities in resource availability.Teamwork & Participation: Increased engagement, collaboration, motivation and peer interactions Effective Communication Practices: Improved communication skills through structured group discussions, reducing misunderstandings.

Limited Educational Resources

The study found that limited access to educational resources is a serious challenge for first-year business education students. This finding aligns with Professor Chika Sehoole, deans of faculties of education in Africa, and the Universities South Africa (USAF) Education Deans' Forum who note that inadequate funding and limited access to educational resources remain significant obstacles in universities. The

[18] Lev S Vygotsky, *Mind in Society: The Development of Higher Psychological Processes*, vol. 86 (Harvard university press, 1978); Israel Kibirige and Moyahabo Jeridah Lehong, "A Comparative Study of the Jigsaw and Chalk-and-Talk Methods on Grade 12 Learners' Achievements in Reaction Rates in South Africa," *Cypriot Journal of Educational Sciences* 17, no. 11 (November 30, 2022): 4230–45, https://doi.org/10.18844/cjes.v17i11.8448.

forum emphasises the urgent need for increased funding in educational infrastructure and equitable resource distribution to improve student academic achievement.[19]

In particular, students from rural areas lack educational resources for academic preparation. Also, students with disabilities have been marginalised due to inadequate facilities and insufficient support services. Despite recent progress, there are still numerous obstacles in the way of achieving complete inclusion in higher education. Insufficient teaching-learning resources create barriers in the process of fostering student learning and contributing to the improvement of the entire educational system.[20] Interestingly, a report compiled by the Department of Higher Education stated that 40% of students would not purchase textbooks because they were too expensive, while 10% chose not to buy because they were available in the library, and they would not buy if the whole book was not used.[21]
To support this, during the interviews, it was clear that limited educational resources such as prescribed textbooks, library resources, computer lab resources, and laptops, were a serious challenge.

> *"I rely on the learning guide uploaded on Ethuto, the computer lab, and the internet for my studies. However, since I had to send most of my allowance home for groceries after my elder brother lost his job, I still need funds to buy business management books to pass"* (Student #A)

> *"I received NSFAS funding in a lump sum in April but failed to buy more learning resources so that I do well in business education, but instead I used the money to buy personal needs like groceries"* (Student#B)

> *"I bought textbooks and a laptop through the bursary received from my parents' employer, unfortunately, it got stolen so I am depending on my way home from the university, and my parents had to buy a new one"* (Student #C)

It was clear from the participants that the limited educational resources affect the learning of business education, which in turn results in poor performance. From the statements of the above participants, it is clear that any education system can perform with the available resources. Educational resources, such as prescribed textbooks, enable self-education and transform scientific findings into knowledge, and most lecturers in universities align course objectives with textbooks.[22]

Furthermore, enhancing students' participation in universities depends on resource availability and academic capabilities.[23] While emphasising educational resources, a study by Alyami found that students who used a combination of open educational resources and prescribed textbooks performed better compared to those using only textbooks.[24] A mix of learning resources enhances students' understanding and engagement, suggesting that relying on a single type of resource might not be as effective.

Also, a study found that integrating various learning resources and methods in Business education can lead to better performance, including business knowledge, team dynamics, communication, critical thinking, and time management.[25] While at it, Kapur encourages lecturers to ensure that educational resources are compatible with students' needs and requirements.[26] On the other

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[19] Universities South Africa, "Universities SA's Education Deans' Forum Is Leading the Formation of a Continent-Wide Collaboration Platform," Universities South Africa, June 15, 2023, https://usaf.ac.za/universities-sas-education-deans-forum-is-leading-the-formation-of-a-continent-wide-collaboration-platform/.

[20] R. Kapur, "Inadequate Teaching-Learning Methods and Materials: Impediments in Promoting Student Learning," *Journal of Education and Practice* 13, no. 35 (2022): 1–8.

[21] Department of Higher Education and Training (DHET), *University Student Access and Support Survey Report* (Pretoria: DHET, 2020).

[22] Victor H Mlambo, Mandla Mfundo Masuku, and Nduduzo C Ndebele, "Students' Perceptions on the Availability of Prescribed Study Material under the New NSFAS Book Allowance Funding Model," *The International Journal of Learning in Higher Education* 30, no. 1 (2022): 173–91, https://doi.org/10.18848/2327-7955/CGP/v30i01/173-191.

[23] Huda Y. Alyami, "Integration of Open Educational Resources in Higher and General Education Institutions: From the Perspectives of Specialized and Concerned Bodies in E-Learning," *World Journal of Education* 10, no. 1 (February 9, 2020): 30, https://doi.org/10.5430/wje.v10n1p30.

[24] Julia Fullick-Jagiela et al., "Enhancing Learning in Business Education Utilizing Project Management Practice and Skills.," *Information Systems Education Journal* 21, no. 2 (2023): 4–13.

[25] Fullick-Jagiela et al., "Enhancing Learning in Business Education Utilizing Project Management Practice and Skills."

[26] Kapur, "Inadequate Teaching-Learning Methods and Materials: Impediments in Promoting Student Learning."

hand, Matope argues that effective teaching and learning can develop students' self-confidence, optimism, common sense, problem-solving skills, inventive thinking, and imagination without learning resources.[27]

In light of the discussion, the theory of this study problematises the lack of adequate educational resources in constructivist class settings that emphasise active learning. Besides, it is challenging to foster collaborative learning, which is central to social constructivism in learning environments with limited resources. Limited access to prescribed books and technology, for example, laptops and the internet, prohibits effective group interactions that promote deeper learning.

This study contends that resources should be available to enhance business education students' learning. Failure to do so hinders their ability to engage in critical thinking, problem-solving, and collaborative learning. Without adequate access to educational materials, students may struggle to apply theoretical knowledge to real-world business scenarios, perform poorly in their studies, and be unable to compete in the job market.

Disengagement and Isolation

The study found that low engagement and isolation are serious challenges for business education students. This observation is supported by research that identified a decline in student engagement, contributing to low final examination scores.[28] In addition, other studies examined students' disengagement and isolation of university students.[29] Moreover, researchers have explored the influence of student engagement as a predictor of academic performance.[30] During the interviews, it was clear that lack of participation and isolation among Business education first years was a serious challenge. One study highlighted how massification, infrastructure deficits, and inadequate support systems contributed to students feeling undervalued and disconnected.[31] Students from diverse backgrounds may struggle to relate to their studies, leading to disengagement and academic alienation.

Research has shown that student engagement extends beyond academic activities to include co-curricular involvement, which is crucial in fostering a sense of belonging and relationships among students.[32]

> *"I often found myself disengaged during class activities because the instructions were not clear. I wasn't sure what was expected of me, and I didn't feel comfortable asking questions in front of everyone. This left me feeling lost and unmotivated to participate "*(Student #A).

> *"In group discussions, I struggled to participate because some team members dominated the conversation. It felt like the same few people were speaking every time, while the rest of us were just there to listen, and I felt as if my input wasn't valued or needed, so I gradually stopped interacting with others"* (Student #B).

> *"When it came to working on class activities and compiling assignments as a group, I faced challenges because not everyone took their responsibilities seriously. A few members would procrastinate or fail to deliver their parts on time, leaving the workload to the rest of us. It created tension"*(Student #C).

[27] Jasmine Matope, "Making Wine Without Grapes: The Case for Quality Teaching With Limited Resources," *Educational Research for Social Change* 10, no. 2 (September 1, 2021): 33–46, https://doi.org/10.17159/2221-4070/2021/v10i2a3.

[28] Janet A. Meade and Kiran Parthasarathy, "Does Student Engagement Impact Learning Differently in Face-to-Face and Virtual Accounting Classes?," *Issues in Accounting Education* 39, no. 2 (May 1, 2024): 71–83, https://doi.org/10.2308/ISSUES-2023-009.

[29] Hilmi Mizani et al., "Loneliness, Student Engagement, and Academic Achievement during Emergency Remote Teaching during COVID-19: The Role of the God Locus of Control," *Humanities and Social Sciences Communications* 9, no. 1 (September 9, 2022): 305, https://doi.org/10.1057/s41599-022-01328-9.

[30] Paul Garton et al., "Relational Student Engagement in Co-Curricular Spaces: Evidence from a South African University," *Journal for Students Affairs in Africa*, 2022, https://doi.org/10.24085/jsaa.v10i1.2193.

[31] Victor H Mlambo and Siphesihle Mpanza, "Exploring the Challenges of Higher Education in South Africa: A Comprehensive Literature Review," *Alustath* 63, no. 3 (2024).

[32] Garton et al., "Relational Student Engagement in Co-Curricular Spaces: Evidence from a South African University."

Both participants experienced disengagement while learning, yet the causes of disengagement differed for each participant. Student A's disengagement originated from imprecise communication and hesitating to ask questions. On the other hand, Student B battled with interactions, particularly with dominating team members, ultimately leading to their withdrawal. Student C's situation was unique in that their discontent emerged from unequal work allocation, with some students neglecting their tasks, causing tension and anger.

From the participants' statements, it is clear that any education system can perform better when students effectively and harmoniously engage in their groups. To buttress this research has indicated that active engagement in collaborative activities positively affects students' academic performance, highlighting the importance of social constructivism in educational settings.[33]

In addition, another study found that students participating in collaborative learning groups showed significant improvements in both their academic performance and their attitudes toward the subject, emphasising the benefits of peer collaboration in learning environments.[34] Engagement alone is not enough to improve academic performance; it must be integrated into an organised cooperative learning technique. Principles of cooperative learning, such as positive interdependence, promotive interaction, and individual accountability, are critical in establishing productive student engagement[35] to improve student academic performance.[37] One scholar recommends fostering a cooperative learning environment that promotes active student engagement and improves academic performance.[38] Failure to do so, the education system is destined for failure, which affects the student's performance in higher learning.

Miscommunication Approach

Effective communication is crucial in educational settings, profoundly impacting business education students' peer relationships and academic performance. In South Africa, miscommunication poses a significant challenge to university students, particularly during group work and group assignments. Communication barriers, such as cultural prejudice and stereotyping, can lead to misunderstandings among students, adversely affecting their collaborative efforts. Similarly, miscommunication and conflict are inevitable in diverse classroom settings, and managing them requires developing intercultural communicative competence.[36]

Furthermore, the absence of a comprehensive communication strategy within universities contributes to inconsistent communication practices, exacerbating miscommunication among diverse student groups.[37]

These findings are echoed in student testimonials. Student A expressed frustration:

"Working on group assignments was frustrating because there was no effective communication within the group. We had a clear plan, and other members misunderstood their roles." Student B noted, *"Everyone understood the task requirements differently. Some of us thought we were focusing on one topic, while others were working on something completely different."* These experiences underscore the critical need for clear communication strategies to enhance group collaboration and academic success.

"Working on group assignments was frustrating because there was no effective communication within the group. We didn't have a clear plan, and other members misunderstood their roles.

[33] Nagina Muhammad Nazeef, Amsa Khan, and Jaffar Ali, "Impact of Collaborative Learning on Student`s Academic Performance in Teacher's Education Program," *Journal of Asian Development Studies* 13, no. 1 (March 30, 2024): 1054–68, https://doi.org/10.62345/jads.2024.13.1.87.

[34] Hans-Stefan Siller and Sagheer Ahmad, "Analyzing the Impact of Collaborative Learning Approach on Grade Six Students' Mathematics Achievement and Attitude towards Mathematics," *Eurasia Journal of Mathematics, Science and Technology Education* 20, no. 2 (February 1, 2024): em2395, https://doi.org/10.29333/ejmste/14153.

[35] Asly Nicole P. Cagatan and Erlinda A. Quirap, "Collaborative Learning and Learners' Academic Performance," *International Journal of Multidisciplinary Research and Analysis* 07, no. 03 (April 2, 2024), https://doi.org/10.47191/ijmra/v7-i03-57.

[36] Abrams, Z. Ittzés, "Miscommunication, Conflict, and Intercultural Communicative Competence," in *Intercultural Communication and Language Pedagogy* (Cambridge: Cambridge University Press, 2020), 288–312, https://doi.org/10.1017/9781108780360.014.

[37] Maria Mushaathoni, "Exploring Intercultural Communication as a Means to Promote Inclusivity in Diverse Organisations: A Study in a South African University," *IAFOR Journal of Education* 11, no. 3 (December 8, 2023): 161–84, https://doi.org/10.22492/ije.11.3.08.

This led to overlapping work or missing parts, and sometimes, I felt it was easier to just work alone"(Student #A)

"One major challenge we faced was that everyone had a different understanding of the task requirements. Some of us thought we were focusing on one topic, while others were working on something completely different. By the time we realized the miscommunication, it was too late to fix everything properly"(Student #B)

"Our group struggled with coordinating tasks because we relied too much on text messages, which often led to misinterpretation. Some teammates took information out of context or didn't reply in time, which slowed down our progress and led to arguments about who was responsible for delays"(Student #C)

Miscommunication within student groups significantly affects their learning experiences, particularly in business education, leading to confusion, inefficiencies in group work, and poor academic performance. Student A participant expressed frustration: "*Working in groups was frustrating because there was no effective communication within the group. We didn't have a clear plan, and my peers would misunderstand their roles.*" This sentiment aligns with findings that a lack of open dialogue and unclear guidelines often leads to conflicts and misunderstandings in collaborative tasks among students.[38]

From the participants' statements, it is evident that educational systems should prioritise effective communication strategies to optimise learning outcomes. Student B noted, "*One major challenge we faced was that everyone had a different understanding of the task requirements*." This reflects the conclusion that promoting a culture of establishing clear guidelines and expectations is an effective strategy for conflict mitigation in collaborative tasks among university students.[39]

The implementation of an organised and structured communication in business education is critical for achieving learning outcomes and fostering collaborative learning experiences. Student C shared that the group struggled with coordinating tasks because they relied too much on text messages, which often led to misinterpretation. This issue is highlighted by scholars who emphasised that ineffective communication could lead to misunderstandings and suggested that establishing clear communication is essential for effective cooperation.[40] Furthermore, addressing communication challenges can aid the learning process by providing structured academic discussions that facilitate clear communication, ensuring students correctly interpret learning materials. However, the absence of clear communication with guidelines can lead to conflicts during group work.[41] In light of the discussion, the theory of this study posits that students construct knowledge through social interactions and collaborative efforts. However, as Student B noted, "Everyone had a different understanding of the task requirements. Some of us thought we were focusing on one topic, while others were working on something completely different." This reflects the challenges highlighted by scholars who emphasise that effective communication amongst students is essential for the meaningful construction of knowledge.[42]

Similarly, it has been observed that cooperative learning strategies, when not properly structured, can lead to confusion and disengagement among students.[43] Therefore, cultivating an environment that promotes open dialogue and shared understanding is crucial for the successful application of social constructivist principles in Jigsaw classrooms.

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[38] Bunmi Isaiah Omodan and Chiggo Skosana, "Addressing Potential Conflict among University Students during Collaborative Tasks," *Education Sciences* 13, no. 12 (December 17, 2023): 1245, https://doi.org/10.3390/educsci13121245.

[39] Omodan and Skosana, "Addressing Potential Conflict among University Students during Collaborative Tasks."

[40] Samuel S Wineburg, Daisy Martin, and Chauncey Monte-Sano, *Reading like a Historian: Teaching Literacy in Middle and High School History Classrooms* (New York: Teachers College Press, 2012).

[41] Omodan and Skosana, "Addressing Potential Conflict among University Students during Collaborative Tasks."

[42] Yaw Owusu-Agyeman and Enna M. Moroeroe, "Relationality and Student Engagement in Higher Education: Towards Enhanced Students' Learning Experiences," *International Journal of Emotional Education* 15, no. 2 (November 2023): 37–53, https://doi.org/10.56300/ZANL1419.

[43] Oyinlola Omolara Adebola and Cias Tsotetsi, "Collaborative Learning: A Veritable Tool for Promoting Classroom Participation Among Pre-Service Teachers in Rural Universities in South Africa," *Journal of Culture and Values in Education* 5, no. 2 (October 22, 2022): 65–79, https://doi.org/10.46303/jcve.2022.20.

Using Jigsaw Strategy to Improve the Learning of Business Education

Availability of Educational Resources

The Jigsaw method was developed to combat racial bias and promote an environment where students share educational resources and perspectives, enriching the learning experience for all participants. It has been proved that the Jigsaw method equalised access to learning materials, reducing disparities in resource availability and that students actively shared educational resources, including notes, textbooks, and laptops for every member to contribute effectively towards group goals.[44] As students become immersed in specific areas, as affirmed by Student B, they often seek out diverse resources to support their learning. Becoming experts encourages the collective pooling of information where a wide array of materials is brought into the classroom to enrich the overall educational experience.

> *"As a group, we shared textbooks and anything digital that could help us understand, finish our work, and perform well"* (Student #A)

> *"Implementing this learning method positively influenced us as a group to join our thoughts, experiences, discoveries, and research in our cooperative discussions, which helped us excel in all assessments. There was always an expectation to contribute something from each one of us"*(Student #B)

> *"Books are very expensive, and, unfortunately, library books are not enough for all of us in our library. Jigsaw groups encouraged us to seek more information to justify and reference our work. So, we shared copies and taught each other how to search on the internet effectively, shared any resource we could find that would benefit all the group members and that we all succeed"* (Student #C).

According to Student C, an autonomous study without peer support and engagement would not have achieved such good results. This is supported by findings that the Jigsaw method fosters a collaborative environment where students actively support each other's learning processes and sustain interest in the subject matter. The study resulted in improved academic outcomes, attributed to the pooling of information and mutual support within Jigsaw groups.[45]

Improved Participation and Teamwork

The Jigsaw method was developed to combat racial bias and promote an environment where students share educational resources and perspectives, enriching the learning experience for all participants. It has been proved that the Jigsaw method equalised access to learning materials, reducing disparities in resource availability and that students actively shared educational resources, including notes, textbooks, and laptops for every member to contribute effectively towards group goals.[46] As students become immersed in specific areas, as affirmed by Student B, they often seek out diverse resources to support their learning. Becoming experts encourages the collective pooling of information where a wide array of materials is brought into the classroom to enrich the overall educational experience.[47] To address disengagement and isolation among first-year business education students, this study implemented the Jigsaw strategy, a cooperative learning method designed to enhance participation and teamwork. This approach fosters individual accountability, ensuring that each student plays a vital role in the collective learning process. It is imperative to highlight that Jigsaw promotes active engagement as students rely on each other's expertise, improving communication and teamwork.[48]

Students also expressed how this approach helped them collaborate effectively, with one participant stating, "*We gathered each Monday before our sessions to talk about our work and offer support to one another in various areas. On Fridays, we requested members to check in and assign each*

[44] Ashok Kumar Jeppu, Kavitha Ashok Kumar, and Ahsan Sethi, "'We Work Together as a Group': Implications of Jigsaw Cooperative Learning," *BMC Medical Education* 23, no. 1 (October 6, 2023): 734, https://doi.org/10.1186/s12909-023-04734-y.

[45] Océane Cochon Drouet, Vanessa Lentillon-Kaestner, and Nicolas Margas, "Effects of the Jigsaw Method on Student Educational Outcomes: Systematic Review and Meta-Analyses," *Frontiers in Psychology* 14 (2023): 1216437.

[46] Jeppu, Kumar, and Sethi, "'We Work Together as a Group': Implications of Jigsaw Cooperative Learning."

[47] Jeppu, Kumar, and Sethi, "'We Work Together as a Group': Implications of Jigsaw Cooperative Learning."

[48] Jeppu, Kumar, and Sethi, "'We Work Together as a Group': Implications of Jigsaw Cooperative Learning."

portion." This aligns with research showing that structured meetings enhance teamwork and engagement.[49]

The Jigsaw strategy also increases student participation by making learning interactive and reducing reluctance to engage in discussions.[50] According to Vygotsky, students learn through the social interactions they engage in with their peers. In these interactions, group members exchange the newly acquired knowledge between themselves while learning first-hand, by way of doing.[51] One participant emphasized, *"Each member was expected to give feedback to team members and our classmates, and that compelled us to be committed. Our lecturer warned us about the content and the Jigsaw procedure from the start."* This finding supports studies that suggest that clear expectations and division of labour improve accountability and student commitment.[52]

Additionally, students reported that Jigsaw instilled a sense of responsibility, with one student sharing, *"Jigsaw taught each one of us to always be prepared on our own and as a group. I have learned to be responsible towards my studies and about life."* This aligns with findings that peer accountability fosters personal and academic responsibility. Ultimately, the Jigsaw strategy reduces disengagement and isolation by promoting structured participation and teamwork and making it an effective intervention in first-year business education classrooms.[53]

> *"We gathered each Monday before our sessions to talk about our work and offer support to one another in various areas. On Fridays, we requested members to check in and assign each portion" (Student #A).*
>
> *"Each member was expected to give feedback to team members and our classmates, and that compelled us to be committed. Our lecturer warned us about the content and the Jigsaw procedure from the start" (Student #*B).
>
> *"Jigsaw taught each one of us to always be prepared on our own and as a group. I have learned to be responsible towards my studies and about life" (Student* #C)

Incorporating Jigsaw learning in a classroom was to develop teamwork and maximise interaction among business education students. Students became active participants and learnt to cooperate with group members while improving their academic performance.[54] This was evident when students interpreted the subject matter meaningfully and when they shared information about what they acquired from the results of the discussion.[55] Moreover, the Jigsaw approach makes it possible to expose students to materials whilst working collaboratively, and this helps to develop teamwork and collaborative learning skills.[56] Notably, Jigsaw cooperative learning portrays a turning point in improving students' social skills and active learning in the classroom.

Effective Communication Practices

In a Jigsaw classroom, improved communication skills between group members are crucial for students to attain module goals. It has been proved that students favoured the Jigsaw approach for its ability to

[49] Khan et al., "Effect of Jigsaw Strategy on Academic Achievement and Motivation of Science Students: Evidence from Classroom Intervention."
[50] Khan et al., "Effect of Jigsaw Strategy on Academic Achievement and Motivation of Science Students: Evidence from Classroom Intervention."
[51] Vygotsky, *Mind in Society: The Development of Higher Psychological Processes*.
[52] Cochon Drouet, Lentillon-Kaestner, and Margas, "Effects of the Jigsaw Method on Student Educational Outcomes: Systematic Review and Meta-Analyses."
[53] Okeke and Dikeocha, "Effect of Jigsaw Teaching Approach on Students'academic Achievement and Retention in Business Education Practicum in Colleges of Education, South East, Nigeria."
[54] Khan et al., "Effect of Jigsaw Strategy on Academic Achievement and Motivation of Science Students: Evidence from Classroom Intervention."
[55] Kibirige and Lehong, "A Comparative Study of the Jigsaw and Chalk-and-Talk Methods on Grade 12 Learners' Achievements in Reaction Rates in South Africa."
[56] Adebola and Tsotetsi, "Collaborative Learning: A Veritable Tool for Promoting Classroom Participation Among Pre-Service Teachers in Rural Universities in South Africa."

improve communication skills.[57] Additionally, students exhibit a strong preference for the Jigsaw technique, highlighting its effectiveness in promoting active participation and enhancing communication among students.[64] Education researchers emphasised the importance of communication skills and that all students should be encouraged to equip themselves with communication skills during group interactions.[65] In this case, students learn to listen attentively, be socially conscious of one another, ask for clarity where necessary, speak fluently, disagree politely, and make suggestions.[58]

Communication skills such as disagreeing without criticism, daring to maintain logical thoughts, not dominating others, and being independent are very important when communicating during student interactions.[59] These skills should be explicitly taught, much like academic skills, and not taken for granted, mindful that students come from diverse backgrounds and that one's development of social skills is influenced by peers and the environment in which they live. It is recommended that students be socially conscious of one another, ask for clarity where necessary, listen attentively, speak properly, ask for assistance, and make suggestions.

> *"We created a WhatsApp group as a social network. It was easier and cheaper to reach out and speak to any one of us, especially when we had to meet and discuss work related to business"* (Student #A).

> *"The Jigsaw approach encouraged us to establish better communication practices. We agreed on a single platform for updates and set clear deadlines, which helped avoid misunderstandings. By focusing on face-to-face discussions during meetings, we ensured everyone was on the same page and avoided the issues we previously had with text message misinterpretations."*(Student #B)

> *"The Jigsaw activity helped us recognise the importance of aligning our communication styles. We agreed on methods that worked for everyone, such as summarising key points in group meetings and sending follow-up messages for clarity. This mutual understanding improved our teamwork and kept us organised throughout the semester."*(Student #C)

It was clear from the participants that the Jigsaw approach enhances communication practices amongst business education students. From the statements of the above participants, the use of the jigsaw approach promoted structured and organised communication. This is because students were encouraged to create a WhatsApp group, as Student A mentioned, for effective communication. This enabled faster and more accessible interactions between groups. In addition, students developed better communication habits that minimised misunderstandings, as reported by Student B. Moreover, Student C professed that the Jigsaw approach reinforced the importance of structured dialogue in cooperative groups, ensuring that all members were informed and aligned. To support this, the Jigsaw approach urges students to explain verbally to each other what they are learning. Despite how excellent an idea is, verbal communication is of greater importance since students need to share it to collectively reach a more thorough understanding.[60] In light of the discussion, the theory of this study emphasises that knowledge is constructed through social interactions and shared experiences, highlighting the importance of collaborative learning environments where students communicate effectively.[61]

RECOMMENDATIONS

The study proposes that universities enhance access to digital libraries, laptop loan programs, and free internet to address resource limitations. To ensure equal participation, lecturers should facilitate shared

[57] Wei-Lun Chang and Vladlena Benson, "Jigsaw Teaching Method for Collaboration on Cloud Platforms," *Innovations in Education and Teaching International* 59, no. 1 (January 2, 2022): 24–36, https://doi.org/10.1080/14703297.2020.1792332.
[58] Kalu-Uche and Emeka, "Jigsaw Learning Teams, Teacher-Led Discussion and Secondary School Students'Academic Performance In Biology."
[59] Kalu-Uche and Emeka, "Jigsaw Learning Teams, Teacher-Led Discussion and Secondary School Students'Academic Performance In Biology."
[60] Vygotsky, *Mind in Society: The Development of Higher Psychological Processes*.
[61] Nailil Inayah et al., "Virtual Cooperative Jigsaw as an Alternative Learning Model for Literacy-Based Learning in Madrasah," *Advances in Social Science, Education and Humanities Research* 633 (2022): 276–83, https://doi.org/10.2991/assehr.k.220104.042.

digital resource banks and assign structured group roles within Jigsaw groups. Additionally, universities should combine pre-session guidance, collaborative peer assessments, and ongoing feedback to promote active student participation. To overcome communication barriers, platforms such as WhatsApp, Microsoft Teams, and Moodle forums, along with training in active listening and conflict resolution, should be incorporated into the learning process. The study supports Vygotsky's Social Constructivism Theory, emphasizing that peer collaboration fosters deeper learning. By integrating the Jigsaw strategy across disciplines, universities can significantly enhance student engagement, retention, and academic performance in business education.

CONCLUSION

This study set out to explore how the Jigsaw strategy can be used to address the learning challenges experienced by first-year Business Education students at a university of technology. The findings highlighted key barriers such as limited access to resources, low levels of participation, and communication breakdowns in group settings. Through the use of the Jigsaw strategy, students reported improvements in engagement, teamwork, and communication, which contributed positively to their academic experience. These insights confirm the value of using cooperative learning approaches to improve teaching and learning in Business Education, particularly in contexts where students face structural and academic obstacles.

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