



Voices from the classroom: understanding students' perceptions of collaborative learning in computer-based spaces

Sakirulai Olufemi Isiaq

University of the Arts London, UK

Louise Usher

Southampton Solent University, UK

Abstract

This study explores postgraduate students' perceptions of the effectiveness of collaborative learning within computer-based environments. The research investigates the distinctions between collaborative learning and group work, examining how students' attitudes and behaviours differ, and the subsequent impact on learning outcomes. Findings reveal that students can clearly distinguish between these two approaches. While both involve peer interactions, group work predominantly fosters employability skills such as teamwork and goal achievement, whereas collaborative learning enhances individual knowledge construction. The study introduces the Effective Learning Triangle (ELT), comprising three key core components: Facilitator, Environment, and Learning. In collaborative learning contexts, the facilitator plays a pivotal role in designing sessions that align intended learning outcomes with the learning environment. For example, flexible computer-based spaces emerge as conducive environments for promoting collaborative learning, particularly in technical disciplines. This paper highlights the significance of tailored facilitation and adaptable environments in fostering meaningful student engagement.

Keywords: group-level interactions; meaningful learning; effective learning triangle (ELT); knowledge transformative tool; student perceptions.

Introduction

This study examines the perceptions, comprehension, and subjective experiences of learners in computing-based education, focusing on the impact of their learning environment. Specifically, it explores the interconnected roles of three fundamental entities: the environment, the facilitator, and the learners themselves as tools for transformative learning. Rooted in social constructivism, a theoretical framework championed by Vygotsky and Dewey, collaborative learning emphasises the critical role of social interaction and communication in constructing knowledge (Nyikos and Hashimoto, 1997). Learners build understanding through meaningful interactions with peers, engaging in a continuous process of sharing knowledge and expertise to deepen comprehension, rather than merely completing tasks.

While group work involves both collaboration and individual effort, its primary focus often remains on achieving task-related objectives rather than enhancing conceptual understanding (Johnson and Johnson, 2013). Research indicates that group work does not inherently equate to collaborative learning, especially when students divide tasks and assemble their contributions without collectively engaging in content comprehension (Summers and Volet, 2010; Wilson et al., 2018). Dillenbourg (1999) confirms the distinction between collaborative learning and task management, a nuance frequently overlooked in the design of group tasks. Nevertheless, collaborative learning and group work are well-established pedagogical practices, supported by extensive research on their effectiveness in fostering student engagement, learning mechanisms, and measurable outcomes (Gamson, 1994; Tinto, 1997; Saqr et al., 2024).

Learning environment

In computing-based disciplines, balancing theoretical principles with practical implementation within a single lesson poses unique challenges (Asino and Pulay, 2019; Duan et al., 2021). Collaborative learning, emphasised by many institutions, often relies on group tasks to promote peer interaction. However, the physical layout of computer labs and digital platforms can hinder communication and collaboration, complicating the process of fostering meaningful interactions (Kreijns et al., 2003; Bemer et al., 2009). Despite these challenges, learners generally recognise the value of peer learning in

enhancing their educational experiences (Wegerif and Mercer, 1996; Wilson et al., 2018; Zhang and Bayley, 2019).

Facilitator

Group tasks are designed to help students develop professional skills through collaboration. However, facilitators face challenges in monitoring and assessing these dynamics, requiring expertise in subject matter, classroom management, and interactive pedagogy (Balasooriya et al., 2010). Shulman's model of pedagogical reasoning outlines a cycle of comprehension, transformation, instruction, evaluation, and reflection, which guides effective teaching practices (Shulman and Shulman, 2004). Facilitators must integrate pedagogy, content, and community-building to create a rich learning experience, as the absence of any one of these elements diminishes the overall quality of education (Kreijns et al., 2003). By addressing group dynamics and modelling collaboration, facilitators can foster inclusive and productive learning environments (Beeson and Byles, 2020).

Social interaction and learning

Collaborative learning has reshaped student engagement by fostering peer interaction in educational settings (Freeman and Greenacre, 2011). However, factors such as group size, composition, task nature, individual learning styles, and motivations influence outcomes. These variables highlight the critical role of social interaction in successful collaboration. Simply placing students in groups does not guarantee collaboration; rather, instructional designs must integrate incentives for meaningful interaction (Johnson and Johnson, 2013). Approaches such as inquiry-based learning, problem-solving, gamification, and reflective discussion encourage active engagement and facilitate knowledge construction and sharing (Nyikos and Hashimoto, 1997; Dillenbourg, 1999; Kreijns et al., 2003).

Effective group work requires aligning collective goals with individual accountability, overcoming communication barriers, and fostering teamwork attitudes and behaviours (Freeman and Greenacre, 2011; He et al., 2023). Thoughtfully designed collaborative activities aligned with course outcomes can enhance peer engagement and learning opportunities (Bell and Lygo-Baker, 2019; Beeson and Byles, 2020).

This study delves into the complexities of group working, investigating how facilitators and students contribute to productive interactions and meaningful learning outcomes. By analysing the nature of group interactions, it aims to uncover the factors that drive successful collaborative learning. Furthermore, this research explores the evolution of group work from a task-driven process to a transformative educational approach, addressing both the possibilities and limitations of collaboration in education through the lens of student participation and their perspectives on collaborative learning activities.

Methods

This study employed a mixed-methods approach, with a primary emphasis on qualitative methods. Qualitative data was gathered through session designs, teaching activities, and focus group discussions. Quantitative methods were used to collect demographic data, learning management system (LMS) interaction metrics, and students' grades. The study focused on a single cohort of postgraduate students enrolled in a one-year MSc programme in Artificial Intelligence (AI) and Data Science.

Module description, session structure, and teaching activities

The MSc programme was delivered over three semesters and comprised five modules: four taught modules with a strong practical focus and a final project in the third semester. For Module 4, all in-person teaching sessions occurred in a designated computer lab, with students attending either in the morning (9:00–13:00) or the afternoon (14:00–18:00).

Each session (with incorporated breaks) followed a structured format, which included:

- Instructor-led delivery (60–90 minutes): topic introduction with interactive question-and-answer discussions.
- Group-based activities (40–90 minutes): collaborative tasks with facilitator-led plenaries.
- Individual practice (40–60 minutes): coding exercises with one-to-one tutor check-ins and feedback.

The classroom activities typically involved:

- Paired peer/buddy system: facilitators encouraged students to collaborate, set accountability goals, and provide peer support.
- Lectures with discussions: instructor-led content delivery followed by interactive discussions.
- Group tasks: students engaged in collaborative problem-solving activities.
- Plenaries: post-activity discussions led by facilitators.
- Individual lab sessions: students worked independently on assigned activities while tutors provided individualised support.

The module's assessment consisted of three components, namely voiceover presentation of a case scenario; a 3,000-word technical report on software development; and viva session that involved live software demonstrations and a question-and-answer session.

To support students, an additional four hours of optional tutoring was offered weekly, divided into two two-hour technical support sessions.

Demographics, LMS interaction, and grade outcome

The cohort consisted of 59 students, including 21 females and 38 males. Self-reported ethnicities were Asian or Asian British (30%), Black, Black British, Caribbean, or African (50%), and White (20%).

Students were divided into two groups: 30 in the morning group and 29 in the afternoon group. The average grades were $50 \pm 20.7\%$ (morning group) and $50 \pm 17.4\%$ (afternoon group). In the morning group, 73% achieved a grade of C or higher, compared to 66% in the afternoon group (Figure 1). Using Pearson correlation coefficient, LMS data revealed a weak positive correlation between the number of LMS interactions before the assessment period and overall grade outcomes (Figure 2).

Figure 1. Grade outcomes of the cohort, illustrating the distribution and performance trends across assessed components.

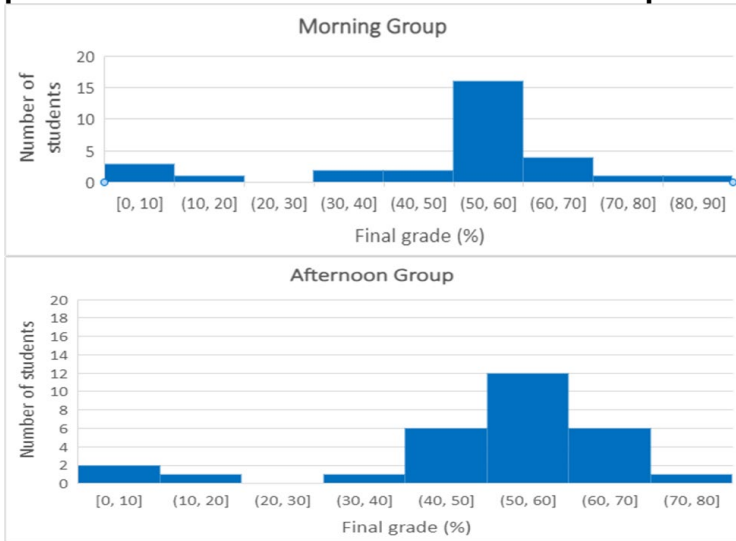
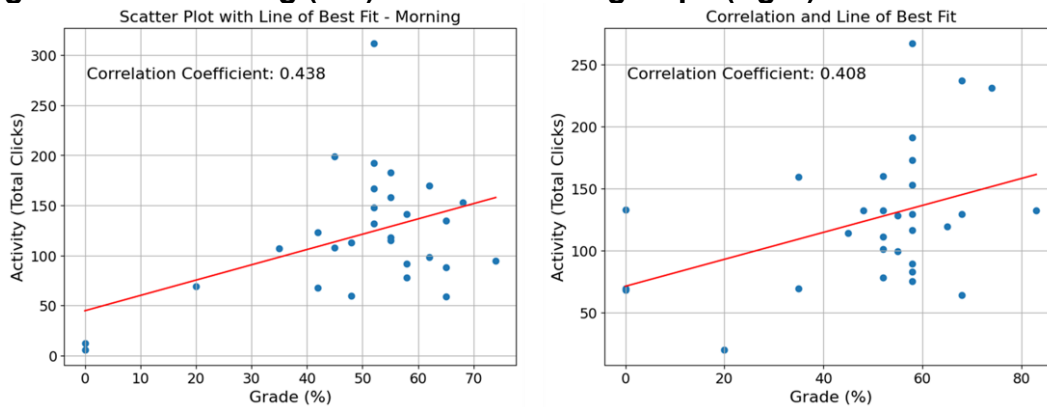


Figure 2. Weak correlation between Virtual Learning Environment activity and grades for morning (left) and afternoon groups (right).



Focus group interviews

Focus group interviews were conducted to explore students' experiences and perceptions of group work versus collaborative learning. The semi-structured interviews included the following questions:

1. What do you understand by the term *group work*?
2. What do you understand by the term *collaborative learning*?
3. Can you distinguish between group work and collaborative learning?
4. How do you perceive collaborative learning in a computer room setting?
5. How do you personally learn in collaborative environments?
6. What are your thoughts on collaborative learning in a computer environment compared to traditional classrooms?

7. If you could change one aspect of the learning environment (computer or non-computer rooms), what would it be?
8. What challenges have you faced in computer room sessions?
9. What do you consider the strengths and weaknesses of sessions in a computer room versus a traditional classroom?

The interviews involved 17 students divided into four groups (two from the morning class and two from the afternoon class). Discussions were moderated to encourage depth and diversity. Interviews were face-to-face but voice recording and transcription were conducted using Microsoft Teams. The automatically transcribed data was manually corrected for transcription accuracy.

Analysis

Interview transcripts were analysed using the NVivo qualitative analysis software. An inductive approach was adopted, meaning coding was done inductively based on the transcribed statements. Cases and codes were developed and subsequently, the codes were thematised upon which the results were further analysed. The data (transcriptions) were grouped into our three major cases that impact the Learner, namely *Environment*, *Facilitator*, and *Learning* (Figure 3). The **Environment** case was divided into four sub-cases, namely *Learning Environment*, *Collaborative Learning Environment*, *Collaborative Learning in Computer Space*, and *Collaborative Learning in Traditional Classrooms versus Computer Spaces*. The **Learning** case was divided into four sub-cases, namely *Learning through Collaboratively Learning*, *Collaborative Learning versus Group Work*, *Collaborative Learning versus Non-Collaborative Learning*, and *Group Working*. Subsequently, the **Facilitator** case was divided into two categories, namely the *Learner Cohorts* and *Facilitator*, who designs the environment and coordinates learning. Finally, a thematic analysis was conducted with themes and codes exported into a codebook, as shown in Table 1.

Results

The results are organised into two key sections: thematic analysis and knowledge transformation tool elements. The first section examines the themes and coding results,

while the second focuses on the derivation of the Effective Learning Triangle (Figure 3) as a framework for knowledge transformation.

Thematic analysis

A total of 65 codes were generated from the focus group transcripts using an inductive approach. The thematic analysis revealed notable trends in references to key concepts.

1. **Learning case:** the term 'learning' was referenced 18 times within the transcripts. Subcategories included:
 - a. Collaborative learning vs. group work (3 references).
 - b. Collaborative learning vs. non-collaborative learning (3 references).
 - c. Collaborative learning (8 references).
 - d. Group work (4 references).

2. **Environment case:** the term 'environment' appeared 14 times, with breakdowns as follows:
 - a. Learning environment (2 references).
 - b. Collaborative learning environment (4 references).
 - c. Collaborative learning in computer spaces (4 references).
 - d. Collaborative learning in traditional classrooms vs. computer spaces (4 references).

3. **Facilitator case:** unsurprisingly, 'learner' yielded the highest number of references, interwoven across three dominant factors: **student, learning, and environment**.
 - a. 'Learning environment' was referenced 147 times, with 78 mentions from the morning focus group and 69 mentions from the afternoon group.
 - b. This underscores the central role of the facilitator, learning processes, and environment as catalysts for transformative learning experiences. These elements emerged as essential ingredients for effective learning, fostering a more meaningful learner experience.

4. Collaborative learning space	<p>'I can easily get feedback from the person I'm working with, unlike the traditional classroom, where we will have to wait till the next day'</p> <p>'if you run into trouble, it gives room for discussing and collaborating with your colleagues'</p>	(2) What do you understand about the term collaborative learning?
5. Computer-based space for learning and teaching	<p>'you don't have enough room (to work together)'. 'Yeah, enough room between each other. And sometimes, like you said, about the screen. Sometimes we're in two screens, which is easier because you know, you could be typing puts in one and you could have your documentation on the other screen'</p> <p>'I feel that when you're in computer-based space you have access to more information than when you're in a normal classroom'</p> <p>'I tend to bounce off the person next to me as opposed to the whole group, so you're potentially missing out on sharing with the right people in the group'</p>	<p>(7) If you could change one thing about the environment being taught in the computer room and non-computer rooms – what would it be?</p> <p>(8) What kind of problems have you experienced 'because we're in a computer room' during your sessions?</p>
6. Effective learning	<p>'I think it helps to speeds [sic] up your learning process because you're talking with your peers and through that talk you can understand and actually know what you don't understand or maybe what you do understand you didn't realise'</p>	(6) What are your thoughts on collaborative learning in the computer environment compared to the classroom?
7. Features of collaborative learning	<p>'I know there's definitely things when we were working together that I've mentioned, other people haven't thought about and then they said things that I would have never even considered ... things that's purely for my own life experience'</p> <p>'when you're in collaborative environment, what you bring to your report is how much you actively listened, how much you've got involved and listened to other people'</p> <p>'I like the collaborative work and I think I would push more towards collaborative work then [sic] group work because I think with group work you can sometimes have people who do more because they're more experience [sic] ... and then I think it's less effective for those who don't have as much experience because, they're just kind in the back [sic] because they don't have that previous experience'</p>	<p>(1) What do you understand about the term collaborative learning?</p> <p>(3) Can you draw any specific distinctions between group work vs. collaborative learning?</p>
8. Features of working in teams – group work	<p>'It's like preparing us, because when you go to work, you're working with people and it's more like giving you that understanding of how to work in a team'</p> <p>'in a group project, your output is a collective of what everyone thinks and you have to agree with people and make compromises'</p>	(1) What do you understand by the term group work?

9. Group work and collaborative learning share similarities	'you could passively learn ... sit quietly in a group, and then just take in all of that information, because maybe I didn't understand what was expected ... But everybody else can sort of give me their opinions and then it helps me to learn'	(5) How do you personally learn in collaborative environments?
10. Inadequacies of computer spaces	'having technology could make you laid back compared to testing yourself to as used to be where you're coming from [sic]' 'think probably an advantage is that it's easier to become distracted in a computer based room because you have the internet right there'	(4) How do you see collaborative learning in a computer space?
11. Learning and teaching in traditional classroom	'when you [sic] talking about collaborative learning, I think you can evaluate yourself your rate of assimilation learning instantly compared to when there is no computer'	(5) How do you personally learn in collaborative environments?
12. Limitations of working in teams	'... yes, it then gives people the opportunity in the group to be lazy – like I'm gonna say it, one person in our group did absolutely nothing'	(3) Can you draw any specific distinctions between group work vs. collaborative learning?
13. Managing team working	'... mirrored in the real world – most times when you're working in teams, not everyone's at the same strength level. So you need to know who has the weakest strength to know what and how the impact will be to get a balance'	(1) What do you understand by the term group work? (2) What do you understand about the term collaborative learning?
14. Student personality impacts learning	'I'm more distracted when I'm at home, but in class I'm more focused in group tasks, so the same tool is helping rather than distracting you'	(9) What do you think are the strengths (enjoy) and weaknesses (dislikes) of the sessions being done in a computer room vs. non-computer?

Effective Learning Triangle (ELT) – knowledge transformation components

The analysis identifies the Effective Learning Triangle (ELT) as a transformative tool for fostering meaningful knowledge, skills, and understanding. The ELT consists of four core components, with the learner as its foundation. This triangular structure emphasises the interplay between learning, the environment, and facilitation to achieve effective knowledge transformation.

Learning (as the central focus)

Learning remains the cornerstone for any learner, and five sub-cases of group-based interactive learning are highlighted as critical. Participants noted the value of collaborative and diverse perspectives, as exemplified in comments such as:

- *'I get a better grasp of what I'm doing when explaining things to others'.*
 - *'Learning more from diverse views among others'.*
- (Refer to Table 1 for detailed examples).

Learning environment (pivotal to knowledge transformation)

The learning environment plays a pivotal role in effective knowledge transformation by offering access to resources and fostering collaboration. Respondents emphasised the importance of flexible and technology-enabled spaces for meaningful interactions:

- *'I feel that you have access to more information when you're in a computer-based space'.*
- *'Flexible space gives room for discussing and collaborating with your colleagues if you run into trouble'.*

Learners (as owner of learning)

Active student engagement is crucial for knowledge transformation, particularly when learners take ownership of their educational process. A participant articulated this by saying:

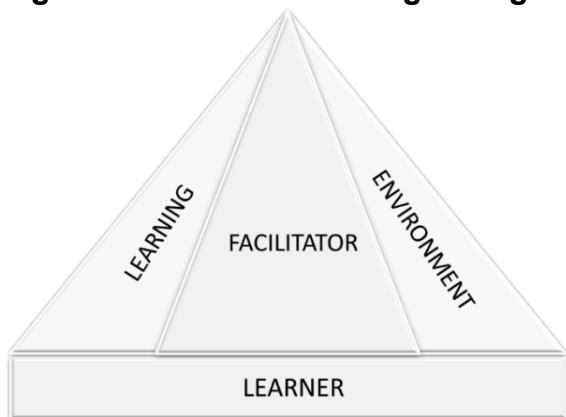
- *'I'm more distracted when I'm at home, but in class, I'm more focused on group tasks'.*

This highlights the significant influence of the learning environment on focus and productivity.

Facilitator (as an integral role)

The facilitator is integral to the ELT by designing, coordinating, and sustaining learning concepts and methods. Their role also involves creating an enabling environment that supports learning and collaboration.

Figure 3. Effective Learning Triangle – ELT.



The Effective Learning Triangle (ELT) provides a structured and collaborative framework for facilitating knowledge transformation. By integrating active learning, a supportive environment, and facilitative guidance, the ELT emerges as a robust tool for enhancing group-based learning outcomes.

Discussion

This study explored knowledge transformation by emphasising the significance of group work and collaborative learning, considering the diverse backgrounds of learners and the impact of various instructional approaches. The findings underscore that the design of teaching and assessment methods, alongside the teaching environment, profoundly influences learning outcomes. Hunter (2006) offers practical strategies for fostering collaborative learning, such as incorporating process reports and peer evaluations into small group tasks; focusing presentations on the process and challenges rather than outcomes; and employing structured debates with opposing groups, questioning participants, and an observational gallery. Collaborative learning fosters meaningful knowledge acquisition through the dynamic interplay between learners, facilitators, and the environment, leading to transformative teaching and learning experiences (van Aalst, 2009; Beeson and Byles, 2020) when collaborative learning tasks present challenges without seeking definitive 'right answers'. The analysis of focus group discussions revealed

four key themes that align with existing literature, highlighting the effectiveness of collaborative learning across educational contexts.

Diverse perspectives and enriched learning: participants emphasised the value of learning from peers with diverse backgrounds, noting how varied perspectives enrich the learning experience. This finding aligns with studies supporting (Naicker et al., 2022) and challenging (Freeman and Greenacre, 2011; Poort et al., 2022) the influence of diversity on learning outcomes. The use of computers in collaborative learning promotes accessibility and equitable resource sharing. However, concerns were raised about potential distractions associated with technology use. Despite these challenges, focused collaborative learning environments were recognised as highly beneficial, though social interactions in computer-supported contexts may pose difficulties (Kreijns et al., 2003; Asino and Pulay, 2019).

Defined learning outcomes for effective peer interactions: effective knowledge transfer in collaborative learning requires clearly articulated learning outcomes. As observed in previous studies (Summers and Volet, 2010; Wilson et al., 2018), participants noted that while both group work and collaborative learning involve peer interaction, collaborative learning prioritises individual knowledge construction, whereas group work emphasises task completion.

Critical thinking and knowledge construction: collaborative learning encourages deeper understanding through critical thinking and shared knowledge construction. Students engaged in meaningful dialogue, exchanged insights, and demonstrated responsibility for their learning, leading to enriched educational experiences (Balasooriya et al., 2010; Beeson and Byles, 2020). In contrast, group work was more suited to developing social and teamwork skills (Johnson and Johnson, 1999).

Bridging the generational divide: as higher education evolves to prepare world-ready graduates, facilitators must clearly articulate the purpose and individual benefits of learning activities. Addressing generational differences in attitudes and expectations is vital to fostering engagement and achieving desired learning outcomes.

These findings reinforce the importance of thoughtfully designed collaborative learning activities that integrate diverse perspectives, leverage technology, and balance individual and group outcomes for transformative educational experiences.

Conclusion

Future research should prioritise investigating the strengths of peer interactions within diverse learning environments (Wegerif and Mercer, 1996) alongside the evolving ways in which modern learners engage in the learning process. Specifically, quantitative studies are needed to examine the interconnections between three critical pillars of knowledge: the Facilitator, Environment, and Learning. By exploring these relationships, researchers can deepen understanding of the factors that foster effective collaborative learning, ultimately shaping educational practices that enhance knowledge acquisition, skill development, and student success.

Acknowledgements

The authors did not use generative AI technologies in the creation of this manuscript.

The tasks performed by Nvivo include data analysis, data visualisation, and word cloud. Tasks performed by Microsoft Teams include recording and transcribing of interviews. The tasks relevant to methodology are explained in the Methods section. The authors have complied with the JLDHE's principles of AI use.

References

Asino, T.I. and Pulay, A. (2019) 'Student perceptions on the role of the classroom environment on computer supported collaborative learning', *TechTrends*, 63, pp.179-187. Available at: <https://doi.org/10.1007/s11528-018-0353-y>

Balasoorya, C., di Corpo, S. and Hawkins, N.J. (2010) 'The facilitation of collaborative learning: what works?', *Higher Education Management and Policy*, 22(2), pp.1-14.

- Beeson, H. and Byles, R. (2020) 'Creative solutions to common groupwork problems', *Journal of Learning Development in Higher Education*, (19). Available at: <https://doi.org/10.47408/jldhe.vi19.622>
- Bell, L. and Lygo-Baker, S. (2019) 'Student-centred learning: a small-scale study of a peer-learning experience in undergraduate translation classes', *The Language Learning Journal*, 47(3), pp.299-312.
- Bemer, A.M., Moeller, R.M. and Ball, C.E. (2009) 'Designing collaborative learning spaces', *Programmatic Perspectives*, 1(2), pp.139-166.
- Dillenbourg, P. (1999) 'What do you mean by collaborative learning?', in P. Dillenbourg (ed.) *Collaborative-learning: cognitive and computational approaches*. Oxford: Elsevier, pp.1-19.
- Duan, Z., Russell, I. and Jung, A. (2021) 'Active learning strategies: a computing course for undergraduates', *16th International Conference on Computer Science and Education (ICCSE)*. Lancaster, United Kingdom, pp.301-306.
- Freeman, L. and Greenacre, L. (2011) 'An examination of socially destructive behaviors in group work', *Journal of Marketing Education*, 33(1), pp.5-17. Available at: <https://doi.org/10.1177/0273475310389150>
- Gamson, Z. F. (1994) 'Collaborative learning comes of age', *Change: The Magazine of Higher Learning*, 26(5), pp.44-49. Available at: <https://doi.org/10.1080/00091383.1994.10544652>
- He, S., Shi, X., Choi, T. and Zhai, J. (2023) 'How do students' roles in collaborative learning affect collaborative problem-solving competency? A systematic review of research', *Thinking Skills and Creativity*, 50, article number 101423. Available at: <https://doi.org/10.1016/j.tsc.2023.101423>
- Hunter, D. (2006) 'Assessing collaborative learning', *British Journal of Music Education*, 23(1), pp.75-89.

Johnson, D.W. and Johnson, R.T. (1999). *Learning together and alone. Cooperative, competitive and individualistic learning*. 5th edn. Boston, MA: Allyn and Bacon.

Johnson, D.W. and Johnson, R.T. (2013) 'The impact of cooperative, competitive, and individualistic learning environments on achievement', in J. Hattie and E. Anderman (eds) *International handbook of student achievement*. New York: Routledge, pp.372-374.

Kreijns, K., Kirschner, P.A. and Jochems, W. (2003) 'Identifying the pitfalls for social interaction in computer-supported collaborative learning environments: a review of the research', *Computers in Human Behavior*, 19(3), pp.335-353.

Naicker, A., Singh, E. and van Genugten, T. (2022) 'Collaborative online international learning (COIL): preparedness and experiences of South African students', *Innovations in Education and Teaching International*, 59(5), pp.499-510.

Nyikos, M. and Hashimoto, R. (1997) 'Constructivist theory applied to collaborative learning in teacher education: in search of ZPD', *The Modern Language Journal*, 81(4), pp.506-517.

Poort, I., Jansen, E. and Hofman, A. (2022) 'Does the group matter? Effects of trust, cultural diversity, and group formation on engagement in group work in higher education', *Higher Education Research and Development*, 41(2), pp.511-526.

Saqr, M., López-Pernas, S. and Murphy, K. (2024) 'How group structure, members' interactions and teacher facilitation explain the emergence of roles in collaborative learning', *Learning and Individual Differences*, 112, article number 102463.

Shulman, L.S. and Shulman, J.H. (2004) 'How and what teachers learn: a shifting perspective', *Journal of Curriculum Studies*, 36(2), pp.257-271.

Summers, M. and Volet, S. (2010) 'Group work does not necessarily equal collaborative learning: evidence from observations and self-reports', *European Journal of Psychology of Education*, 25, pp.473-492.

Tinto, V. (1997) 'Classrooms as communities: exploring the educational character of student persistence', *Journal of Higher Education*, 68, pp.599-623. Available at: <http://dx.doi.org/10.2307/2959965>

van Aalst, J. (2009) 'Distinguishing knowledge-sharing, knowledge-construction, and knowledge-creation discourses', *International Journal of Computer-Supported Collaborative Learning*, 4, pp.259-287.

Wegerif, R. and Mercer, N. (1996) 'Computers and reasoning through talk in the classroom', *Language and Education*, 10(1), pp.47-64.

Wilson, L., Ho, S. and Brookes, R.H. (2018) 'Student perceptions of teamwork within assessment tasks in undergraduate science degrees', *Assessment and Evaluation in Higher Education*, 43(5), pp.786-799.

Zhang, Z. and Bayley, J.G. (2019) 'Peer learning for university students' learning enrichment: perspectives of undergraduate students', *Journal of Peer Learning*, 12(5), pp.61-74.

Author details

Sakirulai Olufemi Isiaq (Femi) is the Programme Director for the Computer and Data Science Programme at UAL's Creative Computing Institute. With nearly two decades of industry and academic experience, Femi specialises in Human-Environment Interactions (HEI). His innovative approach to education integrates mental wellbeing management into higher education curricula and pioneers new pedagogical methods for teaching, particularly computing and other technical subjects. Passionate about student engagement, Femi continually drives initiatives that foster inclusivity, creativity, and holistic learning experiences, making a lasting impact on both students and the academic community.

Louise Usher (Southampton Solent University, UK) is a Learning Designer who takes a people-first approach when collaborating with academics and colleagues to address educational and pedagogical challenges. With diverse expertise in edtech, technology

enhanced learning, learner analytics, and active learning pedagogies, she strives to deliver value and meaningful impact to projects, faculty, and learners navigating this evolving landscape of higher education.

Licence

©2025 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC-BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See <http://creativecommons.org/licenses/by/4.0/>. Journal of Learning Development in Higher Education (JLDHE) is a peer-reviewed open access journal published by the Association for Learning Development in Higher Education (ALDinHE).