JLIC Journal of Language Intelegence and Culture

ISSN: 2716-1277
E-ISSN: 2716-1269
OPEN ACCESS

Journal of Language Intelligence and Culture
Vol. 7 No. 2 (2025): 135-156
Available online at: jlic.uinkhas.ac.id/index/jlic

House of Journal for Faculty of Tarbiyah and Teaching Training
State Islamic University of Kiai Haji Achmad Siddiq Jember
Email: jlic.iainjember@gmail.com

Bridging Ideas: How Mind Mapping Enhances Dialogic Collaborative Learning Outcomes

Hidayah Nor[1], Erma Sarita[2], Puji Sri Rahayu[3]
[1,2,] Universitas Islam Negeri Antasari Banjarmasin
[3]University of Canberra, Australia
Email: ermasarita7@gmail.com, hidayahnor@uin-antasari.ac.id1, 2 Puji.Rahayu@canberra.edu.au

Keywords:

Mind mapping, dialogic collaborative learning, learning outcomes

DOI: 10.35719/jlic.v7i2.642

Journal History
Submitted: July 2025
Revised: September 2025
Published: October 2025

Abstract

Mind Mapping has gained recognition as a visual learning strategy that enhances comprehension and engagement. Yet, its application in dialogic collaborative learning within English Language Education remains underexplored. This study explores students' perceptions of Mind Mapping as a collaborative learning tool, highlighting its pedagogical potential and challenges in higher education. Conducted at Antasari State Islamic University Banjarmasin, the research involved six English Language Education students from the 2022 cohort. Data were gathered through in-depth semi-structured interviews and analyzed using Miles and Huberman's Interactive Model to identify key themes. Findings reveal that students view Mind Mapping as a productive tool that simplifies complex material, promotes dialogic interaction, and fosters creativity and critical thinking through deeper content engagement. However, three main challenges emerged: (1) differing preferences for digital versus manual mapping, (2) unequal participation among group members, and (3) excessive focus on visual aesthetics over content depth. The study concludes that effective integration of Mind Mapping in collaborative learning requires teacher facilitation, explicit guidance, and a balanced emphasis on both form and meaning. These insights contribute to research on collaborative learning in English Language Education and offer practical implications for educators seeking to incorporate visual tools in EFL contexts.

How to cite: Nor, H., Sarita, E., & Rahayu, P. S. (2025). Bridging Ideas: How Mind Mapping Enhances Dialogic Collaborative Learning Outcomes. *Journal of Language Intelligence and Culture*, 7(2). https://doi.org/10.35719/jlic.v7i2.642

INTRODUCTION

Learning is fundamentally a social process. Knowledge is constructed through interaction, questioning, and negotiation of meaning with others rather than in isolation. Education, therefore, functions as a dialogue among students, teachers, and the learning environment (Mustaji, 2015). This perspective emphasizes the importance of cooperation as a vital 21st-century skill, as most tasks require collaboration for success in both academic and professional contexts (Wijaya, 2021). Effective collaboration is evident in specific interaction patterns and roles, such as active listening, posing probing questions, and building on peers' contributions to refine collective understanding. Structured teamwork, with roles like facilitator, timekeeper, and note-taker, further enhances the learning experience. In English as a Foreign Language (EFL) classroom, collaborative learning fosters comprehension of complex and innovative concepts as students generate new insights through dialogue and shared activities (Novita, Zainuddin, & Fata, 2020). The value of collective work is not solely a contemporary educational concern, but also aligns with principles emphasized in the Islamic tradition, as reflected in Surah Asy-Syura (42:38), which advocates for consultation and cooperation in collective decision-making.

To foster collaborative skills, educators increasingly implement strategies that promote active engagement and interaction. Mind Mapping is one such tool, offering a visual method for organizing information and clarifying relationships between ideas. This technique enables learners to connect, structure, and retain knowledge more effectively (Redhana, Mertasari, & Rapi, 2021; Adodo, 2013). Creative visual elements such as symbols, drawings, and color enhance both engagement and memorability (Şeyihoglu & Kartal, 2010; Arulselvi, 2017). Recent scholarship further highlights Mind Mapping's potential to develop competencies including critical thinking, creativity, and collaboration (Luangkrajang, 2022). In group settings, students using Mind Maps negotiate perspectives, divide responsibilities, and construct shared understanding.

Existing research on Mind Mapping is limited, as many studies focus on its use as an individual tool and primarily employ quantitative methods (Rahayu, Wahyuni, & Puspitasari, 2021). These approaches often overlook learners lived experiences, including their challenges, peer interactions, and collaborative meaning-making processes. Earlier implementations of Mind Mapping were typically paper-based, lacking support for real-time interaction and providing limited insight into others' thinking. Consequently, essential elements of dialogue and cooperation were frequently absent. Although digital Mind Mapping tools have emerged with technological advancements, there remains limited

understanding of how the transition from manual to digital formats influences students' creativity, interactions, and critical thinking (Sukardi & Turhan, 2025).

Addressing this research gap requires a methodological shift. Rather than conducting another experimental study, it is necessary to employ approaches that capture the complexity of students' experiences and perspectives. A qualitative perspective is particularly appropriate, as it enables exploration of how learners perceive the affordances and challenges of Mind Mapping and how collaboration develops in practice. This approach moves beyond evaluating whether Mind Mapping is effective to examining how it shapes interaction, supports dialogue, and influences learning processes. The study will utilize a sociocultural learning framework to interpret students' narratives and analyze the dynamics of dialogue and meaning-making in collaborative contexts.

This study examines students in the English Language Education Study Program at Antasari State Islamic University, Banjarmasin. By investigating their experiences with both manual and digital Mind Mapping in dialogic collaborative learning, the research aims to identify both benefits and barriers, including time constraints, technological challenges, and group coordination issues. Using narrative inquiry and interviews, the study explores how students navigate these challenges and the strategies they employ to integrate Mind Mapping into their collaborative learning. The research seeks to provide a nuanced understanding of Mind Mapping as a pedagogical tool that supports creativity and dialogue, while recognizing that its effectiveness depends on context and learner engagement. Practical implications include recommendations for integrating digital tools to enable real-time collaboration and adopting flexible group coordination practices to enhance learning outcomes.

METHODS

Research Design

This study employed a narrative inquiry approach to explore how students experienced Mind Mapping in collaborative learning. Narrative inquiry goes beyond data collection to understanding how individuals make sense of their experiences through stories (Clandinin & Connelly, 2000). In applied linguistics, stories are valuable for revealing the emotional and personal dimensions of teaching and learning that quantitative data cannot capture (Barkhuizen, 2014). Thus, narrative inquiry was well suited to this study, allowing focus on how students interpreted and negotiated the use of Mind Mapping in group contexts rather than treating them as anonymous data points.

Following Creswell and Creswell's (2018) framework, the inquiry was structured into seven adapted steps. First, the phenomenon of interest—the use of Mind Mapping in group learning—was defined, addressing a gap in research that often emphasizes cognitive rather than dialogic and collaborative dimensions. Second, six English Language Education students from the Class of 2022 at Antasari State Islamic University Banjarmasin were purposively selected from three classes (A, B, and C). They had prior experience using Mind Mapping in courses such as Language Teaching Methodology, Research in ELT, and Morpho-syntax, verified through instructor input and assignment records.

Third, data were gathered through semi-structured interviews inviting reflection on both benefits and challenges of Mind Mapping (e.g., group participation, manual vs. digital tools). Interviews were recorded with consent and transcribed for accuracy. Fourth, participants engaged in a re-storying process, revisiting and refining their narratives to ensure authenticity. Fifth, collaboration was emphasized; consistent with Clandinin and Connelly's (2000) view of co-constructed stories, participants acted as partners rather than subjects, contributing through follow-up online or informal discussions. Sixth, narratives were organized thematically around key issues—comprehension, creativity, interaction, and collaborative challenges. Finally, member checking validated interpretations and strengthened trust between researcher and participants.

Through narrative inquiry, this study foregrounded students' lived experiences in their own voices. Grounded in Clandinin and Connelly (2000) and Barkhuizen (2014), this approach effectively addressed the research gap by illuminating how learners experience Mind Mapping in dialogic and collaborative contexts.

Research Setting

The research was conducted within the English Language Education Study Program at State Islamic University (UIN) Antasari Banjarmasin, South Kalimantan, Indonesia. The program, situated in the Faculty of Tarbiyah and Teacher Training, integrates contemporary pedagogical approaches with Islamic principles. It aims to prepare students as English teachers who demonstrate both professional competence and ethical integrity. This dual focus fosters an academic environment that prioritizes collaboration, sincerity, responsibility, and disciplinary expertise.

The curriculum significantly influenced the study. Courses including Language Teaching Methodology, Research in English Language Teaching (ELT), and Morpho-syntax incorporated Mind Mapping into collaborative assignments. This integration provided students with practical opportunities to utilize Mind

Mapping for organizing ideas, exchanging perspectives, and negotiating meaning during group work.

Participants

Six students (P1 to P6) from the Class of 2022 at UIN Antasari Banjarmasin were purposively selected for their significant experiences with Mind Mapping. They were chosen for their extensive use of Mind Mapping across multiple courses, including Language Teaching Methodology, Research in ELT, and Morpho-syntax, rather than for class representation. Each student had used Mind Mapping consistently for at least two semesters, giving them enough experience to reflect critically on its effectiveness. Their perspectives ranged from positive outcomes to notable challenges, offering valuable diversity for this study. This sustained engagement and variety of experiences allowed them to contribute rich, nuanced narratives aligned with the aims of narrative inquiry.

The decision to work with six participants was a deliberate one. Narrative inquiry values depth over breadth, and smaller groups allow each person's voice to be heard clearly and fully (Clandinin & Connelly, 2000; Riessman, 2008). As Creswell and Poth (2018) note, purposive sampling is most effective when participants are chosen for the richness of their experiences, not their representativeness. In line with this, six students offered the right balance: few enough to explore each story in detail, but enough to capture a range of perspectives. This aligns with Polkinghorne's (1995) view that five to seven participants are often sufficient for generating the kind of deep, textured narratives that narrative inquiry requires. Throughout the process, ethical principles guided the research: each student gave informed consent, and their confidentiality was carefully protected.

Technique of Data Collection

Interviews served as the primary method for collecting qualitative data, facilitating direct interaction between the participants and the researchers. This approach enabled an in-depth understanding of the participants' experiences, viewpoints, and comments regarding the application of Mind Mapping. To ensure thorough recording and analysis, interview data were captured using audio recordings and subsequent transcriptions, as supported by Creswell (2009).

The interview process was structured to be as comfortable and informative as possible for the participants. Initially, participants received proof from the researchers regarding the study's objectives. Interviews were then conducted, lasting up to an hour, during which participants were encouraged to freely share any positive or negative experiences they had. The researchers utilized a voice

recorder or transcript to help participants relax and ensure accuracy. Participants were also given the freedom to request additional information if they had any doubts about a question, fostering an open and responsive dialogue. This method aligns with Sayrs (2019), who notes that interviews are extended conversations designed to elicit specific information on a particular issue or problem, allowing for the interpretation of phenomena within the individual's context. The study utilized only interview data and did not incorporate triangulation from supplementary sources. Trustworthiness was strengthened by employing transparent communication, maintaining systematic documentation, and identifying consistent thematic patterns in participants' accounts. These measures collectively reinforce the credibility of the findings.

Research Instrument

The primary research instrument in this study was an interview guideline, structured to ensure consistency while allowing participants to articulate their experiences independently. The guideline comprised broad, open-ended questions, including: "Can you describe your experience using Mind Mapping in this course?", "What aspects of Mind Mapping did you find most helpful or challenging?", and "How did working with Mind Mapping affect the way you collaborated with your peers?" Additional prompts encouraged students to consider whether the technique influenced their comprehension of course content and their willingness to use it in the future. Instead of restricting responses to predetermined categories, the guideline established a conversational framework that enabled researchers to address key themes and facilitated open participant expression. This approach aligns with Wheeldon and Faubert's (2009) assertion that conceptual mapping tools enable participants to articulate connections and ideas from their own perspectives, thereby grounding findings in authentic experiences. The guideline thus balanced methodological consistency with participant spontaneity, capturing insights from the students' perspectives. While focus groups were not utilized in this study, Patton's (2002) analysis of their effectiveness in revealing diverse viewpoints is pertinent when evaluating the collaborative dimensions of Mind Mapping in educational contexts.

Data Analysis

Data were analyzed using the Interactive Model developed by Miles, Huberman, and Saldaña (2014). This model conceptualizes analysis as a cyclical process comprising three primary actions: condensing, displaying, and interpreting data. The analysis commenced with a systematic review of interview transcripts and field notes. Passages related to Mind Mapping, defined as a visual

technique for organizing information, and dialogic collaborative learning, defined as learning through structured group dialogue, were identified. These excerpts were coded and organized into themes, including the benefits of Mind Mapping, challenges associated with collaboration, and the influence on student engagement. Codes were subsequently arranged in tables and concept maps to identify patterns across participants and refine preliminary insights. Interpretation was iterative, with the research team revisiting the data as needed for clarification.

Two safeguards were implemented to ensure that interpretations accurately reflected participants' experiences. First, member checking enabled participants to review their transcripts and summaries of findings, often using WhatsApp, to confirm or correct the representation of their statements. Second, peer review involved academic colleagues who critically assessed the coding and thematic analysis, thereby testing assumptions and enhancing analytical rigor. These practices ensured that the findings remained grounded in participants' perspectives and aligned with the research questions and conceptual framework.

RESULTS AND DISCUSSION

This section presents the findings derived directly from the in-depth interviews conducted with the six participants (P1-P6). The data are supported by direct quotes from the participants and are structured to provide a clear representation of their perspectives without researchers' interpretation. These findings were analyzed using Miles and Huberman's (2014) interactive data analysis model, which includes data reduction, data display, and conclusion drawing and verification. The findings address the two primary research questions: participants' experiences using Mind Mapping strategies in dialogic collaborative learning, and the challenges they face in using Mind Mapping as a dialogic collaborative learning tool.

RESULTS

The Experiences of Participants Using Mind Mapping Strategies in Dialogic Collaborative Learning

Experiences of Mind Mapping Techniques

Participants' stories revealed how Mind Mapping was not simply a technique but a practice woven into the fabric of their educational journeys. For many, the relationship began in adolescence and grew stronger as academic demands increased.

P1 traced her use of Mind Mapping back to junior high school, recalling how the colorful maps helped her break down long chapters into manageable pieces. What started as a classroom requirement soon became a personal strategy she

carried into high school and later into her university courses. She described the process as both enjoyable and sustaining: *"Mind Mapping is very helpful in organizing information because it teaches us to sort out what is truly important and eliminate less relevant or superficial content... It also encourages us to compare pieces of information, which, in my view, really trains our critical thinking."* For P1, drawing out maps by hand, choosing her own highlighters, sketching connections, and experimenting with shapes—remained a source of both focus and creativity across the years.

P2's story echoed this long-standing relationship but from a different angle. She recalled a high school group task where each student was asked to create a map on paper. That moment, she explained, made her realize the freedom and focus that came with manual mapping. At university, she found herself repeatedly distracted by digital tools too many templates, too many notifications, too many ways to lose track of the task. *"Personally, I prefer doing it manually because it's simpler and easier,"* she explained. *"When I'm given paper, I can create it the way I want, and if there are mistakes, I can easily erase them. Manual methods help me stay focused and not distracted by other things."* For her, the act of drawing was not just practical but grounding, giving her a sense of clarity and ownership that digital platforms could not replicate.

Other participants highlighted Mind Mapping's power to reshape their approach to heavy workloads. P3 recalled moments in university courses especially reading and research assignments where the material felt overwhelming until she began charting ideas into branches. *"When working on large amounts of material, such as in reading classes or research assignments, [Mind Mapping] helps summarize and structure ideas more clearly,"* she explained. For her, mapping was less about artistry and more about strategy: a way to tame dense material, make it digestible, and see connections that might otherwise have been lost.

P5's journey offered yet another dimension. Like P1, she had been using Mind Mapping since junior high school, but she emphasized how it shaped her ability to think critically over time. She described the maps as a tool that forced her to weigh, compare, and evaluate information: *"It teaches us to sort out what's truly important and eliminate less relevant content. It also encourages us to compare pieces of information, which really trains our critical thinking."* Looking back, she expressed a continued sense of enjoyment, noting that even at the university level, she still found mapping engaging and effective.

Across these stories, participants also debated the affordances of manual versus digital mapping. While digital tools offered conveniences such as quick edits and collaborative features, several participants voiced a clear preference for manual methods, linking them not only to creativity but also to motor skill

development, focus, and deeper engagement with content. They saw drawing by hand as activating both imagination and analysis in ways that software could not fully replicate.

Taken together, these narratives illustrate how Mind Mapping was experienced not as a temporary classroom exercise but as a practice participants carried across time, contexts, and relationships. Whether it was P1's joy in color-coding, P2's need for focus, P3's strategy for managing large assignments, or P5's emphasis on critical thinking, each account showed how Mind Mapping became meaningful through lived experience. In narrative inquiry terms, these stories reveal the when, where, how, and why of the technique's role in their learning lives, offering insight into its lasting relevance for dialogic and collaborative learning.

Interaction and Collaboration

Participants' stories revealed that Mind Mapping did more than organize information, it created a shared space where dialogue could unfold. P3 explained how she used it with her own students: *"I usually divide them into groups and have them discuss the topic together. Through discussion, they can share ideas and create the map collaboratively."* Similarly, P4 described activities where students *"had to work together to create a mind map... it helped them exchange opinions and agree on the structure together."* In these accounts, the map acted as a visual conversation, making ideas visible so they could be debated, clarified, and reshaped.

Several participants emphasized how task division fueled, rather than replaced, dialogue. P3 recalled a group of four where *"two people were good at drawing, and the other two were good at summarizing. We collaborated in which some did the illustrations; others wrote the summaries but we still maintained good communication and helped one another throughout the process."* Here, the map became a point of convergence, requiring members to explain and integrate their contributions.

Mind Mapping also supported collective sense-making. P1 noted that it helped *"clearly convey ideas among group members, making it easier to express thoughts collectively,"* while P3 added that it *"facilitates the distribution of ideas."* By externalizing individual thinking, the maps provided a common reference point for discussion.

Still, participants acknowledged that dialogue sometimes faltered. P2 cautioned that *"too many branches or points sometimes confuse the audience,"* P4 noted that *"miscommunication occurs when the mind map is too complex or unclear,"* and P6 pointed out that unclear role division could hinder collaboration.

These reflections underscored that when the visual tool lost coherence, the dialogue it was meant to support also broke down.

To address this, participants described strategies that kept dialogue at the center of group work. P1 recommended dividing tasks by strengths while ensuring ongoing communication, while P6 suggested digital platforms like Canva for simultaneous editing alongside clear role assignments. Both approaches aimed to keep contributions transparent and open to discussion.

Beyond procedures, interpersonal dynamics also shaped dialogue. P1 recalled how *"high levels of competitiveness among adolescents sometimes created conflicts and obstructed group harmony,"* and P3 observed that *"judgmental or harsh attitudes during group activities could negatively affect interactions."* In their view, the success of collaborative mapping depended as much on respect and openness as on tools or techniques. Feedback from teachers and lecturers after group presentations was seen as crucial for steering conversations toward constructive dialogue.

Taken together, these accounts show that Mind Mapping worked best as a dialogic tool when it allowed participants to externalize their ideas, listen to one another, and co-construct meaning. Its effectiveness was shaped not only by the map itself but by the quality of talk, trust, and relationships surrounding its use.

Influence on Creativity and Critical Thinking

Participants' reflections indicated that Mind Mapping served as a comprehensive learning tool rather than solely a note-taking strategy. It promoted active engagement and creativity, providing autonomy and ownership that traditional note-taking methods did not offer. Several participants reported that beginning with a blank page and selecting colors or shapes facilitated alternative cognitive approaches. Design elements such as lines, arrows, clusters, and colors were considered intentional choices rather than decorative features. These decisions required participants to determine which concepts to emphasize, how to connect ideas, and where to position information. For P3 and P5, experimenting with different layouts was considered essential to the learning process.

P6's account further demonstrated this engagement by emphasizing the educational significance of Mind Mapping. This perspective underscored both the personal benefits of the method and its applicability to future instructional practices. Participants also reported that Mind Mapping promoted critical engagement with course material. The requirement to include only key points necessitated careful reading, sorting, and synthesis. Several participants described this process as both challenging and rewarding, as it involved distinguishing essential from non-essential content. In collaborative settings, Mind Mapping

facilitated student dialogue regarding content selection and transformed the map into an exercise in collective reasoning and negotiation.

Participants acknowledged limitations associated with Mind Mapping. This recognition demonstrated metacognitive engagement, as students adapted their strategies and incorporated supplementary practices to address the method's shortcomings rather than relying on it exclusively. Participants also described how Mind Mapping extended beyond academic tasks. It was used for ice-breakers, concept-guessing games, and playful group activities, reflecting its versatility in different classroom contexts. While some explored digital tools and AI for neater results, many expressed a preference for drawing by hand, noting that manual creation felt more personal and gave them greater creative freedom.

Overall, these findings show that Mind Mapping fostered creativity and critical thinking by requiring students to actively shape visual, conceptual, and collaborative structures. This process enabled students to construct understanding and express individuality through their maps.

The Challenges Students Face in Using Mind Mapping as a Dialogic Collaborative Learning Tool

Obstacles in Collaboration

In collaborative settings, differing preferences in the use of Mind Mapping (manual vs. digital) emerged as a significant obstacle. Students accustomed to manual Mind Mapping sometimes found it difficult to adapt to the digital style of their groupmates, and vice versa. Participants noted that "Sometimes, it's hard to agree with group members on how to organize the map. We have different ideas about what should go where". While they typically overcame this by discussing the outline before drawing, ensuring roles and avoiding misunderstandings, these initial disagreements could disrupt the flow of dialogue and cooperation.

Generally, participants reported feeling no significant challenges in using Mind Mapping individually, as they were accustomed to and enjoyed the strategy. However, in group contexts, collaboration was sometimes dominated by certain individuals who were more experienced or had stronger ideas, leading to less active involvement from other members. This impedes dialogic learning, where equal contribution from each group member is desired. P1 noted, "It does have an impact, especially in exchanging ideas about the mind map like asking friends about their mind maps, how they choose their topics or organize their content. Since I prefer working individually, I think Mind Mapping is more effective when used in class depending on the subject".

Differences of opinion regarding the content, structure, and visual layout of Mind Mapping frequently became obstacles in the collaborative process. These disagreements could trigger conflicts and hinder collaboration efficiency, as not all group members actively participated or were able to convey their ideas clearly. Communication barriers reduced the effectiveness of dialogue and collaboration, leading to passive participation from students who lacked confidence or did not fully understand the material, resulting in less rich and representative mind maps. P5 emphasized the impact of interpersonal dynamics: "Mind Mapping supports idea-sharing, but it can also be a hindrance in some cases. I have used Mind Mapping since I was a teenager, and at that age, competitiveness tends to be high. As a result, our attitude and behavior might become more judgmental or even dismissive toward groupmates. We might feel that our ideas are superior, which can hinder and negatively affect our group interactions although this usually only happens in the moment". These obstacles can reduce students' motivation to actively participate in dialogic learning using Mind Mapping, diminishing its potential.

Time Consuming

Mind Mapping was identified as a time-consuming process. It requires students to sort relevant information from numerous sources, which involves extensive reading, understanding, and summarizing material before it can be effectively mapped. Creating visually appealing and effective mind maps also demands significant time and attention to detail. Participants often found themselves prioritizing aesthetically pleasing colors, shapes, and layouts, sometimes at the expense of the material's substance. This aligns with findings from other studies that highlight the time-intensive nature of mind map creation (Harrison & Gibbons, 2013).

P1 and P3 articulated these challenges: "The challenge is usually time, especially if we're asked to read a journal or a book that's more than five pages long within a short deadline. It can be less effective and lead to burnout when trying to extract key points" (P1). P3 added, "The challenge I faced was selecting the right information to include in the mind map. With so much information, I had to read everything and filter it, which was time-consuming. Also, with the current availability of AI tools, I sometimes rely less on my own thoughts". P2 noted, "The first challenge is that I'm usually slow in creating one because I tend to focus on the visuals or layout rather than the written points. I pay a lot of attention to creativity, especially in coloring and shapes, so it takes a long time to complete. The second challenge is the limited time in class, which affects the final result". In collaborative contexts, aligning schedules, discussing, and integrating ideas from

each group member further extended the time required, particularly with differing schedules or work styles.

Different Techniques and Types

Participants' varied understandings and experiences with Mind Mapping led to variations in techniques and approaches, which could hinder collaboration and reduce the tool's effectiveness. P5 suggested preserving manual Mind Mapping, arguing it "sharpens creativity, critical thinking, and cognitive skills. It also trains students' hand coordination and brain development especially for younger students. Compared to just clicking or decorating with AI or Canva, traditional methods offer deeper engagement".

P1 mentioned that competitiveness among peers during group Mind Mapping sometimes led to negative attitudes, such as being judgmental or defensive, which hindered group interaction: "Because we've used Mind Mapping since young, sometimes competitiveness makes us behave rudely or act possessive about our ideas, which affects our interaction in the group". P4 pointed out time constraints as a major challenge, especially when Mind Mapping is combined with reading large amounts of material under strict deadlines: "Usually the problem is time, especially when we have to read journals or books more than 5 pages within a limited time. This causes burnout and makes it less effective".

Each participant might have different ways of creating mind maps, including the use of colors, branch shapes, information placement, or keyword selection. These differences could cause difficulties in unifying ideas into a coherent mind map when working in groups, leading to inconsistencies that caused confusion and slowed down the collaboration process. P5 reiterated, "Mind Mapping supports idea-sharing, but it can also be a hindrance in some cases... competitiveness tends to be high. As a result, our attitude and behavior might become more judgmental or even dismissive toward groupmates. We might feel that our ideas are superior, which can hinder and negatively affect our group interactions although this usually only happens in the moment".

Mind Mapping's applicability across various tasks and subjects was noted, but not all students could adapt quickly or effectively, particularly with abstract or complex material. The diverse types and styles of mind maps necessitated negotiation within groups to determine structure, layout, and content, requiring time and effective communication. P1 highlighted the impact of time limits: "When time is too limited, students can feel pressured and end up creating low-effort mind maps without any competitive or creative drive". For beginners, the creation process was longer, requiring practice and redrawing to achieve neat and effective results.

While technology can assist in creating mind maps, disparities in students' skills or access to digital tools created limitations and hindered collaboration. Learning new software for digital Mind Mapping also added to the time burden for some. These obstacles, if not adequately addressed, could reduce students' motivation and engagement, diminishing the potential benefits of Mind Mapping as a dialogic learning tool.

DISCUSSION

This section synthesizes the findings, interpreting them in relation to existing theoretical frameworks and analyzing their implications for educational practice. The discussion is structured around the two primary research questions, providing a deeper understanding of participants' experiences and the challenges encountered.

The Experiences of Participants Using Mind Mapping Strategies in Dialogic Collaborative Learning

Mind Mapping as a Cognitive and Creative Tool

The overwhelmingly positive experiences reported by participants regarding Mind Mapping's ability to organize complex information, enhance comprehension, and foster creativity align strongly with Buzan's (2006) theory. Buzan posits that Mind Mapping leverages both hemispheres of the brain by integrating logical organization with artistic vision, resulting in deeper cognitive engagement and improved information retention. Participants' consistent use of Mind Mapping since early education underscores its perceived effectiveness and adaptability across different learning stages.

A notable observation from the findings is the strong participant preference for *manual Mind Mapping*, even in the digital age. Participants cited greater freedom in creativity, ease of correction, and personal satisfaction in designing their maps, arguing that manual methods were more effective in honing creativity, critical thinking skills, and training motor skills. This highlights a pedagogical tension: while digital tools offer efficiency and collaborative features, the deeper, more holistic engagement might be more readily achieved through tactile, personal creation rather than through purely digital means. This preference underscores the importance of tactile and visual engagement in learning, which supports the development of fine motor skills and cognitive processes, as suggested by Husni (2018). This further reinforces the role of Mind Mapping as an enjoyable and stimulating learning strategy that encourages active participation.

A pedagogical tension persists between the efficiency and collaborative capabilities of digital tools and the potential for deeper, holistic engagement through tactile, personal creation (Husniati, 2020). This distinction underscores the importance of tactile and visual engagement in learning, which facilitates fine motor skill development and cognitive processing. Furthermore, it affirms Mind Mapping as an effective strategy for fostering active learner participation.

Mind Mapping in Dialogic Collaboration

The study confirms Mind Mapping's role in facilitating meaningful dialogue and idea exchange within collaborative learning settings. Participants reported that it expedited task completion and generated new insights through peer interaction. This aligns with collaborative learning theories, where shared knowledge construction and interpersonal skill development are paramount (Cui & Teo, 2021; Wong, 2021). Mind Mapping serves as a visual medium that allows individual contributions to converge into a shared conceptual framework, fostering communication, teamwork, and critical feedback. The flexibility of Mind Mapping to accommodate both individual and group work suggests its versatility, but the observed preference for individual work by some participants highlights the need for structured facilitation in collaborative tasks to ensure equitable participation. Mind Mapping is recommended as a technique to absorb information by identifying keywords and connecting ideas, thereby helping students organize information effectively and retain it. The creative process involved in mind mapping also encourages students to be more active and participate in learning, providing space for unique expression and enhancing motivation.

When integrated with other pedagogical approaches, mind mapping proves even more potent. Collaborative learning, which involves two or more individuals working towards a common goal (Wong, 2021), can be significantly enhanced by mind mapping. Students collaborate to achieve classroom success and encourage one another (Novita et al., 2020). Research by Polat et al. (2022) on "Collaborative Learning with Mind Mapping in the Development of Social Skills of Children" indicated that group mind mapping positively affects social skills during cooperative learning, aligning with Vygotsky's emphasis on social interactions in the Zone of Proximal Development.

Dialogic instruction, in contrast to "monologic" discourse, emphasizes purposeful, mutually beneficial, supportive, accumulated, and productive discourse (Jay et al., 2017; Kim, 2008). This pedagogical technique, as defined by Alexander, utilizes speech to foster comprehension, learning, and reasoning skills (Kim & Wilkinson, 2019). Dialogic learning views information as a construct arising

from the dialogue itself (Manalo, 2020), where extended conversations can broaden concepts and improve understanding of their interrelationships (Cui & Teo, 2020). While the provided text doesn't explicitly link mind mapping directly with dialogic instruction, it suggests a potential synergy where mind maps could visually support the generation and organization of ideas during dialogic exchanges.

Influence on Higher-Order Thinking

Mind Mapping was found to significantly enhance both creativity and critical thinking. The visual design process itself encourages creative expression, while the necessity to read, sort, and summarize information trains analytical, synthetic, and evaluative skills. This process of condensing information requires participants to critically engage with the material and their groupmates, fostering deeper understanding. However, the acknowledged limitation that Mind Mapping, due to its conciseness, may not fully support "deeper critical thinking" for complex questions is a crucial nuance. Participants' adaptive strategy of creating supplementary notes demonstrates metacognitive awareness and an active approach to compensating for the tool's inherent structure. This suggests that learners are capable of self-regulating and combining different strategies to achieve comprehensive understanding, rather than relying solely on one tool.

The benefits of mind mapping are extensive. It engages the entire brain, clarifies complex information, and helps users focus on the topic at hand (Machado & Carvalho, 2020). Mind mapping enhances creativity, saves time, promotes efficient problem-solving, and aids in the rapid acquisition and effective retention of knowledge (Buzan, 2006). It allows for the organization and regrouping of concepts, fosters comparisons, and facilitates a comprehensive understanding of ideas (Machado & Carvalho, 2020; Husni, 2018). Furthermore, mind maps serve as visual organizers for note-taking, idea arrangement, and concept development, representing thoughts within a relational system (Pennebaker, 2017).

Challenges Faced by Students in Using Mind Mapping as a Dialogic Collaborative Learning Tool

Obstacles in Collaboration

Despite the positive experiences, participants also reported several challenges in using Mind Mapping, particularly in collaborative settings. One significant obstacle was the difficulty in coordinating and agreeing on the structure, content, and design of the mind map among group members. Differences in individual preferences, techniques (manual vs. digital), and levels of

familiarity with Mind Mapping often led to conflicts or inefficiencies. This points to the inherently personal nature of Mind Mapping, where individual cognitive styles can clash in a collaborative setting, as emphasized by Buzan (2006). Therefore, successful collaboration requires effective communication, negotiation, and flexibility to integrate diverse perspectives.

More critically, the emergence of interpersonal issues such as competitiveness and judgmental attitudes among participants highlights that the effectiveness of dialogic collaborative learning extends beyond the mere technical application of a tool. It necessitates explicit attention to *social-emotional learning* and effective group facilitation to mitigate conflicts and ensure equitable participation. These subjective and aesthetic challenges, as noted in previous research, can significantly impact participant confidence and efficiency.

Time Consumption

Participants consistently reported that Mind Mapping requires significant time investment, including the selection of key information and the design of visual elements. The processes of concept selection, branch arrangement, and color choice frequently diverted attention from content and increased task duration. One participant observed that more time was sometimes devoted to visual presentation than to idea development, illustrating the tension between creative expression and task efficiency. In collaborative settings, time constraints were further exacerbated by the need to coordinate schedules, integrate individual contributions, and agree on structural and visual aspects.

The substantial time requirements associated with Mind Mapping are well-documented. Machado and Carvalho (2020) indicate that although creative and visual elements enhance engagement, they may impede workflow in the absence of clear guidance. Harrison and Gibbons (2013) similarly contend that a lack of structure can lead students to emphasize aesthetics at the expense of conceptual understanding. These findings underscore the importance of scaffolding and effective time management. The use of templates, explicit procedural steps, and defined time limits can help balance creative engagement with content mastery, thereby promoting both efficiency and meaningful learning.

Recognizing the time-intensive aspects of Mind Mapping enables educators to develop activities that maximize its cognitive and creative advantages while reducing associated stress. When implemented with clear structure, Mind Mapping serves as an effective strategy for fostering reflection, promoting deep engagement with academic content, and supporting active learning, provided that careful consideration is given to timing and pacing.

Variations in Techniques and Digital Literacy

Differences in participants' understanding and application of Mind Mapping techniques (e.g., use of colors, branch structures) created barriers to cohesive group work. This issue was compounded by varying levels of digital literacy and access to technology, which influenced engagement with digital tools. Some students felt more comfortable with manual methods, while others preferred digital applications, leading to challenges in harmonizing the group's approach. This disparity underscores the need for educators to provide clear guidance and training on Mind Mapping tools and to foster an inclusive environment that respects individual preferences. This observation is consistent with disadvantages of Mind Mapping highlighted by Machado and Carvalho (2020).

Finally, the challenges in collaboration and time management impacted students' motivation and engagement. When obstacles were not adequately addressed, some students experienced frustration or disengagement, which could diminish the potential benefits of Mind Mapping as a dialogic learning tool. This emphasizes the importance of facilitator support in guiding group dynamics, resolving conflicts, and encouraging positive interaction.

Despite its numerous advantages, some challenges exist, such as college students facing difficulties in developing comprehensive mind maps (Muhib et al., 2014). Nevertheless, studies like Halim (2022) titled "Facilitating EFL Students in Maintaining Flow of Talks Using Mind Mapping" demonstrate its significant benefits for both teachers and students, optimizing idea generation, planning skills, and fostering a desire to read.

CONCLUSION

This research aimed to investigate the utilization of Mind Mapping procedures as a tool to support dialogic collaborative learning in higher education, employing a narrative inquiry approach through interviews with six participants. Based on the findings and discussions, several key conclusions can be drawn regarding its impact on student learning, particularly in group work and dialogic interaction. Participants generally hold a favorable view of Mind Mapping, perceiving it as an effective tool for simplifying complex information, enhancing organizational skills, fostering creativity, and promoting engagement in learning. A notable observation was the strong preference for manual Mind Mapping among participants, attributed to its perceived benefits in developing deeper cognitive and motor skills. This highlights that while Mind Mapping is a highly effective tool for *individual* learning and creative expression, its efficacy in *dialogic collaborative learning* is contingent upon actively addressing a complex interplay of practical, technical, and, most importantly, *social-emotional* challenges within group

dynamics. Mind Mapping was found to facilitate informal dialogic interaction and idea sharing in collaborative settings, contributing to quicker task completion and richer insights through peer exchange. However, significant challenges persist in collaborative Mind Mapping. These include difficulties in coordinating diverse preferences (e.g., manual vs. digital formats), the tendency for certain group members to dominate the process, which reduces equitable participation, and the time-consuming nature of the activity, particularly when focusing on visual aesthetics over content quality. Furthermore, interpersonal dynamics such as competitiveness and judgmental attitudes emerged as critical barriers to effective collaboration, directly impeding genuine dialogic interaction.

The limitations of this study should be acknowledged. The small sample size of six participants restricts the generalizability of the findings, and the reliance on interviews captures participants' perceptions rather than direct observations of behavior. The higher education context may also limit the applicability of these results to other educational levels or cultural settings. Future research could enhance the robustness of findings by incorporating observational or experimental methods, recruiting larger and more diverse samples, and comparing manual and digital Mind Mapping practices. Despite these limitations, the study offers valuable insights for educators and researchers. Structured guidance and scaffolding can support students in managing time, balancing content with creativity, and navigating group dynamics. Promoting equitable participation and addressing social-emotional challenges may help Mind Mapping realize its potential as a tool for dialogic learning. The findings also highlight Mind Mapping's broader value as a cognitive and creative tool that enhances understanding, engagement, and reflective thinking. Further research could examine how various instructional designs or digital platforms might optimize Mind Mapping for collaborative learning. This study characterizes Mind Mapping as more than a note-taking method; it is presented as a dynamic process that integrates creativity, critical thinking, and human interaction. When implemented thoughtfully, Mind Mapping has the potential to transform collaborative learning by fostering dialogue, deeper understanding, and a more engaging, participatory classroom environment.

REFERENCES

Adodo. (2013). Effect of Mind Mapping as a Self-Regulated Learning Strategy on Students ' Achievement in Basic Science and Technology. *Mediterranean Journal of Social Sciences*, *4*(6). https://doi.org/10.5901/mjss.2013.v4n6p163

Aprinawati, I. (2018). Penggunaan Model Peta Pikiran (Mind Mapping) Untuk Meningkatkan Pemahaman Membaca Wacana Siswa Sekolah Dasar. *Jurnal Basicedu*, *2*(23).

Arulselvi, E. (2017). Mind Maps in Classroom Teaching and Learning. Excellence in Education Journal, 6(2).

Ary, D., Jacob, L. C., & Sorensen, C. (2010). *Introduction to Research in Education* (8th ed.).

Astriani, D. (2020). Mind Mapping in Learning Models : A Tool to Improve Student Metacognitive Skills. *IJET*, *15*(6), 4–17. https://doi.org/https://doi.org/10.3991/ijet.v15i06.12657

Barkhuizen, G. (2014). Revisiting narrative frames: An instrument for investigating language teaching and learning. *System*, *47*, 12-27. https://doi.org/10.1016/j.system.2014.09.014

Braun, V., & Clarke, V. (2013). *Successful Qualitative Research A Practical Guide For Beginners*.

Burgess-Allen, J., & Owen-Smith, V. (2010). *Using Mind Mapping techniques for rapid qualitative data analysis in public participation processes*. Health Expectations, 13(4).

Buzan, T. (2006). The Mind Map Book: Unlock Your Creativity, Boost Your Memory, Change Your Life. BBC Active.

Cahyanti, A. D., Sudibyo, E., & Rahayu, Y. S. (2021). *Effectiveness of insect encyclopedia e-book with Mind Mapping strategy to train students' creative thinking skills*. IJORER: International Journal of Recent Educational Research, 2(4). DOI: https://doi.org/10.46245/ijorer.v2i4.131

Clandinin, D. J., & Caine, V. (2013). Narrative inquiry. In *Reviewing qualitative research in the social sciences* (pp. 166-179). Routledge. https://www.taylorfrancis.com/chapters/edit/10.4324/9780203813324l7/narrative-inquiry-jean-clandinin-vera-caine

Creswell, J. . and, & Creswell, J. D. (2018). *Research Design Qualitative, Quantitative, and Mixed Methods Approaches Fifth Edition*.

Creswell, J. W. (2009). *Research Design Qualitative, Quantitative, and Mixed Method Approaches*.

Crowe, M., & Sheppard, L. (2012). *Mind Mapping research methods*. 46:1493–1504. https://doi.org/10.1007/s11135-011-9463-8

Cui, R., & Teo, P. (2021). *Dialogic education for classroom teaching: A critical review. Language and education,* 35(3). https://doi.org/10.1080/09500782.2020.1837859

Halim, A. (2022). *Facilitating EFL Students in Maintaining Flow of Talks Using Mind Mapping*. *8*(1), 59–71.

Harrison, S., & Gibbons, C. (2013). *Nursing student perceptions of concept maps: From theory to practice. Nursing Education Perspectives*, 34(6), 395-399. doi: 10.5480/10-465

Hidayati, R. (2022). *English Students' Perceptions Of The Use Of Mind Mapping Technique To Improve Their Speaking Ability*. Universitas Islam Negeri Ar-Raniry Banda Aceh.

Husni, M. (2018). *Memahami konsep pemikiran mind map tony buzan (1970) dalam realitas kehidupan belajar anak.* Al-Ibrah: Jurnal Pendidikan dan Keilmuan Islam, 3(1).

Husniati, S. (2020). *Use the Mind Mapping Note Taking Method as a Creative Learning Tool*. Rumie Bytes. Retrieved from https://learn.rumie.org/jR/bytes/need-a-more-creative-way-to-study-use-the-mind-mapping-note-taking-method/

Jay, T., Willis, B., Thomas, P., Taylor, R., Burnett, C., Merchant, G., & Stevens, A. (2017). *Dialogic Teaching Independent evaluators : July*.

Kim, M. (2008). *Dialogic concept mapping in the zone of proximal development*.

Kim, M., & Wilkinson, I. A. G. (2019). Learning , Culture and Social Interaction What is dialogic teaching ? Constructing , deconstructing , and reconstructing a pedagogy of classroom talk. *Learning, Culture and Social Interaction*, *21*(July 2018), 70–86. https://doi.org/10.1016/j.lcsi.2019.02.003

Kumar, S. (2018). Quality Enrichment On Teaching Competency Through Mind Mapping Strategies. *Journal Of Innovation In Education & Psychology*, *No. 6*(2).

Luangkrajang, M. S. (2022). *Use of Mind Mapping in language learning: A cognitive approach. Theory and Practice in Language Studies,* 12(8). DOI: https://doi.org/10.17507/tpls.1208.18

Machado, C. T., & Carvalho, A. A. (2020). *Concept mapping: Benefits and challenges in higher education. The Journal of Continuing Higher Education,* 68(1). https://doi.org/10.1080/07377363.2020.1712579

Manalo, E. (2020). *Deeper Learning, Dialogic Learning, And Critical Thinking*.

Meirbekov, A. K. (2022). *Using the "mind map" method in the development of students' vocabulary in English*. Bulletin of the Karaganda university Pedagogy series, 107(3). https://doi.org/10.31489/2022ped3/122-127

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative Data Analysis* (3rd ed.).

Muhib, A., B, D. A. L., & Hartono, R. (2014). *Mind Mapping And Everybody Writes Techniques For Students With High*. *4*(2), 99–105.

Mustaji. (2015). Pemberdayaan Mahasiswa untuk Berfikir Kritis, Kreatif, dan Kolaboratif melalui Pengembangan Perangkat Pembelajaran Kolaborasi.

Kwangsan, *3*(1). https://doi.org/10.31800/jtp.kw.v3n1.p59--76

Novita, D., Kurnia, F. D., & Mustofa, A. (2020). *Collaborative Learning As The Manifestation Of Sociocultural Theory : Teachers ' Perspectives*. *9*(May).

Patton, M. Q. (2002). *Qualitative Research Evaluation Methods* (3rd ed.).

Pennebaker, J. . (2017). Mind Mapping : Using everyday language to explore social & psychological processes. *Procedia Computer Science*, *118*, 100–107. https://doi.org/10.1016/j.procs.2017.11.150

Polat, O., Sezer, T., & Akyol, N. A. (2022). Collaborative Learning with Mind Mapping in the Development of Social Skills of Children Özgül Polat Türker Sezer. *Participatory Educational Research (PER)*, *9*(January). https://doi.org/http://dx.doi.org/10.17275/per.22.25.9.1

Polkinghorne, D. E. (1995). Narrative configuration in qualitative analysis. *International Journal of Qualitative Studies in Education*, *8*(1), 5–23. https://doi.org/10.1080/0951839950080103

Redhana, I. W. R., Widiastari, K., Samsudin, A., & Irwanto. (2021). *Which Is More Effective, A Mind Map Or A Concept Map Learning Strategy? I*. *40*(2). https://doi.org/10.21831/cp.v40i2.33031

Riessman, C. K. (2008). *Narrative methods for the human sciences*. Sage Publications.

Ruiguo Cui & Peter Teo (2020): Dialogic education for classroom teaching: critical review, Language and Education, https://doi.org/10.1080/09500782.2020.1837859

Sayrs, L. (2019). *InterViews : An Introduction to Qualitative Research Interviews : An Introduction to Qualitative Research Interviewing by Steinar Kvale . Thousand Oaks , CA : Sage , 1996 . 326 pp . August 1998*. https://doi.org/10.1016/S1098-2140(99)80208-2

Şeyihoğlu, A., & Kartal, A. (2010). *The Views of the Teachers about the Mind Mapping technique in the Elementary Life Science and Social Studies lessons Based on the Constructivist Method*. *10*(3).

Sukardi, R. H., & Turhan, M. (2025). *Penggunaan Metode Mind Mapping dalam Meningkatkan Pemahaman Konsep dan Retensi Belajar Siswa*: Kajian Literatur. Didaktika: Jurnal Kependidikan, 14(1 Februari). https://jurnaldidaktika.org

Wheeldon, J., & Faubert, J. (2009). Framing Experience : Concept Maps , Mind Maps , and Data Collection in Qualitative Research. *International Journal of Qualitative Methods*, *8(3)*, 68–83.

Wijaya, K. F. (2021). *Journal of English Teaching*. *7*, 118–132.

Wong, R. M. (2021). *Collaborative Concept Mapping – Meta-Analysis And Empirical Study*. *July*.