Digital mind mapping as a pedagogical tool to support the student's business plan writing performance

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ARTICLE INFO	ABSTRACT
	The article presents a study focusing on using Digital Mind Mapping (DMM) by students to develop a business plan concept and enhance their ability to plan and organize a new business roadmap. In line with the task-based language teaching approach and Ellis's framework for designing task-based lessons, the study investigates the students' practices of creating meaning and their reflections on using DMM. The research consists of three main stages: pre-task, during-the-task, and post-task activities. Twenty-three students enrolled in a Business English course participated in the study, and qualitative data, including business plan diagrams, student-created business plans, and reflection sheets, were collected and analyzed. The findings reveal that the students reflected positively on their experience with DMM, as the task stimulated their active participation, exploration, autonomy, and engagement throughout the writing process. This study contributes to the existing literature on task-based language teaching by examining the effectiveness of Digital Mind Mapping in facilitating students' business planning and organizational skills. Additionally, it provides insights into exploring the long-term impact of utilizing DMM in various language learning contexts and investigates potential strategies for optimizing its implementation in business English courses.

How to cite (APA Style):
Amansyah, F., Nur, S., Anas, I. (2023). Digital mind mapping as a pedagogical tool to support the student's business plan writing performance. *JOALL (Journal of Applied Linguistics and Literature)*, 8(2), 433-453. **https://doi.org/10.33369/joall.v8i2.27757**

The purpose of teaching writing is to help students understand writing concepts and how to deliver essential written language skills. It is as essential

as the other language skills. However, writing involves planning, drafting, reviewing, and editing before producing the final version (Harmer, 2007, p.113). Students must go through several pedagogical processes to apply and organize a good writing sequence. This article discusses utilizing a technology-mediated task as a pedagogical approach to teaching English for specific purposes (ESP), focusing on using Digital Mind Mapping (DMM) to support students' business plan writing performance.

DMM is a technology-assisted writing tool that aims to help writers plan, organize, and generate their ideas before writing a business plan. It is a software-based mind-mapping tool that helps visualize the organization of topics. There are many types of DMM available on the internet (e.g., MindMeister, SimpleMind, FreeMind, XMind, etc.) that students can download and use on their smartphones (as a mobile-assisted technology) and computers (as a computer-assisted technology). The tools are mind-mapping applications that share similar functionalities. These tools allow users to organize and connect ideas through mind maps visually. Creating and editing mind maps becomes effortless with user-friendly interfaces and drag-and-drop capabilities. Although each tool may have distinctive features, its primary objective is facilitating efficient and effective mind mapping for individuals and groups. Compared to using the manual method, the advantages of this software are its ease of use, flexibility, and quick production capacity of mind mapping diagrams (Anas et al., 2021; Bhattacharya & Mohalik, 2020; Bukhari, 2016; Buran & Filyukov, 2015; Kadagidze, 2016).

The study of DMM in language learning is a dynamic field influenced by several current trends, including the integration of technology, task-based language learning, visual/multimodal learning, learner autonomy, MALL, and data-driven insights. In language learning, for example, DMM has been utilized to assist students in improving their speaking skills (Mirza, 2016; Paxman, 2011), and writing performance (Bukhari, 2016; Fu et al., 2019). In business English teaching, writing a business plan is one of the learning outcomes that students of business administration diploma must possess. At the end of the lesson, students are expected to demonstrate their ability to write a professional business plan. DMM aims to support them in planning, drafting, reviewing, editing, and producing a business plan roadmap. It helps them organize the structure of a business plan, including the company description, market analysis, service and product line, marketing and sales, budgeting, and financial projections (see Evans, 2016). Therefore, it is urgent to equip students with the skill of outlining a business plan concept before writing it. For instance, writing a company description is not as easy as turning our palms, but the writer must know what information to include in the company description.

The study's objective is to investigate further: 1) the typology of DMM tools in business plan script writing, 2) the quality of student-created mind mapping diagrams, and 3) students' business writing performance. The study also aims to assess the impact of explicit instruction and support on enhancing writing skills, particularly in critical thinking and creativity. Additionally, the objective is to identify areas for improvement in students' skills and determine effective strategies, such as feedback provision, peer-review circles, and automated writing evaluation tools, to enhance the quality of business writing. The study also recognizes the limitations and suggests further research to address them, aiming to gain a comprehensive understanding of students' business writing skills.

Pre-writing and Writing as Cognitive Processes
Strategies to manage the writing process is a complex integrated skill in which the writers can cope with few pitfalls during drafting (Deane et al., 2008 p.9). They pointed out that writing relies on using advanced planning strategies as a top-down method to outline and generate a concept mapping. Although writing is a complex and effortful cognitive process (Hermansson & Lindgren, 2019), the role of mobile and computer-assisted technologies in writing has been widely studied and reported in the ELT literature such as the use of computer-mediated collaborative writing in the L2 context (Li, 2018), educational technology applications on writing quality (Xu et al., 2019), writing using wikis (Li & Zhu, 2013), the use of blogs in writing (Zhang, 2009), and the use of social media as a tool for writing (Al-Jarf, 2014; Bani-Hani et al., 2014). These findings mainly advocate the effectiveness of particular technology in writing, but very few discussions on how the students plan, draft, and generate their ideas for their writing. Informed by the cognitive technologies for writing (Pea & Kurland, 1987), using DMM as a technology-assisted writing tool is expected to encourage the mental process of the writers.

DMM is mainly used as a pre-writing tool to help the students organize the topics and subtopics. Pre-writing is the initial stage of writing that covers everything to do before the students are ready to write. The quality of the student's writing is affected by the amount of time devoted to pre-writing activities (Pfotenhauer, 1982). Given the importance of pre-writing activities giving the students enough time to prepare for their writing is necessary. It gives them more "thinking time" for brainstorming relevant ideas where cognitive processing occurs. One of the pre-writing strategies is clustering, sometimes called a mind mapping strategy. The mind mapping strategy can be done manually (hand-writing) and using digital technologies such as DMM. It is faster, effective (editable), efficient (paperless), flexible, and easy to use. There have been many studies on mind mapping strategy as a pre-writing activity but little attention to using DMM as a digital pre-writing tool.

For instance, Lan et al.(2015) investigated the effect of various computer-assisted pre-writing strategies (text-based brainstorming, drawing, and mind mapping) on the student's writing performance. The findings show that the mind-mapping strategy strongly influences the writers' performance among the three pre-writing strategies. The students did not use DMM to draw their mind-mapping diagram, so it took time to complete the structure.

DMM plays a significant role in enhancing students' pre-writing process by aiding them in organizing topics and subtopics effectively. Pre-writing, the initial writing stage, encompasses tasks undertaken before students commence writing. The quality of their writing is influenced by the amount of time dedicated to pre-writing activities, which allow for brainstorming and cognitive processing. DMM is a valuable technology-assisted tool that offers advantages such as speed, editability, efficiency, flexibility, and user-friendliness. While previous research has explored pre-writing strategies like concept mapping (Davies, 2011; Kazemi & Moradi, 2019; Khoshsima et al., 2016), there is limited focus on utilizing DMM as a digital pre-writing tool. Notably, a study by Al-shaer (2014) examined concept mapping as a pre-writing strategy and highlighted the substantial impact of mind mapping on writers' argumentative compositions performance. However, it should be noted that the study did not employ DMM specifically, resulting in a longer completion time for the structure. By incorporating DMM into the pre-writing phase, students can benefit from enhanced planning and idea generation processes, ultimately improving their writing outcomes.

Digital Mind Mapping Strategies in L2 Business Writing
Mind mapping is a note-taking technique for organizing thoughts into keywords and images and condensing much information into a sheet of paper (Nast, 2006, p. 8). Today, the mind mapping technique has been packed in various digital applications called DMM. Teaching L2 business English writing falls within teaching English for specific purposes (ESP) and requires a well-worked strategy to write effective business English (Talbot, 2009; Whitmell, 2014). This section is necessary to differentiate between writing-for-learning and writing-for-writing (Harmer, 2007 p.112). Writing a business plan in a micro-reality context of business language learning is associated with writing-for-learning,which is used as an aide-memoire to assist the students in practicing the language they have learned. However, writing a business plan is a more advanced ability to produce professional business writing. It requires the writers to have a good business understanding, business communication skills, ESP competencies, and business English correspondence skills. The justification for utilizing a DMM for business plan writing is to stimulate the students' critical thinking skills to recall and brainstorm their prior business knowledge repertoire.

Although the mind mapping strategy has been confirmed as a pre-writing tool, studies on digital technology in supporting L2 business writing are still scarce. However, a recent study by Abd Karim et al. (2020) explored using a digital mind mapping tool (bubbl.us- a mobile-based application) in writing courses. They asserted that using digital mind-mapping tools urged the students' inspiration to make a positive attitude toward writing in English. Their recent publication advocates that DMM stimulates students' creativity and critical thinking skills (Abd Karim & Mustapha, 2020). Concerning writing business plans, creativity, and critical thinking skills are pivotal elements to encourage the students to explore their innovative ideas. Innovative ideas are necessary for business plan writing because the quality of a business plan depends on how detailed the information is conveyed.

Task-Based Language Teaching (TBLT) and CALL
This section discusses the integration of Digital Mind Mapping (DMM) in both Task-Based Language Teaching (TBLT) and Computer-Assisted Language Learning (CALL). TBLT involves real-world tasks that guide students in completing specific assignments, and the interaction between TBLT and CALL is crucial for exploring language learning tasks mediated by technology (Thomas & Reinders, 2010). Drawing on activity theory (Lantolf & Thorne, 2006), tasks are considered comprehensive language activities that engage learners in achieving specific objectives by integrating various language components (Samuda & Bygate, 2008). In TBLT, teachers play a vital role in designing pedagogies that mediate language development and enhance learning outcomes (Van Den Branden, 2016). As a pedagogical tool, DMM presents challenges, promotes autonomy, and encourages active student participation (Pea & Kurland, 1987). Although TBLT has received considerable research attention, limited emphasis has been placed on using DMM business writing. However, previous studies have explored technology-mediated writing tasks, such as simulation software supporting content-based writing (Reeder, 2010) and student performance using vocational English for technical documents (Roy, 2017). Writing a business plan necessitates analytical skills, and TBLT can facilitate idea generation, with DMM serving as a CALL tool that connects TBLT with CALL (Kafipour et al., 2018). The article provides a comprehensive overview of how DMM is applied in writing business plans within a CALL-integrated TBLT framework.

METHOD
Research Setting and Design
The study was conducted in a micro-reality context of ESP teaching in an Indonesian vocational higher education- polytechnic education. Students enrolled in a business English course must complete a business plan writing

task. The chapter aims to enable the students to plan, organize, and write a business plan in English as a target language. However, a task-based language teaching approach was adopted to direct the learners to achieve the goals (Ellis, 2003). The pedagogical framework comprises three stages: 1) pre-task, 2) during-task, and 3) post-task activities. The task was carefully designed to ensure the students obtained all necessary information and skills to complete (Ellis, 2003, p. 21). The authors formulate the following steps based on Ellis's task description framework

Table 1. Task Description

Features	Description
Task type	An individual task
Task duration	Two weeks
Tools required	DMM (self-selected, links to download pages were provided), desktop computer/ laptop/ tablet/or smartphone, LMS (provided by the institution), internet connection, word processing tool (Microsoft Word), and PDF viewer
Goal	Practice the ability to plan, organize, and write a business plan in an online learning context.
Input	A business plan model (pdf) links to relevant resources (video streaming sites, websites, blogs, etc.)
Condition	The information was presented in both synchronous and asynchronous ways. Firstly, the authors used Zoom to deliver an asynchronous online meeting with the students to present the business plan materials, describe the task and its properties, give a DMM tutorial, and conduct online discussions with the students. Secondly, the authors used the Moodle-based LMS to upload the learning materials, assign a task, and collect the task results from the students.
Procedures	The task was an individual work assigning the students to complete a job (see table 2)
Predicted outcome (a product)	A complete business plan proposal in English

Twenty-three business administration students (one class) were approached and selected purposively as they were enrolled in a business English course for the study. They are fourth-semester students who passed the previous semester's pre-requisite courses (general English, basic speaking, and intermediate speaking courses). The instructional purposes of the study are expecting the students to understand a series of English business skills such as product description, organizing and chairing a business meeting, writing a business plan, writing business emails, and delivering a business presentation. Although the course content materials are somewhat heavy for the students, the tasks are always negotiated with them to identify the potential pitfalls in their implementations. Regarding the student-technology competency issue and ease of access to technological devices they need for the

task, the authors have negotiated with the students to use their own devices, and they all agreed to participate.

The Task

The task was developed by the researchers and validated by two experts, involving an L2 writing specialist and a TBLT/CALL expert. The task was revised twice to address the experts' comments and suggestions. Table 2 shows a chronological procedure of task completion presented in three main stages (pre-task, during-task, and post-task activities). Each task describes the activities and details of the student's actions sequentially.

Table 2. The Task Procedures

Stages	Activities	Actions
Pre-task	1) Introduction to the task (business plan writing) 2) Preparing DMM 3) Installing DMM on the computer, laptop, or smartphone 4) Online workshop on DMM 5) The teacher creates a task on LMS	- All students attend the online synchronous meeting (link was shared) - All students select and download a DMM - All students install the DMM on their devices and make sure it works properly - All students attend the online synchronous meeting via Zoom (link was shared) - Students visit and study the task instructions on LMS
During-task	1) Generating a business idea 2) Identifying the necessary topics to be included in the business plan 3) Creating a mind map diagram of the business plan 4) Drafting and outlining the business plan 5) Writing the business plan 6) Editing the business plan draft 7) Finalizing the business plan draft	- Each student choose a business idea - Students identify the relevant topics for their business plan (links to business plan model were provided) - All students create a mind mapping diagram using the DMM - All students start to draft and outline their business plan - All students begin to write their business plan - All students edit and proof their writing (grammar, punctuation, article, etc.) - All students finish working on the task and save it to PDF format
Post-task	1) Collecting the students work 2) Analyzing the business plans created by the students 3) Giving feedback on the task 4) Student's reflections on the task	- Student submit their business plans to the lecturers via LMS - The teacher analyzes the proposed business plans (evaluation rubric) - The teacher gives feedback to students by making a reply within the LMS.

	- Students give their reflections by completing the online reflections sheet on Google from

Data Collection and Analysis

Student-created mind-mapping diagrams and business plans were collected online via LMS. The mind mapping diagrams were collected during the first-week interval, and the students-created business plans were collected at the end of the second week. Firstly, measuring the student-created mind-mapping diagrams adopted the scoring rubric of assessing mind maps proposed by Evrekli et al. (2010). It measures the development of conceptual ideas in four grading levels (level 1 to level 4) that cover five components. They are 1) the structure of the mind mapping diagrams that assess whether or not they provide a complete picture of the ideas, 2) the exploratory of ideas that shows complex thinking about the interrelationship among the ideas, themes, and framework, 3) the relationship of ideas that indicates the essential relationships of both simple and complex ideas, 4) the connection of ideas that presents comprehensive information and high level of understanding, and 5) the idea coverage that shows effective effort to connect main ideas with the themes and subthemes comprehensively.
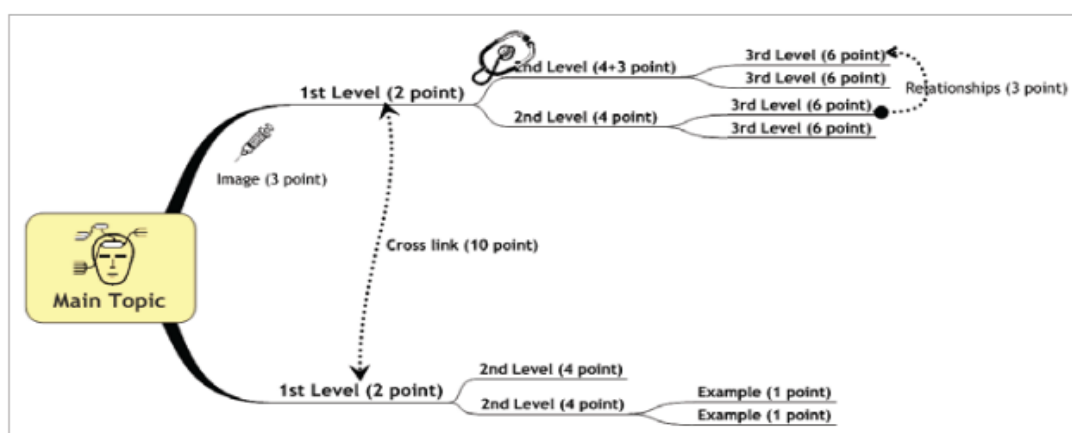

Figure 1. The mind map scoring levels (Evrekli et al., 2010)

The scoring system for concept links is designed to evaluate the validity and depth of connections between different levels of concepts. Each level of concept link is assigned a specific point value based on its validity and complexity. First-level concept links, if valid, receive 2 points each. Second-level concept links, if valid, earn 4 points each. Similarly, valid third-level concept links are awarded 6 points each, while valid fourth-level concept links receive 8 points each. Cross links, which connect concepts from different branches or categories, are worth 10 points each if valid. Examples that illustrate the concepts are given 1 point each if valid. Relationships between

concepts, if valid, are valued at 3 points. Additionally, the presence of relevant pictures, images, or figures can earn 3 points if they enhance understanding of the concepts. Finally, if any component is found invalid or lacking coherence, it is given 0 points. This scoring system allows for a comprehensive evaluation of the interconnectedness and quality of the conceptual framework.

Secondly, the collected student-created business plans were analyzed using a business plan evaluation rubric that evaluates their quality based on four grading criteria (excellent 4 points, Good 3 points, Fair 2 points, and Poor/Inadequate 1 point). The rubric includes nine grading measures, they are 1) executive summary, 2) business idea description, 3) business SWOT analysis, 4) management plan, 5) industry and market analysis, 6) marketing plan, 7) financial plan, 8) detail and 9) professionalism/ writing skills (see Table 4). Twenty-three student-created business plans were collected and analyzed using the evaluation rubric. On the other hand, students' reflections on the task were analyzed using thematic analysis to identify the themes and sub-themes that emerged in the data.

Table 3. Business Plan Evaluation Rubric

Evaluation criteria	Score	Indicators
Executive summary	4	The executive summary provides a comprehensive and concise overview of the main points, key findings, and recommendations.
	3	The executive summary covers the main points, key findings, and recommendations adequately.
	2	The executive summary includes some of the main points, key findings, and recommendations, but there may be gaps or inconsistencies in the information provided.
	1	The executive summary fails to effectively summarize the main points, key findings, and recommendations of the document.
Business idea description	4	The business idea description provides a clear, comprehensive, and well-developed explanation of the proposed business concept.
	3	The business idea description effectively communicates the main elements of the proposed business concept.
	2	The business idea description includes some of the essential elements of the proposed business concept but lacks coherence or depth.
	1	The business idea description fails to clearly articulate the proposed business concept.
Business SWOT analysis	4	The SWOT analysis demonstrates a thorough and insightful understanding of the business's internal strengths, weaknesses, external opportunities, and threats.
	3	The SWOT analysis effectively identifies and discusses the business's internal strengths, weaknesses, external opportunities, and threats.

Evaluation criteria	Score	Indicators
	2	The SWOT analysis addresses the business's internal strengths, weaknesses, external opportunities, and threats but lacks depth or specificity.
	1	The SWOT analysis fails to adequately identify and analyze the business's internal strengths, weaknesses, external opportunities, and threats.
Management plan	4	The management plan demonstrates a comprehensive understanding of key managerial aspects required to effectively run the business.
	3	The management plan effectively outlines the essential managerial elements necessary for running the business.
	2	The management plan addresses the basic elements of business management but lacks depth or specificity.
	1	The management plan fails to adequately address the essential elements of business management.
Industry and market analysis	4	The industry and market analysis demonstrates a thorough understanding of the target industry and market dynamics.
	3	The industry and market analysis provides a solid understanding of the target industry and market.
	2	The industry and market analysis provides a basic overview of the target industry and market.
	1	The industry and market analysis lacks a comprehensive understanding of the target industry and market dynamics.
Marketing plan	4	The marketing plan demonstrates a comprehensive understanding of the target market, marketing objectives, and strategies.
	3	The marketing plan demonstrates a solid understanding of the target market and marketing strategies.
	2	The marketing plan demonstrates a basic understanding of the target market and marketing strategies.
	1	The marketing plan lacks a comprehensive understanding of the target market and marketing strategies.
Financial plan	4	The financial plan demonstrates a thorough understanding of financial concepts and analysis.
	3	The financial plan demonstrates a solid understanding of financial concepts and analysis.
	2	The financial plan demonstrates a basic understanding of financial concepts and analysis.
	1	The financial plan lacks a comprehensive understanding of financial concepts and analysis.
Details	4	The details provided in the business plan are comprehensive, precise, and well-organized.
	3	The details provided in the business plan are sufficient and adequately cover the essential aspects of the business.
	2	The details provided in the business plan are limited and lack depth or specificity.

Evaluation criteria	Score	Indicators
	1	The details provided in the business plan are inadequate or absent.
Professionalism/ writing skills	4	The business plan demonstrates exceptional professionalism and strong writing skills.
	3	The business plan exhibits good professionalism and solid writing skills.
	2	The business plan shows some professionalism and basic writing skills.
	1	The business plan lacks professionalism and demonstrates weak writing skills.

FINDINGS

This section presents the findings in the following order: the student-selected DMM, the student-created mind mapping diagrams, and the evaluation of student-created business plans.

The Typology of Student-Selected DMM

Since the students were given the flexibility to choose and use mind mapping, they tended to be more exploratory with different choices. They began to search on the internet, downloaded the software, and installed it on their devices, either on their smartphones or laptops.

Table 4. Student-selected DMM

Selected DMM	Participants (N)	Web URLs
Edraw Mindmaster	2	https://www.edrawsoft.com/
XMind	6	https://www.xmind.net/
MindMeister	1	https://www.mindmeister.com/
SimpleMind	11	https://simplemind.eu/
Mindmup	3	https://www.mindmup.com/
Total	23	

Table 5 shows the student-selected DMM from five different online sources. They have other characteristics, but their function remains the same. The reasons behind the software selection were not investigated to stay focused on using the software. An online workshop was conducted in the pre-task session to equip the students with adequate skills to use the selected software. All the software service providers carry paid applications in which the users must buy subscriptions and licenses. However, the students used the trial/free version to press their expenses and avoid violating copyright issues. Otherwise, they had to spend some money to buy the license they could not afford.

The quality of student-created mind mapping diagrams

During the initial pre-writing phase, the students made diverse choices by employing various digital mind-mapping tools (DMM) and strategies to deconstruct and explore the given topic. Twenty-three mind-mapping diagrams were diligently collected and subjected to meticulous analysis utilizing the mind mapping evaluation rubric, as shown in Table 4. This evaluation sought to assess the quality and effectiveness of the mind maps created by the students. Subsequently, the assessment outcomes are now presented through visually informative charts, showcasing the students' achievements in each specific evaluated component. The primary objective of this presentation is to offer a comprehensive and lucid overview of the areas in which the students excel, as well as to identify the specific component areas that require further improvement and development. These charts serve as valuable resources for identifying the student's strengths and weaknesses, allowing for targeted interventions and focused efforts towards enhancing their overall comprehension and proficiency.

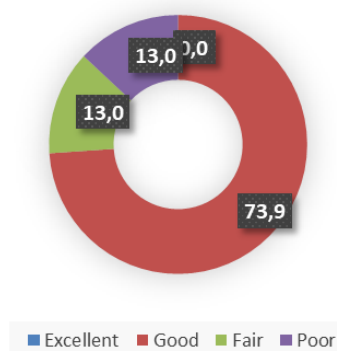The percentage of student-created mind mapping diagrams assessment results

■ Excellent ■ Good ■ Fair ■ Poor

Figure 2. The student-created mind mapping diagrams assessment results

The overall trend depicted in Figure 2 suggests that while the majority of students (73.9%) successfully created good mind mapping diagrams as part of the pre-writing concept before the business plan writing activity, there was a lack of excellent performance among the students in this area.
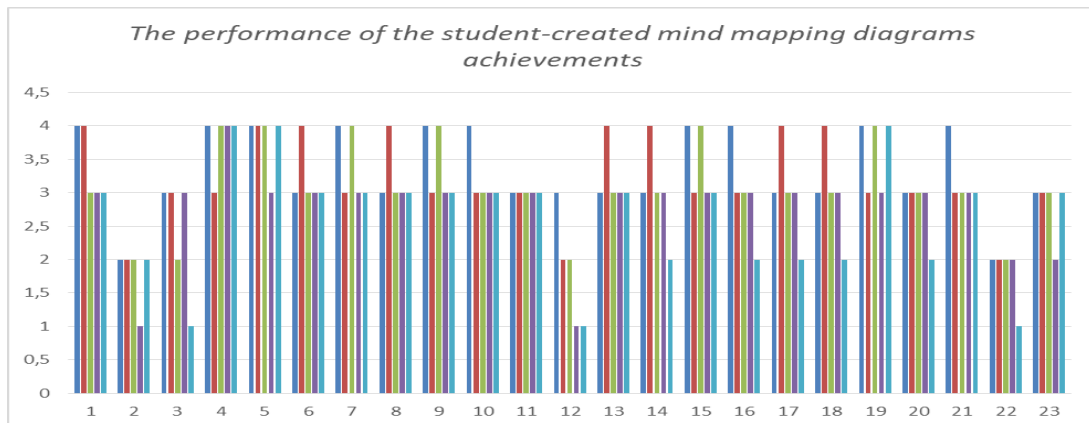
Figure 3. The performance of the student-created mind mapping diagrams achievements

Students' business writing performance

This section presents the student-created business plan evaluation results based on the evaluation as mentioned above rubric (see data analysis section). Based on the review of 23 student-created business plans, five of the nine assessment indicators (executive summary, business idea description, business SWOT analysis, marketing plan, and financial plan) show a positive trend in which students have good writing performance. On the other hand, professionalism in writing and industrial market analysis are the two criteria for weak performance. The student business-plan writing version shows positive trends, although some measures need serious attention to improve their writing quality.
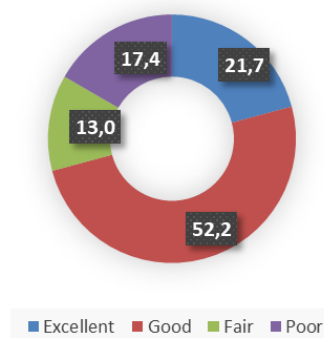

Figure 4. The percentage of student-created business plans assessment results

Figure 4 shows the student business writing performance, indicating the percentage of the overall assessment of 23 submitted documents. According to the Figure, just over half of the assessed documents indicate good business plan writing performance. However, the proportion of

excellent performance is just around a fifth, at 52.2% (12 papers) and 21.7% (5 papers), respectively. These proportions represent a large percentage of the student's writing performance accounting for three-quarters of the assessed documents. On the other hand, a small ratio of fair and poor performance is less than a fifth of the total assessed records, at 13% (3 documents) and 17.4% (4 papers). However, this small number of grades informs that there is still much to do, especially in improving student's writing skills in the assessment indicator areas where they get low scores.
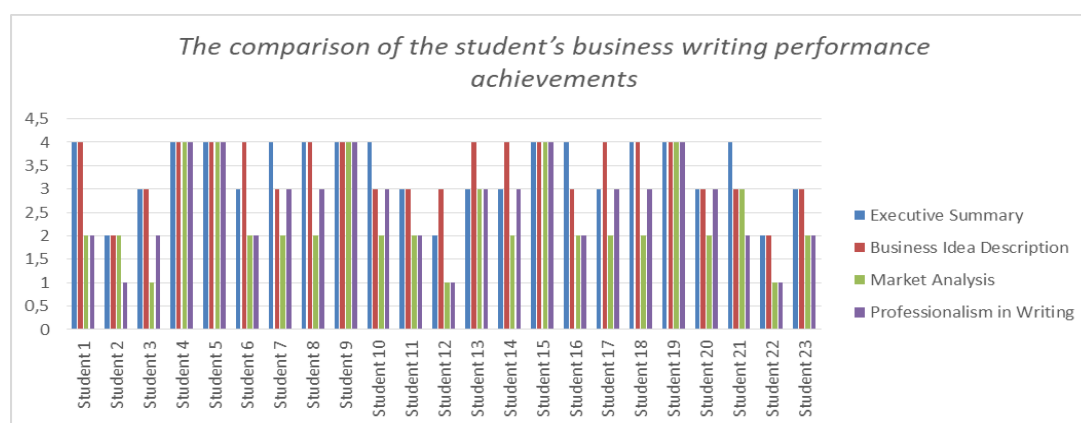

Figure 5. The comparison of the student's writing performance achievements

Figure 5 illustrates the student's business writing performance achievement between the highest and the lowest scores among the assessment indicators. It compares four assessment indicators where we can see the strengths and weaknesses of each student as seen from the results achieved from each assessment indicator. It displays the achievement of the nine grading criteria' top two (executive summary and business idea description) and the bottom two (market analysis and professionalism in writing) assessment indicators. The graph shows that students' writing performance is not evenly distributed across each indication, indicating that some students have high scores on some indicators but low scores on others. For instance, students 1, 12, and 21's achievement shows a wide gap between one hand and another. They score high for the executive summary and business idea description, while at the same time, they have weak performance on market analysis and professionalism in writing.

Interestingly, the students with excellent and poor performance show consistent results on each assessment indicator, while those with good and fair performance show fluctuating results. However, the graph also informs that the student's writing quality is influenced by their capacity to elaborate their ideas and do it comprehensively and systematically. It is evidenced by the assessment of each indicator, which requires the ability of students to

manage and develop ideas showing promising results and having a positive trend.

DISCUSSION

Writing a business plan script is a skill acquired from a comprehensive integration of knowledge and skills and is not solely influenced by one's language skills. However, writing a good business plan for content development requires several competencies (Basel, 2004), including business writing, budgeting, and language skills. The results of this study indicate that giving students the flexibility to choose their own Digital Mind Mapping (DMM) led to more exploration and engagement in developing a business plan concept writing. The use of DMM in this study aligns with the task-based language teaching approach and Ellis' framework of designing task-based lessons (Ellis, 2003, 2006), emphasising student autonomy and engagement in the learning process. In TBLT, the emphasis is on providing learners with meaningful and authentic tasks that promote language acquisition and use (González-Lloret & Ortega, 2014). In this case, the task involves using DMM to facilitate language learning and expression.

The findings, as shown in Figure 1, suggest that there are areas where students can enhance their mind-mapping skills and create more effective and comprehensive diagrams (Anas et al., 2021). For example, improving the student's ability to conduct market analysis and professionalism in writing are the two major areas that need serious attention. Market analysis requires strong analytical skills, while professionalism in business plan writing requires problem-solving, rhethorical and teamwork skills (Zhu, 2004). Overall, this finding emphasizes the significance of using DMM in the pre-writing stage and providing students with feedback and guidance to improve their mind-mapping skills. It also highlights the potential for further exploration and instruction in utilizing DMM effectively for pre-writing activities and critical thinking and creativity development (Abd Karim & Mustapha, 2020).

The finding also reveals positive trends and improvement areas in student-created business plans. The variation in performance across different assessment indicators underscores the need for targeted instruction (May et al., 2012), while the consistent performance of certain students raises intriguing questions about underlying factors influencing their outcomes. Furthermore, the importance of comprehensive idea development and systematic presentation is highlighted, emphasizing the role of explicit instruction and support in enhancing students' writing skills in business plan creation. Enhancing students' business writing skills extends beyond the tools and technology employed; it requires fostering an environment that promotes engagement in business writing activities (Lentz, 2013). Students need

assistance to improve their writing quality, such as giving feedback (Spiller, 2009), peer-review circles (Huber et al., 2020; Manning & Jobbitt, 2018; Nur et al., 2022), or using automated writing evaluation (Barrot, 2021; Dizon & Gayed, 2021). In this case, DMM contribute little to the quality of the student-created business plans. Using an evaluation rubric allows for assessing students' performance, aiding educators in identifying specific areas for improvement in business writing skills development.

Several limitations should be considered regarding the findings of the study. First, the analysis was conducted on a relatively small sample size of only 23 student-created business plans. Consequently, this limited sample may not adequately represent the diverse student abilities or provide a comprehensive understanding of overall performance in business plan writing. Second, the findings may be context-specific and applicable only to the particular educational institution or course in which the study was conducted. Therefore, caution should be exercised when generalizing the results to other settings or populations. Furthermore, assessing business plans using an evaluation rubric introduces the potential for subjectivity in the scoring process. Different evaluators may interpret and apply the rubric criteria differently, impacting the assessment result's consistency and reliability. Additionally, the effectiveness and validity of the rubric itself may have limitations. The design and criteria of the rubric might not encompass all relevant aspects of business plan writing, potentially overlooking important dimensions or elements of student performance. Finally, it is worth noting that the findings heavily rely on a single evaluation method, namely the rubric, to assess the quality of student-created business plans. While rubrics provide structured criteria for evaluation, they may not fully capture the complexity and richness of students' writing abilities or account for other crucial factors such as originality, creativity, or critical thinking skills. These limitations suggest further research to address these concerns and ensure a more comprehensive understanding of students' business writing skills.

CONCLUSION

The study highlights the importance of integrating knowledge and skills in acquiring the ability to write a business plan script. The findings support the use of Digital Mind Mapping (DMM) in facilitating business plan concept development and aligning with task-based language teaching principles. The analysis of mind mapping diagrams reveals the need to improve students' skills and emphasizes the potential for DMM to enhance critical thinking and creativity. The evaluation of student-created business plans shows positive trends in certain assessment indicators while indicating areas for improvement, highlighting the significance of explicit instruction and support in enhancing writing skills. However, students require support and guidance

to enhance the quality of their writing. This assistance can take the form of feedback provision, participation in peer-review circles, or the utilization of automated writing evaluation tools. However, in the context of this study, it is observed that the Digital Mind Mapping (DMM) employed had minimal impact on the quality of the student-created business plans. Nevertheless, adopting an evaluation rubric facilitated assessing students' performance, enabling educators to identify specific areas in which business writing skills development can be improved. Furthermore, the study's limitations, such as the small sample size, context-specific findings, assessement subjectivity, and evaluation rubric limitation, should be considered. Further research is needed to address these limitations and better understand students' business writing skills.

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