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INVESTIGATING STUDENTS' THINKING PROCESSES DURING GROUP PRESENTATIONS AT A UNIVERSITY IN RIAU

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ABSTRACT
Investigating thinking processes during classroom group presentations can help identify their needs for appropriate guidance on how to deliver a presentation. Therefore, this study investigates the students' thinking processes during the pre-presentation, presentation, and post-presentation stages in a course conducted in Bahasa Indonesia. Within this context, the participants were asked to describe their thinking processes. The research employed a qualitative descriptive design and involved ten student participants—two males and eight females. Presentations were conducted in one semester, whereas data collection of students' thinking processes taking place at the end. The instruments used included observations, closed-ended questions, and open-ended questions. The data were analyzed using thematic analysis. Triangulation of different data sources was applied to ensure data validity. The findings identified three main stages of thinking: pre-presentation, during-presentation, and post-presentation that are consistent with Flavel (1979) and Zimmerman (2000) theories. Within each stage, the students reported experiencing complex thoughts while also facing challenges related to cognition, psychological factors, and social interaction. Based on the findings, future studies are recommended to explore topics such as the effectiveness of classroom group presentation training and the development of communication skills through presentations.

KEYWORDS: Thinking process, classroom group presentation, pre-presentation, during-presentation, post-presentation.

1 INTRODUCTION

Classroom group presentations are one of the learning methods frequently used in academia, particularly in higher education (Murillo-Zamorano & Montanero, 2018; Živković, 2014; Van Ginkel, Gulikers, Biemans, & Mulder, 2015). Presentations serve not only as a means of delivering course material but also as a platform for practicing and developing individual communication skills (Živković, 2014; Jackson, 2014). For students, the ability to deliver effective presentations is an important aspect of learning, whether in English-language courses or general courses conducted in Bahasa Indonesia (Erito, Bharati, & Astuti, 2021).

Although presentations are a multi-beneficial learning method, their execution is not always welcomed enthusiastically by students. This occurs because presentations are often viewed as an unpleasant learning activity (Mardiningrum & Ramadhani, 2022).

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First, students feel nervous about presenting in front of a large audience, especially if they are unaccustomed to public speaking. Second, presentations can become monotonous and boring when presenters merely read from PowerPoint slides. Third, presenters may fail to interact with the audience. Fourth, the material may be uninteresting to the audience. Fifth, the presentation may be too lengthy. Sixth, the material may be overly complex, making it difficult for the audience to follow. In other words, poorly planned presentations tend to fail in achieving their goals, providing little benefit to either the presenter or the audience.

For a presentation to be successful, students must carefully plan its content. This planning requires serious thought, from preparing the material, designing the presentation structure, to delivering it in front of an audience (Erito, Bharati, & Astuti, 2021). Each stage involves critical and analytical thinking skills, as well as creativity in organizing and conveying information effectively (Robillo, 2022). Additionally, psychological factors such as self-confidence, public speaking anxiety, and the ability to adapt to the audience also influence the smoothness of the presentation (Grieve, Woodley, Hunt, & McKay, 2021; Tsang, 2020; Radzuan & Kaur, 2011).

Although classroom group presentations have been widely implemented for a long time in various higher education institutions, research on group presentations is far fewer compared to other teaching and learning activities, such as studies on motivation, learning outcomes, or the development of language skills like listening, speaking, reading, and writing (Tuomainen, 2022). The low interest in classroom group presentation research may stem from the assumption that presentations are merely a part of larger learning models, diverting researchers' focus away from the activity itself. For example, presentations are often embedded in content-based instruction (CBI), project-based learning (PBL), or problem-based learning (PBL). There is also a perception that a single classroom group presentation activity is unsuitable for in-depth learning because only a small portion of students—the presenters—are actively involved, while the majority of students in the audience passively listen to the presenter's lecture.

Several previous studies have examined various aspects related to classroom group presentations. For instance, (1) challenges and student perceptions of classroom group presentations (e.g., Kho & Ting, 2021; Alwi & Sidu, 2013; Gurbuz & Cabaroglu, 2021; Whai & Mei, 2015; Ho, Nguyen, Dang, & Nguyen, 2023; Mardiningrum & Ramadhani, 2022; Amelia, 2022); (2) the use of technology in classroom group presentations (e.g., Ochoa & Dominguez, 2020; Miskam & Saidalvi, 2019; Wijayanti, Widyastuti, Ristyantoro, & Pramono, 2025; Naelufah, Dalika, Hazawa, & Zulfa, 2023); (3) assessment methods for classroom group presentations (e.g., Al-Nouh, Abdul-Kareem, & Taqi, 2015; Aryadoust, 2015; Sundrarajun & Kiely, 2010; Grez, 2010; Mandasari, Rahmah, & Mukminatien, 2024); (4) the use of oral presentations to assess students' speaking skills (e.g., Brooks & Wilson, 2015; Makena & Feni, 2023; Ati & Parmawati, 2022; Nadia, 2013).

Research focusing on the thinking processes involved in presentations is much rarer. For example, a study by Erito, Bharati, & Astuti (2021) concluded that critical thinking strategies play a significant role in the success of academic presentations. They found that critical thinking skills are not only important for analyzing information to create a presentation structure that is easily understood by the audience but also for enhancing students' understanding of the topic to be presented. In other words, through critical thinking, students can systematically select and organize information to form coherent and well-structured arguments. This study supports the view that critical thinking ability is one of the main factors determining the quality of students' academic presentations.

Similarly, research themes focusing on the cognitive processes experienced by presenters are still very limited. Among them, Tuomainen (2022) investigated the thinking processes of students during classroom group presentations, where they reflected on their presentation performance regarding preparation and self-evaluation after the presentation. Although, in general, students were able to deliver presentations well and found the activity beneficial, they did not consider presentation tasks enjoyable learning activities. In other words, presentations were viewed as stressful activities that posed cognitive and psychological challenges that needed to be explored.

Research related to thinking processes in presentation preparation is also scarce. Here, researchers attempted to uncover students' thinking processes in dealing with nervousness during presentation preparation. Chou (2011) stated that public speaking anxiety can stimulate students to adopt certain strategies, such as extensive presentation practice and relaxation techniques to manage anxiety. This aligns with findings from studies by Ireland (2020) and Kho & Ting (2021), which concluded that anxiety management plays a crucial role in the effectiveness of classroom group presentations.

Another important aspect of thinking during presentations is strategies for building interaction with the audience. Research highlights the importance of students' ability to adapt to the audience. Lee & Liu (2022) revealed that audience responses significantly influence how they structure and deliver their material. A responsive audience can boost the presenter's confidence and improve communication interaction, while a passive audience can reduce students' motivation to convey their ideas (Collins, 2004).

Based on the review of previous studies, investigation about group presentation have been widely reported. However, investigating students' thinking processes during group presentation has not received much attention yet. Therefore, this research aims to bridge the gap between well-researched and underexplored areas by investigating the students' thinking processes during classroom group presentation. Hence, the research question of this article is "What thinking processes take place during pre-presentation, mid-presentation, and post presentation among students at a university in Riau?

LITERATURE REVIEW

The following explains several literature reviews related to thinking processes in classroom group presentation activities, namely (1) roles of group presentations in developing students' communication skills, (2) cognitive skills and thinking process in classroom group presentations, (3) anxiety management in classroom group presentations, (4) collaboration in presentation preparation, (5) interaction between the audience and the presenter, and (6) theoretical framework for thinking processes in classroom group presentations.

Role of Group Presentations in Developing Students' Communication Skills

Theoretically, delivering group presentations can develop students' communication skills (Tsang, 2018). For example, presentations build self-confidence. Generally, standing in front of an audience to explain material requires high self-confidence, which grows with practice. Second, presentations train speaking skills. When speaking, presenters use verbal and non-verbal communication. Verbal communication is the delivery of messages through words. When presenting, the speaker communicates effectively, constructs convincing arguments, and interacts with the audience (Temzkan, 2017). Non-verbal communication is the delivery of messages through body language, appropriate voice and intonation, and clear pronunciation (Temzkan, 2017). For example,

facial expressions, hand gestures, and eye contact are used by presenters to align with their spoken words.

Third, presentations train listening skills. After delivering the material, the audience usually asks the presenter questions about the content. Here, the presenter must understand the audience's questions to provide appropriate answers in a relatively short time. The presenter must patiently listen to the questions until they are complete, answer carefully, and remain calm when responding, even if they do not always know the answer. Typically, the presenter delivers answers in an engaging and memorable way. Fourth, presentations train the ability to adapt to different audiences. Without training, presenters may feel comfortable speaking only in front of their peers. When the audience changes, they may no longer feel at ease. Communication skills do not develop instantly. Therefore, presenters should practice repeatedly to hone their presentation skills so that during the actual presentation, they feel confident and fluent in explaining ideas in a way that is engaging for the audience (Tsang, 2018; Temzkan, 2017).

Cognitive Skills and Thinking Process in Classroom Group Presentations

Cognitive skills are mental abilities that support a person in acquiring, understanding, processing, storing, and using information. They are related to memory, concentration, problem-solving, and speed of thinking. Cognitive skills determine the thinking process. Meanwhile, thinking process is the activity of using the cognitive skills to perceive, process, and use information to achieve certain purposes (e.g., Anderson, 2010; Halpern, 2014; Woolfolk, 2016). In educational perspective, thinking processes are categorized by Bloom's Taxonomy, namely, remembering (memorizing information), understanding (understanding meaning of information), applying (use the information), analyzing (categorizing information), evaluating (giving a judgment about information), and creating (producing new information) (Krathwohl, 2002). In classroom group presentation, all kinds of thinking processes are activated (Brookhart, 2010).

In fact, cognitive skills are not static, they can improve with practice and proper habits. Learning activities like classroom group presentations exercise some of students' important cognitive skills, such as, (i) critical thinking to analyze the information to be presented, thereby it helps the students to deliver logical and convincing arguments; (ii) creative thinking to present material in an engaging and innovative way; therefore the material can both attract the audience's attention as well as to educate them (iii) practicing active recall to remember key points without relying too much on notes or scripts; (iv) problem-solving to address unexpected questions or disruptions during the presentation; (v) the ability to focus and manage distractions during the presentation (Živković, 2014; Brooks & Wilson, 2015; Erito, Bharati, & Astuti, 2021).

Anxiety Management in Classroom group presentations

Anxiety in presentations is the nervousness or fear experienced by someone when speaking in front of an audience. Several factors can cause presentation anxiety, including: lack of preparation leading to poor mastery of the material; fear of negative evaluation, causing worry about criticism or mistakes; lack of public speaking experience, making them unaccustomed to facing an audience; excessive perfectionism, leading to a desire for a flawless presentation and panic when mistakes occur; uncertainty about the situation, not knowing how the audience will react (Tuomainen, 2022; Ireland, 2020).

If students experience disruptive anxiety before a presentation, they may use one or more of the following relaxation techniques (Grieve et al., 2021). First, take deep breaths several times to calm down. Second, tell yourself that you can do the presentation. Third, visualize the presentation going well and the audience responding positively. Fourth, do light stretching and movements to help release tension.

However, if anxiety occurs while the student is delivering the presentation, previous research reports that one or more of the following strategies are used to overcome nervousness: redirect attention from nervousness to the main goal of the presentation; do not avoid the audience but look at them slowly; use dynamic gestures and intonation to channel nervous energy into more expressive communication; focus the audience's attention on supporting media like PowerPoint, images, or videos to reduce the pressure of continuous speaking (Tsang, 2020; Grieve et al., 2021). Anxiety should not be ignored but evaluated through self-reflection or feedback from peers to manage it better. Challenges can be managed consciously or subconsciously (Grieve et al., 2021).

Collaboration in Presentation Preparation

In the context of presentation preparation, collaboration allows students to share ideas, enhance understanding, and share communication skills effectively (Ortiz Navarrete & Benoit, 2022; Mardiningrum & Ramadhani, 2022). Collaboration can enrich the experience of group members, as students who understand more have the opportunity to share knowledge, while those who understand less (scaffolding) gain different perspectives and collectively build a deeper understanding of the topic to be presented (Stordeur, Nils, & Colognesi, 2022; Tuan & Neomy, 2007). Material refined through group discussion results in a much better presentation than without any discussion. For example, before presenting, students discuss within their groups to help each member understand the material to be presented. Group discussions can effectively boost members' confidence, reducing fear or nervousness. Potential issues, such as how to interact with the audience, explain the material, or answer questions, can also be addressed. If necessary, these aspects can be practiced together repeatedly so that on the day of the presentation, the group can deliver the material optimally. The most effective groups consist of members with mixed abilities (Tuan & Neomy, 2007).

Interaction Between the Audience and the Presenter

During the presentation, interaction between the presenter and the audience plays a crucial role in determining the success of the presentation (Lee & Liu, 2022; Yu & Chadman, 2009). The audience's response, attention, and engagement can influence the presenter's confidence. The influence of the audience is so significant that delivering a presentation in front of an audience is considered more challenging than writing (Joughin, 2007). Typically, presenters adjust their communication style and manage the dynamics of the presentation to make the audience feel noticed and valued, thereby keeping them interested in the material (Yu & Chadman, 2009; Temzkan, 2017). Therefore, to create two-way interaction, the presenter should look at the audience, ask for their opinions on the topic, use humor, and employ media technology to visualize the material (Usera, 2023).

The audience's characteristics can influence the presenter's language choice when delivering the material (Temzkan, 2017; Ireland, 2020). For example, for an expert audience, the presenter may use technical terms and in-depth data. However, for a general audience, the language should be simple and include easily understandable examples. If the audience is passive, the presenter should encourage interaction. If the audience is critical, the presenter should prepare strong arguments. The presenter's ability to read the audience, recognize their signals, and adjust the delivery accordingly is a crucial skill for enhancing communication effectiveness in presentations (Temzkan, 2017).

Theoretical Framework for Thinking Processes in Classroom Group Presentations

There are some relevant theoretical frameworks that are suitable to explore students' thinking processes in delivering presentation, namely, Flavel's metacognitive

theory (1979) and Zimmerman's self-regulated learning model (2000), that propose thinking processes include three stages, they are, planning/forethought, monitoring/performance and evaluating/self-reflection. In the implementation of classroom group presentations, the thinking processes include pre-presentation, during presentation, and post-presentation

According to the frameworks, (1) thinking processes at pre-presentation focus on the thinking about the planning of the presentation, such as, what will be presented, how to distribute specific materials, predicting questions), (2) meanwhile, during presentation, the thoughts focus on performance, such as, material delivery, voice control, error managements, communication with audience, (3) last, post-presentation, the thoughts focus on evaluation, such as, what went well?, what needs improvement? These frameworks are commonly used to analyze cognitive and metacognitive strategies research.

2 METHODOLOGY

This study used a qualitative descriptive design. This design is suitable with the research question that seeks to give description of the students' thinking processes in pre-presentation, during presentation and post-presentation. Ten English Education students were recruited as research participants through convenience sampling to describe their thinking processes during presentations. The participants consisted of two male and eight female students, aged between 19 and 21, in their fourth semester. In the context of this study, the participants had joined classroom group presentations in a course so-called *Administrasi dan Supervisi Pendidikan* using Bahasa Indonesia as the medium of instruction. The researcher chose this course because the researcher wanted to investigate the students' thinking processes during presentation in a native language. This course was one of compulsory courses that must be taken by the students. It discussed about education administration and management at the secondary level. Based on their experiences joining this course, they were asked to answer some questions that describe their thinking processes in the pre-presentation, during presentation, and post-presentation. The questions in the instrument were constructed by following Flavel (1979) and Zimmerman (2000) theoretical framework about thinking processes. Furthermore, the data were collected through eighteen closed-ended and open-ended questions. In the close-ended questionnaire, the participants were advised to choose more than one answer if they had more than one answer. The researcher was the lecturer in the course and she conducted observations during the presentations. The collected data were analyzed using thematic analysis, namely, emerging themes were categorized and analyzed to answer the thinking processes in the pre-presentation, during presentation, and post-presentation and furthermore discussed. Triangulation was performed to enhance data reliability by seeking consistency of data from different instruments.

3 RESULTS AND DISCUSSION

A. Results

Based on the data collected through observations, closed-ended questions, and open-ended questions, the thinking processes experienced by the participants were grouped into three stages: (1) pre-presentation, (2) during-presentation, and (3) post-presentation that follow Flavel (1979) and Zimmerman (2000). The participants were asked to tick more than one answer if they had multiple thinking processes as listed. The results are explained as follows.

1. Pre-Presentation

Observational data indicated that the participants had made some preparation before presenting their material. The groups had distributed some materials portions for every member. Data from closed-ended and open-ended questions confirmed that the participants made preparations. In the multiple-choice closed-ended questions, when asked about their preparation for the presentation, the most common responses were writing a full script (70%) and practicing repeatedly before the presentation (70%). This shows that they wanted to ensure all information was delivered well and coherently. In other words, the students felt more confident with a script, as it helped them maintain the presentation flow without deviation. Observational data and answers to other questions aligned with this, showing that almost all participants prepared the presentation flow to ensure it went smoothly and was understandable to the audience. However, during the presentation, most participants were observed reading from their scripts while explaining the material. Data from open ended questions revealed the reason from one of the participants as follows.

"…the presenter must understand the content of presentation fully and explain it clearly to the audience"

Meanwhile, the options of creating an outline and a mind map were chosen by 22% of participants. The ability to create an outline and a mind map reflects a more conceptual approach to thinking. This indicates that the majority of students applied lower-order thinking, focusing only on understanding and delivering the material. In other words, few participants applied higher-order thinking, such as seeing relationships between ideas as connections between concepts. This means that when reading and explaining the material, few participants engaged in deep analysis and synthesis of information. Data from open ended questions revealed the reason from one of the participants as follows.

"…this material is quite complex and complicated to me"

Data on the participants' presentation preparation showed that they took responsibility for the task, as they reported practicing repeatedly (70%) before the presentation, and none admitted to not preparing or preparing minimally. However, their cognitive ability to explain the material, such as through an outline or mind map, was not yet at a higher-order thinking level. Most participants chose to write a script as their presentation preparation strategy. This also indicates that, cognitively, the participants were still less trained in higher-order thinking. Applying lower-order thinking made their presentations neat but less flexible in handling difficult questions. Data from observation revealed that when asked by the audience to analyze a daily life case, they needed extended time to prepare their answers, although some managed to provide analytical responses. Data from open ended questions revealed the reason from one of the participants as follows.

"… receiving questions that are out of presentation is quite difficult"

When asked about their confidence in facing the presentation, most participants felt not very confident (7 out of 10), with only a few felt very confident (2 out of 10). This aligns with their responses to other questions, where they reported practicing repeatedly (7 out of 10) due to nervousness affecting them. This was further confirmed by their answers about cognitive, mental, psychological, and social interaction challenges before the presentation. Most participants said the cognitive challenges they faced were: (i) difficulty preparing easily understandable material, (ii) fear of forgetting key points during the presentation, and (iii) worry about not being able to answer tough audience questions. Meanwhile, the mental and psychological challenges they faced before the presentation were related to strong nervousness despite practicing. Social interaction challenges were also reported by some participants, who worried about struggling to

communicate with the audience, especially if the audience was unresponsive to the material. Data from open ended questions revealed the reason from one of the participants as follows.

"… talking in front of a crowd is difficult for me because I am shy"

Anxiety and concerns about the audience may be the main psychological and social challenges requiring special attention to help students prepare for presentations. This supports previous research stating that students need specific guidance for presentation activities.

2. During Presentation

During presentation, the groups member showed good cooperation. They took turn sharing roles to ensure the classroom group presentation went well. In order to know their thinking processes during presentation, they were asked to describe their thinking processes before and during presentation. Based on closed-ended question responses, they were asked about their main focus before the presentation. The participants answered that their main focus prior presentation were on following aspects: (i) thinking about how to explain the main points of the material (70%), (ii) thinking about presentation details to ensure perfection (50%), (iii) ensuring the audience understood the material (40%), and (iv) overcoming nervousness (30%), (v) getting some ready-to-use material (20%). The top three responses show that most participants aimed to deliver the material well and ensure audience comprehension. Half of them recognized that presentations are not just about material preparation but also about how the material impacts the audience effectively. This awareness is important because it drives participants to prepare the necessary material and strategies. However, the data also show that before presenting, some participants 30% (3 out of 10) felt nervousness as their dominant thought. They thought the topic was not easy to explain. Data from open ended questions revealed one of the participants' insights in the following.

"… the topic concerns with theories, rules, and management concepts that confused us if we do not fully comprehend it."

However, when the participants were asked about their main focuses during the presentation, they reported: (i) remembering details of the material to explain (80%), followed by (ii) controlling negative thoughts/nervousness (50%), (iii) ensuring audience understanding (40%), (iv) making sure the presentation media, voice, and intonation were clear to all attendees (20%), and (v) wanting to finish the presentation quickly (20%). Observational data showed that most students tried to deliver the material well, although their delivery was very textual, with only a few successfully connecting it to everyday experiences. This suggests that half of the participants felt their plans aligned with implementation, such as remembering material details and ensuring audience understanding, while the other half were overwhelmed by unexpected nervousness 50 % (5 out of 10). This may have affected their performance, causing the presentation to deviate from the plan. Data from before and after the presentation imply that some participants were aware of their strategies, while others merely aimed to complete the task without considering material and delivery effectiveness.

The data aligned with closed-ended question responses about whether their plans to adapt to the audience's characteristics were achieved. Initially, 60 % (6 out of 10) participants prepared to tailor the presentation to the audience, but during the presentation, only a half (3 out of 10) felt they succeeded. Perhaps the psychological and cognitive pressures during the presentation were hard to manage. This suggests that participants need training in delivering effective presentations. Data from open ended questions revealed one of the participants' insights in the following.

"… (the biggest challenge for me was) feeling nervous"

Regarding nervousness, most participants reported using the following strategies to overcome anxiety: focusing on the material (70%), taking deep breaths (50%), positive self-talk (40%), looking at the audience to reduce nervousness (40%), avoiding eye contact with the audience (30%), and pretending to be busy (10%). This shows that most participants (9 out of 10) had their own ways to manage nervousness, though not all succeeded in eliminating the pressure. This aligns with responses to another closed-ended question, where only half of the participants (5 out of 10) felt enthusiastic when being the center of attention, while the other half felt indifferent (5 out of 10). During the presentation, almost all participants (9 out of 10) reported frequently forgetting key points and resorted to checking their notes or trying to recall memorized content. Observational data showed that most participants delivered their presentations relatively acceptable. However, behind their performance, they faced significant psychological challenges, leading them to perceive classroom group presentations as difficult.

3. Post-Presentation

When asked about their feelings after the presentation, most participants 70% (7 out of 10) were satisfied with their performance, while some felt neutral 20% (2 out of 10) or dissatisfied 10% (1 out of 10). Although satisfaction levels varied, all participants reported conducting post-presentation evaluations. The aspects evaluated included: (i) reflecting on the alignment between plans and actual execution (50%), observing audience responses (40%), and seeking feedback from peers (40%). This shows that participants were aware of the need for evaluation to improve their presentation skills, but fewer than half actively sought external feedback (40%), which could have provided insights they might have missed through self-reflection. Data from open ended questions revealed one of the participants' insights in the following.

" … (to get better) keep practicing"

Based on post-presentation evaluations and reflections, most participants identified the following areas for improvement in future presentations: (i) mastering the material fully, (ii) improving public speaking skills, and (iii) managing nervousness. This suggests that the participants had thinking and reflective skills, as they could identify their cognitive processes and recognize weaknesses to address. For example, during the presentation, they relied on lower-order thinking like memorization, but this alone was insufficient, as deeper material understanding was needed. Higher-order thinking, such as analyzing, evaluating, and creating, would enable them to deliver material more clearly and answer audience questions accurately, thereby enhancing public speaking skills and social interaction with the audience. Data from open ended questions revealed one of the participants' insights in the following.

> "… to improve the quality of presentation, (students must) practice more and more before performing, use interesting media, engaged with the audience, find simpler explanation"

B. Discussion

Based on the findings, it seems that the students' thinking processes in classroom group presentation were in line with Flavel (1979) and Zimmerman (2000) theories that in attempts to succeed in the task, all of the students spent some time in three stages, they are, preparation, performance, and evaluation even though different individuals went through different thinking processes.

From the findings of preparation stage and during presentation most of the participants in the research utilized lower order thinking skills that were related with remembering and understanding, even though a small percentage use higher order

thinking skill, such as, applying and analyzing. However, in the post-presentation, most of them evaluated their performance (higher order thinking skill). This supports previous research by Erito, Bharati, & Astuti (2021); Tuomainen (2022); Grieve et al. (2021); and Živković (2014).

Regarding psychological challenges, all participants admitted feeling nervous during presentations, though their coping strategies varied among individuals. This resulted in forgetting some of the delivery plans that had been prepared. The findings support previous literature that some level of stress may fail students' plans (Grieve et al., 2021). To overcome students' stress, setting realistic goals can reduce the performance pressure (Grieve, 2020).

The findings in the pre-presentation, during presentation, and post presentation suggest that while most participants revealed that they could deliver presentations well, however, it indicates that the student needed instructor guidance for preparation, delivery, and evaluation to improve self-regulation learning. Recommended focus areas include: (1) reducing script reliance by teaching outline and mind map creation for deeper material understanding; (2) training flexible speaking skills, such as elaborating key points and adapting to audience characteristics; and (3) enhancing audience interaction through questions, humor, or storytelling (Murillo-Zamorano & Montanero, 2018; Živković, 2014; Van Ginkel et al., 2015; Erito et al., 2021; Ortiz Navarrete & Benoit, 2022; Mardiningrum & Ramadhani, 2022).

The post-presentation reflections offered compelling evidence of developing metacognitive awareness, though with notable limitations. While 70% of participants engaged in some form of self-evaluation, only 40% actively sought external feedback - a pattern that Flavell might attribute to incomplete metacognitive experiences. Zimmerman would likely characterize this as an opportunity for more sophisticated self-reflection, where students could compare their self-assessments against external benchmarks to improve future performance.

4 CONCLUSION

This study illuminates the complex cognitive and metacognitive processes underlying student presentations. The study identified three thinking stages in classroom group presentations: Pre-presentation, participants focused on material preparation, audience adaptation, and managing nervousness. During the presentation, half struggled with unexpected nervousness, affecting their delivery. Post-presentation, only half were satisfied, recognizing areas for improvement. From a practical perspective, the overall results suggest that presentation training should move beyond content organization and delivery techniques to explicitly address the metacognitive and self-regulatory dimensions of the task particularly at pre-presentation and during presentation stages. More students may be encouraged to use higher order thinking skills.

As a qualitative study with a small sample, the interpretations should be limited. The findings cannot be generalized to other populations. However, they provide insights into students' thinking processes during classroom group presentations, even though cannot establish causal relationship. Future research could explore mixed-methods longitudinal designs to track how specific interventions affect students' presentation-related cognition over time.

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