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A REVIEW OF THE EFFECTIVENESS OF GUIDED NOTES: CAN IT SUPPORT STUDENTS' NOTE TAKING IN MATHEMATICS LECTURE?

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ABSTRACT

Guided notes are essentially teacher-prepared handouts that help students take more effective notes during a lesson or lecture. Guided notes can be used in a variety of subjects and for students of all ages. They are particularly helpful for students who struggle with notetaking or have learning disabilities. Guided notes, which include pre-prepared handouts with essential concepts and partially finished examples, are expected to boost student engagement and comprehension when compared to typical note-taking approaches. The study examines the benefits and effects of guided notes on students' strategies for taking notes in class, their ability to recognise and document key information, and their subsequent exam performance. Additionally, this study assesses the value of guided notes as a teaching tool in college-level mathematics courses and offers suggestions for how to use them to enhance student learning.

Keywords: guided notes, handout, approaches, pedagogy, behaviour

Introduction

Students frequently find mathematics lectures to be quite difficult. Effective note-taking might be challenging for students due to the fast-paced environment, abstract ideas, and intricate problem-solving procedures. Conventional note-taking techniques, which require students to write down every word the lecturer says, can be very inefficient and frequently result in verbatim copying without careful consideration of the material. This may make it more difficult to understand and remember important mathematical ideas. Achievement in learning is influenced by the teacher's mastery and skills in explaining the lesson so that students do not feel bored, which has been very monotonous in teaching teachers, which can cause students to be lazy to learn, especially in mathematics. According to Fields (2021), teachers provide guided notes to help students master course topics. Guided notes are valuable for students because they assist students organise their learning activities and increase their understanding of teacher-presented content in mathematics classrooms. Mathematics teachers create guided notes for brief lectures, longer units of work, grading periods, and semester-long courses. Guided notes, whether lengthy or short, help students master mathematics at all levels.

The learning method is a manner for students to carry out learning activities, such as how they prepare to study, take lessons, conduct self-study activities, develop learning patterns, and take tests. The quality of the learning process determines the quality of the learning outputs. An excellent method of learning will result in less success or failure to learn (Agus, 2009). One potential remedy for these issues is the use of guided notes, which are pre-made handouts that contain important details and partially finished examples.

Students often become preoccupied with replicating everything accurately rather than paying attention to the lecturer's comments (Freitag, 2020). This can pose major issues with their capacity to make sense of the content delivered during a lecture because the instructor's explanations frequently contain information necessary for students' ability to comprehend the subject, such as informal representations of a concept or ideas in a proof (Fukawa-Connelly et al., 2017; Lew et al., 2016). The challenge worsens if the instructor moves quickly through the material, as is common with traditional mathematics lecturers at universities (Harris & Pampaka, 2016). Furthermore, the research shows that students frequently do not record the lecturer's oral explanations of definitions, theorems, and proofs (Fukawa-Connelly et al., 2017). As a result, depending on their lecture notes, they may struggle to understand the subject later at home.

Using guided notes could be one way to deal with these issues. According to Austin et al. (2004), these are preprinted lecture notes that have blanks in specific areas that students must fill in as the presentation goes on. This is a relatively new approach to teaching university mathematics, according to Iannone and Miller (2019). The study examined students' perceptions regarding guided notes and how they affect their note-taking habits. In the study, some students said that guided notes improved their ability to follow the lecturer's instructions.

Literature Review

The theoretical basis for guided notes' efficiency is cognitive load theory. Traditional note-taking can put a strain on students cognitive abilities as they attempt to listen, comprehend, and write at the same time. According to Konrad et al. (2011), guided notes reduce cognitive load by giving a pre-organized structure and crucial information, allowing students' cognitive resources to focus on grasping the concepts and actively engaging with the subject. Guided notes promote active participation by offering a framework for taking notes. Students are more likely to pay attention, ask questions, and participate in discussions when they are actively filling in the blanks and providing examples.

Several research have investigated the effect of guided notes on student understanding and academic achievement in mathematics. Some students recorded the non-written comments as well as some of their own links between sections of the lecture, but when taught using the traditional chalk-and-talk method, students do not recognise the value of lecturers' unwritten comments and only write

what is written on the board in their notes (Iannone & Miller, 2019). These studies have generally shown good results, with students utilising guided notes displaying better knowledge of mathematical concepts and greater test scores than students using traditional note-taking methods. The structured format of guided notes assists students in identifying and organising significant information, allowing for the development of a more coherent comprehension of the content.

However, the literature identifies some potential limits of guided notes. Some studies have revealed that students may become overly reliant on guided notes, impeding the development of independent note-taking skills. Furthermore, the usefulness of guided notes is dependent on the quality of the notes and how they are applied in the classroom. If the guided notes are poorly prepared or not matched with the lecture subject, they may be ineffective.

Benefits of Guided Notes

Guided notes are a set of notes that provide students a diagram of the class's main themes and subtopics. Students that use guided notes write down the delicate aspects that they need to know for each subject and keep these notes in their interactive notebooks (Austin et al., 2002; Gregory, 2009). According to Smith and Clason (2017), teachers use guided notes to help students acquire knowledge, concepts, and abilities throughout the curriculum. As information is presented in lectures, presentations, or reading assignments, the student fills in the blanks to complete the guided notes, efficiently identifying the most important details (Hanlon, 2012).

Using guided notes in mathematics lectures allows lecturers and students to focus on specific topics without having to write everything down. This can save time and allow students to focus on the lecturer instead than writing, which is crucial for understanding the topic. Recent qualitative research with limited sample sizes have corroborated this hypothesis for university mathematics lectures (Cardetti et al., 2010; Iannone & Miller, 2019). Students who take accurate notes and study them later have higher test scores than those who only listen to lectures and read the text. Inaccurate or incomplete lecture notes are of limited value for subsequent study. Guided notes help students maintain the information they need to solve problems or master advanced math concepts and skills (Heward,2019). He also found that guided notes improve math mastery for both students with and without note-taking skills. They should be widely employed in mathematics classrooms to boost student engagement with course content. To complete their guided notes, students must actively respond to lecture topic through listening, looking, thinking, and writing. In the study by Krapf and Pfefferkorn (Citation2022), for example, 42.1% of the 209 participants said that guided notes helped them sustain their attention, 27.8% said that they allowed them to think and write at the same time, and 20.6% said they helped them memorise the subject. However, a few students also complained that they cannot follow the professor even if guided notes were provided due to a rapid presentation speed.

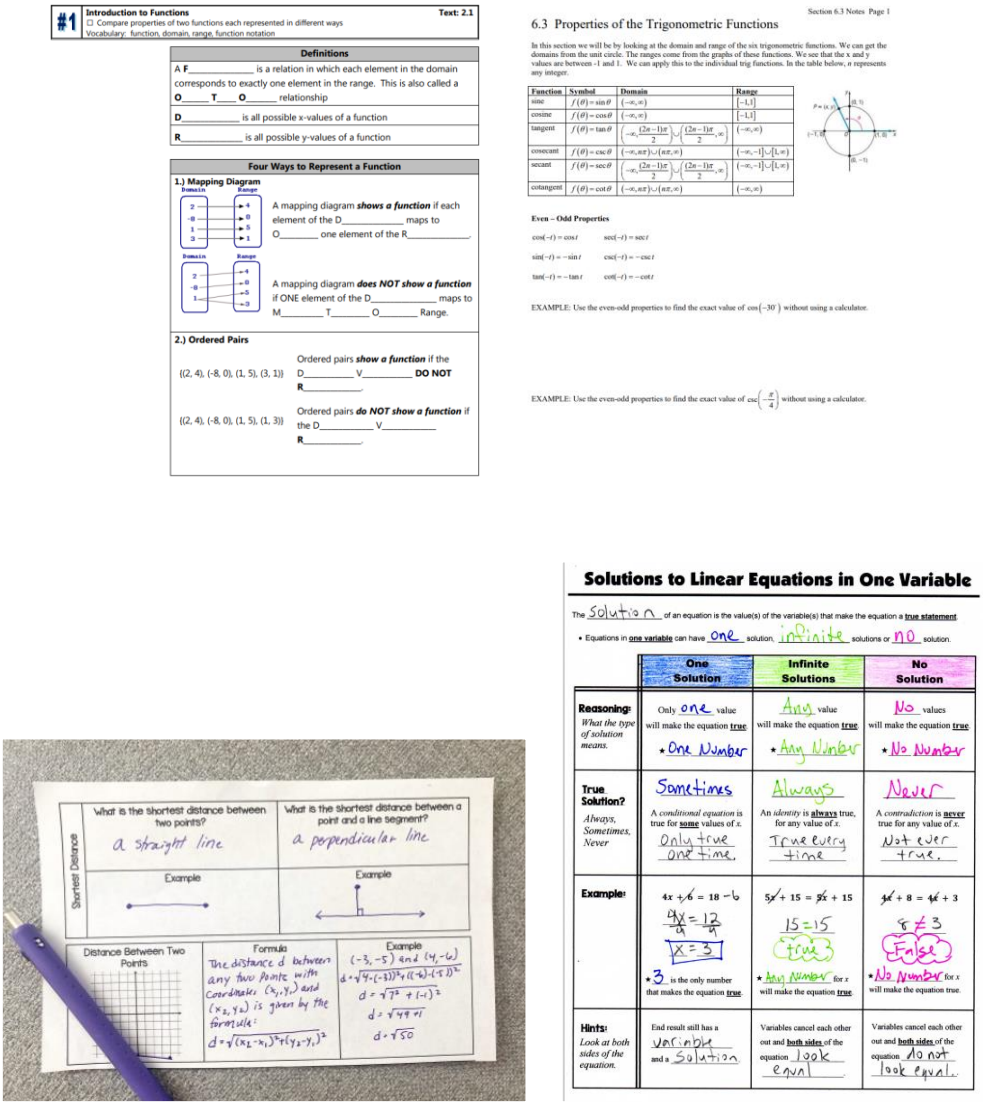

Figure 1: Examples of guided notes in mathematics

Conclusion

The use of guided notes in mathematics is seen to improve students' learning performance and thus increase the achievement of learners in mathematics. With these guided notes, students will no longer miss a topic if they do not attend class and miss important notes during the note-taking process. Some studies have revealed that students may become overly reliant on guided notes, impeding the development of independent note-taking skills. Furthermore, the usefulness of guided notes is dependent on the quality of the notes and how they are applied in the classroom. If the guided notes are poorly prepared or not matched with the lecture subject, they may be ineffective. However, the literature identifies some potential limits of guided notes.

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