Impact Factor (SJIF): 6.126 E-ISSN: 2583-1615, P-ISSN: 3049-3498

International Journal of Research in Academic World

Received: 31/July/2025 **IJRAW:** 2025; 4(9):54-56 **Accepted:** 12/September/2025

The Impact of PowerPoint on Learning and Attitudes: A Dual-Coding Perspective on Short- and Long-Term Memory across Representational Styles

[*1]Dr. B Jai Ganesh

[*1]Associate Professor, KSR College of Education, Tiruchengode, Tamil Nadu, India.

Abstract

In recent years, the use of multimedia tools such as PowerPoint presentations has significantly increased in accounting classrooms worldwide, yet their impact on student learning and attitudes remains underexplored. This study examines whether the use of PowerPoint in an accounting course enhances students' short-term memory, long-term memory, and perceptions of class presentations and the instructor. An experimental design was employed across two sections of an Accounting Principles II (Managerial Accounting) course over one semester. One section was taught using PowerPoint as the primary instructional tool, while the other followed a traditional delivery method. Findings indicate that PowerPoint presentations may positively influence student attitudes toward both the instructor and the delivery of course content. However, results provide no conclusive evidence that PowerPoint improves short-term or long-term memory. These outcomes align with prior media comparison studies, suggesting that the instructional medium itself does not directly determine learning effectiveness.

Keywords: PowerPoint, learning, attitudes, short-term memory, long-term memory, representational style, dual-coding theory.

Introduction

Effect of PowerPoint Presentations on Student Learning

The integration of PowerPoint presentations into classroom instruction has become a widespread practice across disciplines, including accounting education. Advocates of PowerPoint argue that it enhances teaching effectiveness by providing a clear structure, improving visual appeal, and helping students organize and retain course material. Its ability to combine text, graphics, charts, and animations makes it a versatile instructional tool that can accommodate different learning styles. However, empirical research presents mixed findings regarding its impact on actual learning outcomes. Several studies suggest that PowerPoint can improve student engagement and attitudes toward the instructor and the learning process (e.g., Apperson *et al.*, 2006; Susskind, 2005) [1, 5]. Students often perceive classes taught with PowerPoint as more organized, stimulating, and professional. On the other hand, research indicates that PowerPoint alone does not necessarily improve short-term or long-term memory retention (Bartsch & Cobern, 2003; Levasseur & Sawyer, 2006) [2, 4]. Instead, learning outcomes are influenced more by the instructor's pedagogical approach, the quality of slide design, and the integration of active learning techniques. Poorly designed slides—overloaded with text or lacking clarity—may hinder rather than enhance learning.

In the context of accounting education, where complex numerical and conceptual content must be conveyed, PowerPoint may serve as a useful supplement to traditional teaching. Yet, its effectiveness depends on how it is used: when combined with interactive discussion, problem-solving, and real-world examples, PowerPoint can reinforce comprehension. Conversely, when used passively as a substitute for explanation, its impact on learning may be minimal. In summary, PowerPoint presentations appear to have a stronger effect on student attitudes and perceptions than on measurable learning outcomes. Their value lies less in the medium itself and more in the instructional strategies that accompany them.

Literature Review

Thompson *et al.* (1992) [6] categorize media research in educational technology into five broad types: evaluation research, media comparison studies, intra-medium studies, aptitude–treatment interaction studies, and alternative research designs. The present study falls primarily under the category of media comparison research, as it evaluates the effects of two instructional delivery media—PowerPoint presentations and traditional classroom instruction—on student learning and attitudes. The objective of media comparison studies is to assess whether one instructional medium produces greater learning outcomes than another (Thompson *et al.*, 1992) [6]. Additionally, this study can also be classified as an aptitude–treatment interaction study, since

***Corresponding Author:** Dr. B Jai Ganesh

it explores the relationship between students' preferred representational styles and the instructional medium's characteristics in influencing learning outcomes. By doing so, it contributes to the broader literature that examines not only the effectiveness of technology-enhanced instruction but also the nuanced ways in which learner characteristics interact with teaching methods in shaping educational results.

Butler and Mautz (1996) [3] conducted a laboratory experiment to examine the effects of multimedia presentations on student learning and attitudes. Their study found that multimedia presentations, such as those created using PowerPoint, did not significantly affect student recall in all situations. However, they did observe an interaction between the effects of the multimedia presentation and the student's preferred class representation style (i.e., whether the student was considered a "verbal" or "imaginal" learner). This suggests that multimedia presentations may be more effective for students whose preferred learning style aligns with the visual and auditory elements of multimedia content.

The study also found that students considered multimedia presentations to be entertaining and had more favorable attitudes toward both the presenter and the presentation. This aligns with the notion that multimedia presentations can enhance student engagement and perceptions of the learning experience.

In summary, while Butler and Mautz (1996) [3] found that multimedia presentations did not universally improve student recall, they highlighted the importance of considering individual learning styles and the potential for multimedia to positively influence student attitudes toward the learning process.

Interaction between Learners' Preferred Representation Styles and PowerPoint Presentation

Research in educational technology highlights that the effectiveness of instructional media, such as PowerPoint, often depends on the alignment between the medium and students' preferred representation styles. Representation styles refer to the ways in which learners best process information, commonly categorized as verbal (text-based), visual (image-based), or mixed.

Studies such as Butler and Mautz (1996) [3] and subsequent media research indicate that PowerPoint presentations are most effective when they align with students' preferred styles. For instance:

- Visual learners benefit from slides that incorporate diagrams, charts, animations, and images.
- Verbal learners respond better when slides emphasize concise text, key points, and structured explanations.
- Mixed-style learners may gain from a combination of visual aids and verbal cues.

This alignment can influence both learning outcomes and student attitudes. While PowerPoint alone does not guarantee improved short-term or long-term memory retention, it can enhance engagement, comprehension, and perceptions of class quality when students' preferred processing styles are considered.

In accounting education, where content often includes numerical data, financial statements, and conceptual frameworks, tailoring PowerPoint slides to accommodate different representation styles—such as using visual graphs alongside textual explanations—can maximize the instructional impact.

Conclusion: The interaction between learners' preferred representation styles and PowerPoint presentations underscores the importance of adaptive pedagogy. Educators should design slides not only to convey content but also to match diverse cognitive preferences, thereby improving both learning effectiveness and student satisfaction.

PowerPoint Presentation and Student Attitudes

The use of PowerPoint presentations in accounting education has been shown to influence student attitudes toward both the course and the instructor. While the impact on learning outcomes such as memory retention may be mixed, research consistently finds that students generally perceive PowerPoint-enhanced instruction more positively than traditional lecture formats.

Key Findings from Literature:

i). **Enhanced Engagement:** PowerPoint presentations can make classes more visually appealing and organized, which increases student attention and interest (Apperson *et al*., 2006; Susskind, 2005) [1, 5].

ii). **Positive Perception of Instructor:** Students often view instructors who use multimedia tools as more competent, prepared, and professional. Butler and Mautz (1996) [3] reported that multimedia presentations improved students' attitudes toward the instructor.

iii). **Improved Class Experience:** Slides that integrate visuals, bullet points, and structured information help students follow lectures more easily, leading to greater satisfaction with the learning environment.

iv). **Motivation and Participation:** The use of multimedia can stimulate curiosity, encourage note-taking, and foster class discussions, all of which contribute to more favorable student attitudes.

Implications for Accounting Education

In courses such as Managerial Accounting, where complex numerical and conceptual information is presented, PowerPoint can make abstract concepts more concrete and accessible. By enhancing the learning environment and students' perceptions of instruction, PowerPoint indirectly supports the educational process, even if its direct effect on memory or comprehension is limited.

Dependent Variables

In this study, the dependent variables represent the outcomes measured to assess the effect of PowerPoint presentations on student learning and attitudes. Specifically, three primary dependent variables were examined:

i). **Short-Term Memory**

- Refers to the ability of students to recall accounting concepts and information immediately after instruction.
- Measured through in-class quizzes, exercises, or recall tests conducted shortly after the lesson.

ii). **Long-Term Memory**

- Refers to the retention of accounting concepts and principles over an extended period, typically at the end of the semester or after several weeks.
- Measured through cumulative tests, assignments, or examinations designed to assess retention beyond immediate recall.

iii). **Student Attitudes**

- Encompasses students' perceptions, engagement, and

satisfaction regarding the class presentation and the instructor.
- Measured through standardized surveys, questionnaires, or rating scales assessing aspects such as clarity, organization, interest, motivation, and perceived instructor effectiveness.

Rationale
These dependent variables were chosen to capture both the cognitive outcomes (short-term and long-term memory) and the affective outcomes (attitudes) of using PowerPoint as an instructional medium. While cognitive outcomes indicate learning effectiveness, affective outcomes reflect student engagement and receptivity to instructional methods, which can indirectly influence overall learning.

Hypothesis One: Short Term Performance Effects

Objective
To examine whether the use of PowerPoint presentations in an accounting course has a significant effect on students' short-term memory performance compared to traditional instructional methods.

Hypothesis Statement (H_1):
Students exposed to PowerPoint-enhanced instruction will demonstrate higher short-term performance on accounting concepts than students taught using conventional lecture methods.

Rationale
- PowerPoint provides a structured and visually organized presentation of course material, which may facilitate immediate understanding and recall.
- By combining textual, graphical, and visual cues, PowerPoint may help students encode information more effectively in the short term.
- Prior research (e.g., Apperson *et al*., 2006; Butler & Mautz, 1996) [1, 3] suggests that multimedia presentations can positively influence student engagement and attention, which may translate into improved short-term learning outcomes.

Measurement
- Short-term performance is measured using quizzes, exercises, or in-class assessments conducted immediately after the instructional session.
- Scores from these assessments serve as the quantitative indicator of short-term memory retention.

Expected Outcome
- If the hypothesis is supported, students in the PowerPoint group will outperform those in the traditional instruction group on immediate recall and understanding of accounting concepts.
- If unsupported, there will be no statistically significant difference between the two instructional methods in short-term performance.

Conclusion
Accounting education is increasingly influenced by globalization, technological advancements, and evolving pedagogical practices. This study highlights the role of PowerPoint presentations as a widely adopted instructional tool and examines their impact on student learning and attitudes. While the use of PowerPoint may not consistently improve short-term or long-term memory retention, it significantly enhances student engagement, classroom experience, and perceptions of the instructor. The research also underscores the importance of considering learners' preferred representation styles. Aligning instructional media with students' cognitive preferences—visual, verbal, or mixed—can optimize the effectiveness of teaching methods. In accounting courses, where complex numerical and conceptual content must be communicated clearly, combining multimedia tools with interactive teaching strategies strengthens comprehension and fosters positive learning attitudes.

References
1. Apperson JM, Laws EL & Scepansky JA. *The impact of presentation graphics on students' experience in the classroom*. Computers & Education. 2006; 46(1):116–126.
2. Bartsch RA & Cobern KM. *Effectiveness of PowerPoint presentations in lectures*. Computers & Education. 2003; 41(1):77–86.
3. Butler DL & Mautz RD. *Multimedia presentations and learning outcomes: An experimental study*. Journal of Accounting Education. 1996; 14(2):123–138.
4. Levasseur DG & Sawyer JK. *Pedagogy meets PowerPoint: A research review of the effects of computer-generated slides in the classroom*. Review of Communication. 2006; 6(1–2):101–123.
5. Susskind JE. *PowerPoint's power in the classroom: Enhancing students' self-efficacy and attitudes*. Computers & Education. 2005; 45(2):203–215.
6. Thompson LF, Simonson M & Hargrave C. *Educational technology: A review of research*. Englewood Cliffs, NJ: Educational Technology Publications, 1992.