



# Unlocking the Potential: Evaluating the Impact of Padlet in Online-Based Learning

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## ABSTRACT

Online education has become an integral part of modern education, with the rapid advancement of technology shaping the way students access and engage with learning content. In this evolving landscape, digital tools play a pivotal role in enhancing the online learning experience. This re-search investigates the effectiveness of the Padlet application in online-based learning, aiming to shed light on its impact on student engagement, collaboration, and learning outcomes. The study employs a mixed-methods approach, combining quantitative analysis of pre- and post-assessment scores and survey data with qualitative insights from interviews, focus group discussions, and content analysis of Padlet boards. Participants include students, educators, and administrators from diverse online-based learning environments. The quantitative analysis re-veals a statistically significant improvement in learning outcomes among students who utilized Padlet, indicating its positive influence on academic achievement. Survey data and qualitative analysis underscore Padlet's role in facilitating interactive and collaborative learning experiences, fostering critical thinking, creativity, and peer-to-peer knowledge sharing. This study provides valuable insights into the potential of Padlet as a versatile tool that can significantly enrich online-based learning experiences. The adaptability and user-friendliness of Padlet make it a valuable resource for educators and students alike.

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## 1. INTRODUCTION

The landscape of education has undergone a significant transformation in recent years, with a growing reliance on online-based learning platforms to deliver educational content to students of all ages (Chiemeke & Imafidor, 2020). This shift, driven by technological advancements and the global expansion of the internet, has been further accelerated by the challenges posed by events like the COVID-19 pandemic, which forced educational institutions to adapt rapidly to remote and online learning environments. As a result, educators and institutions have turned to various digital tools

and platforms to engage students, facilitate collaboration, and enhance the overall learning experience (Chiemeké & Imafidor, 2020).

One such tool that has gained attention in the realm of online education is Padlet (Algraini, 2014). Padlet is a versatile, web-based application that offers a digital canvas for collaborative work, content sharing, and interactive discussions. It provides users with a platform to create and customize virtual bulletin boards, where they can post text, images, videos, links, and other multimedia content. With its user-friendly interface and flexibility, Padlet has garnered interest as a potential solution to address the unique challenges of online-based learning, including student engagement, interactivity, and information sharing (Mohamad, 2022).

However, as online education continues to evolve, the effectiveness of tools like Padlet in enhancing the learning experience warrants a thorough examination. While anecdotal evidence and individual success stories abound, there is a pressing need for empirical research to assess how Padlet contributes to online-based learning environments and whether its integration yields tangible benefits for students and educators.

The existing literature on online learning tools and technology-mediated education has offered valuable insights into various aspects of digital education (Bower, 2019). Still, there is a noticeable gap when it comes to comprehensive investigations into the specific impact of Padlet on student engagement, collaboration, and learning outcomes within the context of online school learning. This research aims to bridge this gap by systematically exploring the effectiveness of Padlet in the online education domain.

The importance of researching the effectiveness of using the Padlet application in online-based learning or online school learning for students is rooted in the profound transformation of the education landscape driven by the growth of online-based learning (Faustmann et al., 2020). Over the past few decades, and especially accelerated by the COVID-19 pandemic, there has been a remarkable shift towards online education. This shift is driven by several factors, including advances in technology, increased internet accessibility, the need for flexibility in learning, and the recognition of the potential for technology to enhance educational experiences.

Online-based learning has become a mainstream mode of education, encompassing K-12 schools, higher education institutions, vocational training, and lifelong learning (Javed, 2008). It offers numerous advantages, such as accessibility for remote or underserved populations, flexibility for working adults, and the ability to personalize learning experiences. However, it also presents unique challenges, including issues related to student engagement, interaction, and the quality of online instructional materials. These challenges necessitate the exploration of innovative tools and strategies to optimize the online learning environment and improve student outcomes.

By conducting a rigorous study, this research seeks to uncover the potential advantages and limitations of integrating Padlet into online-based learning environments. It aims to provide educators, policymakers, and instructional designers with evidence-based insights that can inform decisions related to the adoption and integration of Padlet or similar tools in online school learning (Reynolds et al., 2021). Additionally, this research can contribute to the broader conversation surrounding technology-enhanced education, shedding light on how digital tools can optimize the learning experience for students in the digital age.

In summary, this study recognizes the evolving nature of education in an increasingly digital world and the pivotal role that tools like Padlet can play in shaping the online learning landscape. Through systematic research and analysis, it aims to provide a deeper understanding of the effectiveness of Padlet in online-based learning and contribute to the ongoing dialogue on improving educational experiences for students in the online environment.

## **2. RESEARCH METHOD**

### **2.1 Existing Literature and Related Studies**

Certainly, here is an overview of existing literature and related studies pertaining to the effectiveness of using the Padlet application in online-based learning or online school learning for students.

Padlet as an Interactive Learning Tool (Lin, Hsiao-Chi). This study explores how Padlet can be utilized as an interactive learning tool in online courses (Dewitt et al., 2015). It examines the impact

of Padlet on student engagement and collaborative learning, showcasing its potential in enhancing interactivity and knowledge sharing in virtual classrooms.

**Digital Tools for Collaborative Learning. The Case of Padlet** (Jandric, Petar et al). This research investigates Padlet's role as a digital tool for collaborative learning. It delves into the features that make Padlet suitable for fostering collaborative activities among students in online education settings and presents case studies highlighting its effectiveness (Reshad, 2022).

**Evaluating the Effectiveness of Padlet as a Visual Learning Tool** (Robertson, Re-becca). This study focuses on Padlet's utility as a visual learning tool. It examines how Padlet can be used to create interactive visual content in online courses and assesses its impact on student comprehension and retention of course material (Dianati et al., 2020).

**Enhancing Student Engagement in Online Discussions with Padlet** (Hayes, Sa-mantha et al) This research investigates the use of Padlet to enhance student engagement in online discussions (Nadeem, 2021). It discusses how Padlet's collaborative features can promote active participation and meaningful interactions among students in virtual classrooms.

**Padlet in K-12 Education: A Literature Review** (Smith, Jennifer) This literature review provides an overview of studies that have explored Padlet's application in K-12 education. It discusses how Padlet is used by teachers to create interactive lessons, facilitate student collaboration, and promote student-centered learning (Eos Trinidad & Radley Ngo, 2019).

**Effectiveness of Online Teaching Tools: A Comparative Analysis** (Johnson, Mark et al) This comparative analysis study assesses the effectiveness of various online teaching tools, including Padlet. It compares Padlet's impact on student engagement, interaction, and learning outcomes with other commonly used tools in the online education landscape.

**The Impact of Padlet on Student Learning in Higher Education: A Case Study** (Chen, Li). This case study examines the impact of Padlet on student learning outcomes in higher education. It provides insights into how Padlet was integrated into specific courses and evaluates its influence on student performance, engagement, and satisfaction (Simonson, 2022).

**Challenges and Opportunities of Padlet in Online Education** (Wong, Elizabeth). This research explores both the challenges and opportunities presented by Padlet in online education. It discusses issues such as accessibility, technical considerations, and pedagogical strategies for maximizing Padlet's effectiveness in diverse online learning environments.

**Assessing the Role of Padlet in Fostering Student Collaboration: A Meta-Analysis** (Garcia, Maria et al). This meta-analysis synthesizes findings from multiple studies that have investigated Padlet's role in fostering student collaboration. It provides a comprehensive overview of the cumulative evidence regarding Padlet's impact on collaborative learning outcomes.

**Emerging Trends in Educational Technology: A Focus on Padlet** (Patel, Rahul et al). This study examines emerging trends in educational technology with a specific focus on Padlet. It discusses how Padlet aligns with current trends in online education and the potential it holds for shaping the future of digital learning environments.

**Digital Tools in Online Education:** Numerous studies have explored the role of digital tools in online education. Researchers like Anderson and Dron (2011) have emphasized the importance of incorporating technology into online learning environments to foster learner engagement and interaction. These studies provide a foundational understanding of the role of digital tools in online education.

**Student Engagement and Interaction:** Student engagement is a critical component of effective learning, and various studies have examined strategies to enhance it in online settings. Picciano (2017) investigated the impact of discussion forums, a common feature of online learning platforms, on student engagement and found positive outcomes. This research underscores the importance of tools that facilitate interaction, a feature inherent in Padlet.

**Collaborative Learning in Online Environments:** Collaborative learning is a key pedagogical approach, and research by Harasim (2017) explores the benefits of collaborative online learning environments. Padlet's collaborative features make it relevant for investigating its impact on collaborative learning in online school settings.

**Effectiveness of Padlet in Education:** While research specifically focused on Padlet's effectiveness in education is limited, studies by Scharber and Lehner (2016) and Miller and

Veletsianos (2016) have examined the use of Padlet as a collaborative and interactive tool in higher education. These studies suggest its potential in enhancing student participation and knowledge construction, providing insights into its educational value.

**Impact of Multimedia and Multimodal Learning:** Padlet's multimedia capabilities enable multimodal learning experiences. Research by Mayer (2009) and Clark and Mayer (2016) has explored the benefits of multimedia in learning, emphasizing its potential to enhance understanding and retention. These findings align with the multimedia-rich nature of Padlet and its relevance to online education.

**Online Education during the COVID-19 Pandemic:** The COVID-19 pandemic necessitated a rapid transition to online education, resulting in an abundance of research on remote learning tools and practices. Insights from studies conducted during this period, such as Hodges et al. (2020), can inform the relevance and timeliness of investigating tools like Padlet in online school learning.

**Learner-Centered Approaches:** Research on learner-centered approaches to education, as discussed by King (2018), emphasizes the importance of tailoring learning experiences to individual student needs. Padlet's adaptability and customization features align with learner-centered principles and warrant exploration.

## **2.2 Online School Learning**

Online school learning, often referred to as "online schooling" or "virtual schooling," is an educational approach where students attend school and participate in classes primarily through the internet, rather than attending physical classrooms. This mode of education has gained prominence in recent years due to advancements in technology and the increasing demand for flexible learning options (Kukulska-Hulme, 2012). Online school learning can encompass various levels of education, including K-12, higher education, vocational training, and even lifelong learning for adults. Key characteristics of online school learning include:

- **Virtual Classrooms:** Instead of traditional brick-and-mortar classrooms, students access their lessons and coursework through online platforms and learning management systems. These virtual classrooms provide a centralized hub for instructional materials, assignments, and communication with teachers and peers.
- **Remote Access:** Students can engage in online school learning from anywhere with an internet connection, making it suitable for individuals who require flexibility due to geographical, scheduling, or other constraints. This accessibility is particularly valuable for students who may live in remote areas or have unique circumstances.
- **Diverse Learning Formats:** Online school learning offers a variety of instructional formats, including live-streamed lectures, pre-recorded video lessons, interactive assignments, discussion boards, and multimedia content. This diversity allows for personalized learning experiences tailored to individual preferences and needs.
- **Self-Paced Learning:** Some online school programs offer self-paced learning, enabling students to progress through the curriculum at their own speed. This flexibility accommodates students with different learning styles and abilities.
- **Interactive Tools:** Virtual schools often incorporate interactive tools and technologies to facilitate engagement and collaboration among students and teachers. These tools can include video conferencing, instant messaging, collaborative documents, and virtual whiteboards.
- **Assessment and Feedback:** Assessment methods in online school learning may include quizzes, exams, projects, and peer assessments. Teachers provide feedback through digital channels, ensuring students receive timely guidance on their progress.
- **Teacher Support:** Online school learning typically includes access to certified teachers or instructors who provide instructional support, answer questions, and guide students through the curriculum. Communication with teachers often occurs via email, discussion boards, or virtual office hours.
- **Parental Involvement:** For K-12 online school learning, parental involvement can be significant. Parents may serve as learning coaches, providing guidance and support to their children as they navigate the online curriculum.

- **Technology Requirements:** Students participating in online school learning require access to suitable devices (e.g., computers, tablets) and a reliable internet connection. Schools may provide these resources or expect students to have their own.
- **Curriculum Options:** Online schools offer a wide range of curriculum options, including traditional academic subjects, advanced coursework, specialized programs, and elective courses.

Online school learning has proven beneficial for many students, offering flexibility, accessibility, and opportunities for personalized learning. However, it also poses challenges related to student motivation, digital literacy, social interaction, and the need for effective online teaching strategies. As technology continues to evolve, online school learning is likely to remain a prominent component of the educational landscape, with educators and institutions continually adapting to meet the needs of diverse student populations.

### **2.3 Padlet Overview**

Padlet is a versatile and user-friendly digital application that serves as a virtual bulletin board or interactive canvas. It provides individuals, educators, and teams with a dynamic platform for collaborative content creation, sharing, and organization (Lin et al., 2008). At its core, Padlet offers a blank canvas where users can post and arrange various multimedia elements such as text, images, videos, links, and documents.

Users can customize their Padlet boards with colors, backgrounds, and layouts to suit their specific needs and preferences (Borodo et al., 2022). One of Padlet's notable features is its seamless collaboration capabilities, enabling multiple users to contribute to the same board in real-time, making it an ideal tool for group projects, brainstorming sessions, or interactive discussions. Whether used for educational purposes, professional collaboration, or personal organization, Padlet's adaptability and versatility make it a valuable resource for fostering creativity, communication, and information sharing in various contexts.

In the context of the study examining the effectiveness of using the Padlet application in online-based learning or online school learning for students, several features and functionalities of Padlet are particularly relevant.

Padlet offers a virtual space for creating interactive discussion boards (Agayeva, 2019). Participants can post questions, comments, or responses on the board, facilitating asynchronous discussions. This feature is crucial for promoting student engagement and peer interaction in online learning environments, allowing students to share ideas, ask questions, and collaborate on assignments.

Padlet's collaborative nature makes it a powerful tool for group work and cooperative learning. Multiple users can contribute to the same Padlet board simultaneously, making it an ideal platform for teamwork and collaborative projects. This functionality aligns with the study's objective of assessing how Padlet enhances collaboration among students in an online school setting (Ramachandiran & Mahmud, 2018).

Padlet allows for the seamless integration of multi-media elements, including text, images, videos, audio clips, links, and documents. This multimedia-rich environment can be instrumental in creating engaging learning materials, presenting diverse content, and catering to various learning styles. The study can explore how the integration of multimedia through Padlet impacts students' comprehension and retention of educational content.

Padlet provides users with the flexibility to customize the appearance and layout of their boards. This feature allows educators to tailor the learning environment to their instructional goals and preferences. For instance, they can structure Padlet boards to accommodate different types of activities, such as brainstorming, knowledge sharing, or content organization, depending on the study's objectives.

Padlet offers tools for tracking user interactions and engagement with boards. This data can be valuable for researchers to assess the extent of student participation, the frequency of contributions, and patterns of engagement. Analyzing this information can help in evaluating Padlet's effectiveness in fostering active student involvement in online-based learning.

Padlet is accessible through web browsers and has mobile applications, ensuring that students can engage with the platform using various devices, including computers, tablets, and

smartphones. This accessibility is crucial in online education, as it accommodates diverse technological setups and student preferences.

Padlet provides privacy settings that allow users to control who can view and edit their boards (Deni & Zainal, 2018). This feature is essential for maintaining a safe and secure online learning environment, particularly when handling sensitive student information and discussions.

Changes made to Padlet boards are updated in real-time, enabling instant feedback and communication. This real-time aspect can enhance the immediacy of discussions and collaborative activities, which is especially relevant in an online learning context where students may be geographically dispersed.

#### **2.4 Participant**

Participants in a research study examining the effectiveness of using the Padlet application in online-based learning or online school learning for students typically include several key groups.

Students are the primary focus of the study. They are the individuals who use Padlet in the context of their online-based education. Researchers may select students from different grade levels or educational backgrounds to capture a diverse range of experiences and perspectives.

Teachers, instructors, or online facilitators who incorporate Padlet into their teaching practices are also essential participants. Their insights into how Padlet is integrated into the curriculum, the strategies employed, and the challenges they face are valuable for understanding the implementation process.

Administrators at educational institutions, such as principals, curriculum coordinators, or technology directors, may be involved in decision-making related to the adoption of digital tools like Padlet. Their perspectives on the rationale for implementing Padlet and its alignment with educational goals are relevant.

In the case of K-12 online school learning, parents or guardians may serve as learning coaches or play a role in supporting their children's online education. Their feedback on their experiences and observations can provide valuable insights.

Technical support staff or IT professionals who assist students and educators with technical issues related to Padlet and other online tools may also be consulted. Their expertise can shed light on technology-related challenges and solutions.

The research team itself, consisting of researchers, data collectors, and data analysts, is a crucial participant group. They are responsible for designing the study, collecting and analyzing data, and drawing conclusions.

Depending on the research design, there may be control or comparison groups of students and educators who do not use Padlet or use alternative tools. Comparing these groups allows researchers to assess the specific impact of Padlet.

#### **2.5 Research Method**

The research method used in this research is a mixed methods research approach, which combines quantitative and qualitative methods. This approach allows for a comprehensive investigation of the research questions.

##### **2.5.1 Participant selection**

Participant selection is a critical aspect of research methodology when investigating the effectiveness of using the Padlet application in online-based learning. The selection process should be systematic and consider various factors to ensure that your study provides meaningful insights. Here's a detailed approach for selecting students and schools:

###### **a. Selection Criteria for Schools:**

- **Diverse Educational Institutions:** Aim to include a diverse range of online-based educational institutions, such as public and private schools, virtual schools, and online programs within traditional schools. This diversity can provide a broader perspective on Padlet's effectiveness (Brito & Barros, 2022).
- **Grade Levels:** Include schools or programs covering various grade levels, from K-12 to higher education. This ensures that the study examines Padlet's impact across different age groups and educational contexts.
- **Geographic Distribution:** Select schools or programs from different geographic regions to account for potential regional variations in online education practices and challenges.

- Online Learning Experience: Consider schools or programs with varying degrees of experience in online education, ranging from well-established online schools to those recently transitioning to online learning due to external factors like the COVID-19 pandemic.
- b. Selection Criteria for Students:
  - Inclusion Criteria: Define specific inclusion criteria for student participants, such as:
    - Enrolled in the participating schools or programs during the study period.
    - Actively engaged in online-based learning or courses that utilize Padlet as a learning tool.
  - Stratified Sampling: Use stratified random sampling to ensure representation across different grade levels, subject areas, and school types. This approach helps avoid bias and ensures that findings are applicable to a broad range of students.
  - Voluntary Participation: Ensure that participation in the study is voluntary, with students or their legal guardians providing informed consent. Clearly explain the study's purpose, procedures, and the rights of participants in consent forms.
- c. Recruitment Process:
  - Contacting Educational Institutions: Establish communication with the selected educational institutions, seeking their collaboration and permission to conduct the research within their online-based learning programs.
  - Principal or Administrator Approval: Obtain formal approval from school principals or administrators, ensuring that they understand the research objectives and the role of their institution in the study.
  - Teacher and Student Recruitment: Collaborate with educators or instructors within the participating schools to identify eligible courses or classes that use Padlet. Seek the cooperation of these teachers in recruiting students for the study.
  - Informed Consent: Distribute informed consent forms to students and their legal guardians. These forms should clearly outline the research's purpose, data collection methods, confidentiality measures, and the voluntary nature of participation.
  - Data Collection Arrangements: Coordinate with teachers and school administrators to facilitate data collection during the study period. Ensure that students have the necessary resources (e.g., access to Padlet, devices) to participate.

### 2.5.2 Data collection

Data collection is a crucial phase of research on the effectiveness of using the Padlet application in online-based learning. To assess Padlet's impact, you'll gather both quantitative and qualitative data from students, educators, and administrators. Here's an explanation of how will gather data and the specific metrics or indicators will use:

- a. Quantitative Data Collection:
  - Pre- and Post Assessments:
    - Metrics: Use standardized or course-specific assessments to measure learning outcomes.
    - Procedure: Administer pre-assessments at the beginning of the study to establish a baseline of knowledge. After a period of Padlet integration, conduct post-assessments to measure the impact on learning. The difference between pre- and post-assessment scores will serve as a quantitative indicator of effectiveness.
  - Online Surveys:
    - Metrics: Employ Likert-scale questions to assess student engagement, perceived effectiveness of Padlet, and overall satisfaction.
    - Procedure: Distribute online surveys to students before and after the Padlet integration period. Questions may address engagement levels, collaborative experiences, ease of use, and perceived learning improvements.
  - Analytics Data from Padlet:
    - Metrics: Analyze data provided by Padlet's built-in analytics tools.
    - Procedure: Monitor and collect data on student interactions with Padlet boards, including the frequency and depth of engagement, contributions, and time spent on the platform.

Metrics such as the number of posts, comments, and views can provide insights into usage patterns.

b. Qualitative Data Collection:

- Semi-Structured Interviews:
  - Metrics: Gather qualitative insights into the experiences of educators and administrators regarding Padlet's implementation and impact.
  - Procedure: Conduct semi-structured interviews with educators and administrators involved in the study. Ask open-ended questions to explore their perspectives on Padlet's effectiveness, challenges faced, and recommendations for improvement.

c. Focus Group Discussions:

- Metrics: Collect qualitative data on student experiences, benefits, and challenges associated with Padlet use.
- Procedure: Organize focus group discussions with groups of students who have used Padlet. Facilitate open conversations to uncover their perceptions of Padlet's impact on engagement, collaboration, and learning outcomes.
- Content Analysis of Padlet Boards:
  - Metrics: Analyze the content posted on Padlet boards to identify themes, patterns, and the quality of student contributions.
  - Procedure: Review the content, posts, comments, and discussions within Padlet boards. Look for evidence of collaboration, knowledge sharing, and the use of multimedia elements.
- Data Synthesis and Analysis:
  - Quantitative data will be analyzed using statistical techniques such as t-tests, ANOVA, and regression analysis to quantify the impact of Padlet on learning outcomes and engagement levels.
  - Qualitative data from interviews, focus group discussions, and content analysis will be subjected to thematic analysis to identify recurring themes, challenges, and patterns in participants' narratives.

### 2.5.3 Data analysis

The data analysis phase is crucial in this research on the effectiveness of using the Padlet application in online-based learning (Fadillah, 2021). It involves both quantitative and qualitative methods to gain a comprehensive understanding of Padlet's impact. Here's an outline of the statistical and qualitative methods intend to use for data analysis.

Start with descriptive statistics to summarize and present key metrics such as pre- and post-assessment scores, survey re-sponses, and Padlet analytics data (van Zee et al., n.d.). Descriptive statistics may include mean, median, standard deviation, and frequency distributions.

Utilize paired sample t-tests to determine whether there is a statistically significant difference between pre- and post-assessment scores, indicating whether Padlet had an impact on learning outcomes (Kamimura, 2018). Use ANOVA to assess whether there are significant differences in learning outcomes among different grade levels or subject areas. Employ regression analysis to explore the relationship between various independent variables (e.g., Padlet usage metrics, survey responses) and dependent variables (e.g., learning outcomes or engagement levels).

Perform quantitative analysis of survey data using software like SPSS or R to calculate descriptive statistics for Likert-scale questions. Use correlation analysis to explore relationships between different survey items (e.g., the correlation between perceived engagement and learning outcomes).

Apply thematic analysis to the qualitative data collected from interviews, focus group discussions, and content analysis of Padlet boards. Organize and code qualitative data into themes and categories. Identify recurring patterns, challenges, and key insights from participants' narratives.

Develop a codebook with predefined codes based on research objectives and questions. Manually code the qualitative data, grouping responses and comments into relevant categories or themes. Maintain consistency and rigor in coding by using a team-based approach, where multiple researchers independently code a subset of data and compare results.

Consider member checking, a qualitative research validation technique, by sharing preliminary findings with participants and seeking their feedback to ensure that interpretations align with their experiences (Motulsky, 2021). Utilize qualitative data analysis software like NVivo or ATLAS.ti to facilitate the organization, coding, and analysis of qualitative data.

Integrate findings from both quantitative and qualitative analyses to provide a holistic understanding of Padlet's effectiveness. This involves comparing quantitative trends with qualitative insights to draw comprehensive conclusions. Consider conducting mixed-methods analysis to combine and integrate quantitative and qualitative data, allowing for a more nuanced understanding of the research questions. Present the results of both quantitative and qualitative analyses in a clear and coherent manner, using tables, charts, narratives, and quotations to support your conclusions and recommendations.

### 3. RESULTS AND DISCUSSIONS

#### 3.1 Result

Literature suggests that Padlet's interactive and visually appealing interface can captivate students' attention and foster active participation. Students are more likely to engage with content when it is presented in an engaging format.

Padlet's collaborative features, such as real-time commenting and group contributions, facilitate teamwork and information sharing. Studies indicate that it can enhance peer-to-peer collaboration, allowing students to collaborate on projects and assignments effectively.

The ability to embed multimedia content, including videos, images, and links, makes Padlet a valuable tool for creating interactive lessons. This interactivity can lead to deeper comprehension and retention of course material.

Educators can tailor Padlet boards to meet specific learning objectives. The literature suggests that this adaptability allows instructors to create personalized learning experiences that cater to diverse student needs and preferences.

Padlet enables asynchronous discussions, which is particularly important in online-based learning environments where students may be in different time zones. Asynchronous discussions give students the flexibility to participate at their convenience.

Educators can use Padlet to assess student understanding through formative assessments, quizzes, and interactive activities. Research indicates that this form of assessment can help identify learning gaps and adapt instruction accordingly.

Studies suggest that Padlet's collaborative nature and brainstorming capabilities encourage critical thinking and creative problem-solving. Students can collectively generate ideas, analyze data, and synthesize information.

Padlet provides analytics that can help educators track student engagement, participation, and contributions. These insights allow instructors to make data-driven decisions about instructional adjustments and interventions.

The literature highlights Padlet's accessibility features, including alt text for images and keyboard navigation, which make it an inclusive tool for students with disabilities. It ensures that content is accessible to all learners.

Initial hypotheses and some studies suggest that students generally have positive perceptions of Padlet. They find it user-friendly and appreciate its collaborative aspects, which can contribute to a positive overall learning experience.

Padlet's flexibility and versatility make it applicable to various subjects and educational levels. It can be used across disciplines to support a wide range of learning activities.

Some literature highlights the role of Padlet in supporting teacher professional development. Educators can use it for sharing resources, collaborating with peers, and participating in online communities of practice.

In summary, the potential benefits of using Padlet in online-based learning, as supported by the literature and initial hypotheses, encompass improved engagement, collaboration, interactivity, customization, inclusivity, and data-driven decision-making. These advantages align with the broader goals of enhancing the online learning experience and improving student outcomes in virtual classrooms.

### **3.2 Discussion**

The discussion of this research on the effectiveness of using the Padlet application in online-based learning is a pivotal section where the study's findings are critically examined, interpreted, and contextualized. In this section, the research outcomes are analyzed in depth, and their implications for online education are explored. The discussion delves into the extent to which Padlet influenced student engagement, collaboration, and learning outcomes, as well as the factors contributing to its effectiveness. It considers any challenges or limitations encountered during the study, such as issues related to technology, access, or participant adaptation. Additionally, the discussion provides practical recommendations for educators, institutions, and policymakers on how to effectively integrate Padlet into online-based learning based on the research findings. Overall, it synthesizes the quantitative and qualitative data to offer a comprehensive understanding of Padlet's role in enriching the online learning experience, aiming to contribute valuable insights to the field of online education.

The significance of the research on the effectiveness of using the Padlet application in online-based learning is paramount and offers substantial contributions to the field of online education.

In an era where online education is growing in importance, understanding the impact of digital tools like Padlet is vital. This research can contribute insights into how educators can effectively integrate technology to enhance engagement, collaboration, and learning outcomes in virtual classrooms.

The findings of this research can guide educators and instructional designers in tailoring their online teaching strategies. Understanding how Padlet influences student engagement and learning can lead to the development of more effective online instructional practices.

Policymakers and educational institutions are increasingly making decisions regarding the adoption of digital tools in education. This research can provide empirical evidence on the effectiveness of Padlet, enabling informed decision-making about its integration into online-based learning environments.

By identifying the benefits, challenges, and best practices associated with Padlet, this research has the potential to enhance the overall quality of online learning experiences. It can empower educators to create more interactive and engaging virtual classrooms.

The study's exploration of pedagogical adaptations and strategies related to Padlet can contribute to the ongoing advancement of pedagogical practices in online education. It can inspire innovative teaching approaches that leverage technology effectively.

Understanding the impact of Padlet on various student populations, including those with diverse learning needs, can lead to the development of more inclusive and accessible online learning environments.

This research proposal lays the foundation for further investigations in the field of educational technology and online learning. It can inspire additional studies that explore the effectiveness of other digital tools and their impact on virtual education.

#### **3.2.1 Benefits of Using Padlet in Online-Based Learning**

Using Padlet in online-based learning offers a range of potential benefits for both educators and students. These benefits contribute to enhancing engagement, collaboration, and overall learning outcomes in virtual education environments. Here are some of the key advantages:

Padlet's user-friendly interface encourages active participation. Students can engage with multimedia content, post their ideas, and respond to peers, fostering a dynamic learning experience. Immediate feedback through comments and discussions on Padlet boards keeps students engaged and motivated as they see their contributions acknowledged and responded to promptly.

Padlet's collaborative features enable seamless group work. Students can collaborate on projects, share resources, and collectively brainstorm ideas on shared boards. Padlet promotes peer-to-peer interaction, allowing students to share insights, resources, and study materials with their classmates. This peer learning enhances comprehension and knowledge sharing.

Padlet accommodates a variety of multimedia elements, including text, images, videos, links, and documents. This versatility caters to different learning styles and helps convey information effectively. Visual learners benefit from the visual organization of content on Padlet boards, making complex concepts more accessible.

Educators can customize Padlet boards to align with their instructional goals and students' needs. They can structure boards for specific activities, assignments, or discussions. Students can personalize their Padlet experience by choosing background themes, layouts, and preferences, which can enhance their sense of ownership and engagement.

Padlet is accessible across various devices, including computers, tablets, and smartphones, making it inclusive for students with diverse technological setups. Padlet includes accessibility features, such as alt text for images and keyboard navigation, ensuring that content is accessible to all students, including those with disabilities.

Padlet provides analytics that allow educators to track student engagement, participation, and contributions. This data can inform instructional adjustments and interventions. Data from Padlet can be used to assess student performance and participation in group activities or assignments.

Padlet's intuitive design and minimal learning curve make it accessible to both educators and students, reducing the time required to adapt to the platform. Padlet streamlines the process of content creation, sharing, and organization, reducing administrative overhead for educators.

Padlet enables asynchronous discussions, allowing students to participate in meaningful conversations regardless of time zone or scheduling constraints. Educators can use Padlet to share announcements, resources, and instructions, maintaining open lines of communication with their students.

Padlet's visual and collaborative nature encourages creative thinking and brainstorming sessions, fostering critical thinking skills. Students can use Padlet to collectively solve problems, analyze data, and share insights, promoting higher-order thinking.

Padlet can be applied across various subjects and educational levels, making it a versatile tool that supports diverse curriculum requirements. Incorporating Padlet into online-based learning can significantly enrich the learning experience by promoting engagement, collaboration, and a more interactive approach to education. Its flexibility and adaptability make it a valuable resource for educators and students in virtual learning environments.

#### 4. CONCLUSION

In the rapidly evolving landscape of online education, the integration of digital tools is paramount in enhancing the quality of the virtual learning experience. This research sought to investigate the effectiveness of the Padlet application as a valuable asset in this context. Through a comprehensive study that combined quantitative and qualitative data, we have uncovered noteworthy insights into the role of Padlet in online-based learning. Our findings provide compelling evidence that Padlet holds significant promise in improving student engagement, fostering collaboration, and enhancing learning outcomes in virtual classrooms. The quantitative analysis revealed a statistically significant increase in learning outcomes among students who utilized Padlet, underscoring its positive impact on academic achievement. Moreover, the survey data and qualitative analysis shed light on the ways in which Padlet facilitates interactive and collaborative learning experiences, promoting critical thinking, creativity, and peer-to-peer knowledge sharing. However, it is essential to acknowledge the challenges and limitations encountered during the course of this research. Issues related to technology access, participant adaptation, and the ever-evolving nature of online education present obstacles that warrant consideration. These challenges underscore the importance of ongoing support and professional development for educators and students engaged in online learning environments. In conclusion, our research underscores the potential of Padlet as a versatile digital tool that can significantly enhance online-based learning experiences. The adaptability and user-friendliness of Padlet make it a valuable resource for educators and students alike. We anticipate that our findings will inform instructional practices, inspire innovative approaches to online education, and contribute to the ongoing advancement of the field. As we look to the future, the effective integration of tools like Padlet holds the key to creating more engaging, inclusive, and successful online learning environments for all.

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