PERCEIVED BENEFITS OF TECHNOLOGY-DRIVEN PQ4R IN READING COMPREHENSION

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Abstract

The integration of technology in education has revolutionized traditional teaching methods, fostering interactive and dynamic learning experiences. This study investigates the perceived benefits of a technology-driven PQ4R (Preview, Question, Read, Reflect, Recite, Review) strategy on reading comprehension among EFL students. Technology-enhanced PQ4R facilitates interactive learning, efficient knowledge transfer, and addresses the limitations of traditional methods, while also promoting critical thinking and engagement. Utilizing a case study method, the research examined student reflections on their experiences with technology-mediated PQ4R in an Intermediate Reading course. Data were collected through open-ended questions aligned with Gibbs' reflective cycle, focusing on the 2023-2024 academic year. Thematic analysis revealed that students found technology integration made learning more enjoyable, accessible, and flexible. They appreciated the immediate feedback and the interactive nature of online activities, which improved their motivation and comprehension. However, challenges such as technical issues and potential distractions were also noted. Despite these obstacles, the benefits of technology-enhanced PQ4R were significant, highlighting the importance of balancing engagement with minimizing distractions. This study provides valuable insights for educators and policymakers, emphasizing the need for effective implementation of technology-driven instructional strategies to enhance reading comprehension and foster a more inclusive and dynamic educational environment.

Keywords – PQ4R, technology-mediated instruction, reading comprehension, students' perception

Introduction

The integration of technology in education has been a transformative force, reshaping traditional teaching methods and creating new pathways for student learning and engagement. By enhancing instructional practices, technology makes learning exciting and interactive, keeping learners motivated. This advancement supports various learning styles and paves the way for more dynamic educational experiences (Akram et al., 2022).

Furthermore, technology in teaching helps address and mitigate the limitations of traditional methods. By incorporating technology-based tools, educators can bridge gaps in knowledge transfer and create more effective learning environments (Hero, 2019). These tools provide diverse resources and innovative techniques that traditional methods often lack, thereby enriching the overall educational experience.

Additionally, technology in education facilitates efficient classroom collaboration, broadens students' academic and intellectual horizons, and supports remote learning. However, it also brings challenges such as dependency issues and potential negative impacts on students' health (Mdhlalose & Mlambo, 2023). Despite these concerns, the benefits of technology integration in education are significant, offering new opportunities for student engagement and achievement.

One instructional strategy that has shown considerable promise in improving reading comprehension is the PQ4R strategy, an acronym for Preview, Question, Read, Reflect, Recite, and Review. This strategy significantly enhances reading comprehension for EFL students in higher education institutions (Khusniyah, 2018). The structured nature of PQ4R encourages active reading and critical thinking, which are essential for understanding and retaining complex texts. By guiding students through a systematic process, PQ4R ensures that they engage deeply with the material,

leading to improved comprehension and retention.

In addition to improving reading comprehension, the PQ4R strategy also builds students' dispositions and critical thinking skills (Purnamasari et al., 2023). This approach not only helps students grasp complex English texts but also fosters a mindset conducive to lifelong learning. By promoting reflective and analytical reading habits, PQ4R equips students with the skills necessary for academic success and intellectual growth (Rodli, 2015). Thus, the PQ4R strategy is a highly effective tool for enhancing both comprehension and critical thinking among EFL students in higher education.

In this context, the technology-driven PQ4R method emerges as a compelling innovation, marrying the systematic approach of PQ4R with the dynamic capabilities of digital tools. By incorporating technology, educators can transform each stage of the PQ4R process, thereby enhancing its effectiveness. For instance, digital platforms can facilitate the preview stage by providing multimedia summaries, interactive glossaries, and visual aids that contextualize the reading material. During the questioning phase, technology can enable students to generate and share questions in collaborative online environments, fostering deeper engagement with the content.

Recent studies have dedicated efforts to examine the effect of technology-enhanced reading strategies. That includes both the engagement and comprehension of the material read through the use of digital platforms, e-learning tools. This also implies a comparison between learner behavior in the virtual environment which is more tech-advanced versus that in the physical world (Asy'ari et al., 2023). Nonetheless, the research that would consider the employment of technology for PQ4R strategy is confined. Indeed, while a range of studies show that PQ4R is quite efficient in boosting students' reading comprehension in general terms (Khusniyah, 2018; Purnamasari et al., 2023), they do not evaluate how technology could serve to enhance the specified outcomes and do so from the perspective of students.

This study aims to delve into the perceived benefits of the technology-driven PQ4R strategy from the students' reflection. Understanding how students perceive these benefits is critical for several reasons. First, it provides insight into the practical usability and accessibility of these technological tools in everyday learning. Second, it highlights the motivational and engagement factors that technology can introduce, potentially leading to better learning outcomes. Lastly, it identifies any challenges or areas for improvement in the implementation of technology-enhanced PQ4R strategies.

Compared to previous research, this study is unique as it investigates student's perceptions on the technology-driven PQ4R strategy. This research provides a detailed examination of how technology integration enriches PQ4R. The findings from this study are expected to contribute significantly to the broader discourse on educational technology, offering practical insights for educators and policymakers. By understanding student perspectives, educators can better tailor their instructional strategies to meet diverse learning needs, ultimately fostering a more dynamic, inclusive, and effective learning environment. This research will provide valuable data on the interplay between technology and traditional pedagogical methods, paving the way for more innovative and effective approaches to reading comprehension instruction.

Methodology

The research utilized a case study approach to enable thorough investigations of phenomena, events, and individuals within their life context (Creswell, 2023). This approach was chosen since it focused on the implementation of technology-mediated

PQ4R in the Intermediate Reading course. This study employed open-ended questions with structured inquiries arranged according to Gibbs' reflective cycle (Gibbs, 1988) to elicit students' reflections on their experiences.

This study focused on the intermediate reading classes for the 2023-2024 academic year and lasted for 14 weeks. The selection of participants from the English department was conducted using a purposive sampling technique. The participants of this study consisted of students who were enrolled in the Intermediate Reading Course. The pupils have the choice to write these reflections or not. The participants were provided with an informed consent form and advised that their participation was voluntary, with the ability to withdraw at any point. The consent form was distributed to students with instructions to submit their reflection forms as a condition for their participation in the research. Initially, there were 67 students who were registered for the intermediate reading sessions. Out of these, 30 students willingly agreed to take part in the research. Given the emphasis on comprehensive qualitative analysis, lower sample numbers are deemed unacceptable and less desirable. The inclusion of these 32 students with a wide range of experiences and talents allowed us to gain a comprehensive understanding of technology-mediated PQ4R in reading comprehension.

For data analysis, we utilized thematic analysis, using the framework developed by Braun and Clarke (Braun & Clarke, 2006). This approach allows us to extract and interpret the underlying meaning from the texts. The initial stage involved acquainting oneself with the data. The second step involves producing initial codes. The third step is the process of identifying and exploring themes. The fourth task involves examining and analyzing topics. The fifth step is the process of defining and assigning names to themes. The final person is generating the report.

Finding and Discussion

The fundamental purpose of student reflection is essential to the teaching-learning process, functioning as a tool that assists students in recognizing their strengths and weaknesses. Active students have provided multiple perspectives in the context of technology-assisted PQ4R for reading comprehension. Their ideas play a role in personal growth and contribute to the ongoing progress of technology-enhanced PQ4R in improving reading comprehension. These findings potentially provide valuable insights for educators to enhance their course design, instructional techniques, and evaluation methods in order to better accommodate the diverse needs of students.

1. Interactive learning

Students' reflections demonstrate that the technology-mediated PQ4R gave them an interactive learning experience. It can be seen in the following statements:

"*At first, I was nervous about using so much technology for reading. But soon, I started to like it because it made learning more fun.*"

"*Getting feedback immediately was really encouraging and made me feel like I was improving*."

The students' reflections highlight key points about the effectiveness of technology-mediated PQ4R (Preview, Question, Read, Reflect, Recite, Review) in improving reading comprehension. Initially, students expressed nervousness about using technology for reading, reflecting a common apprehension towards new methods. However, as they adapted, they found the technology made learning more enjoyable. This shift from hesitation to enjoyment indicates that once

students overcome their initial resistance, they can find technology-enhanced learning engaging and fun, which is crucial for sustained use and effectiveness.

The reflections also emphasize the motivational benefits of immediate feedback. Students appreciated receiving feedback right away, noting that it was encouraging and made them feel like they were improving. This immediate feedback serves as positive reinforcement, boosting confidence and motivation. When students believe they are making progress, they are more likely to continue putting in effort, leading to actual improvement in reading comprehension. Educators should address initial hesitations, enhance engagement through enjoyable activities, and leverage immediate feedback to maximize the effectiveness of technology-mediated PQ4R in improving students' reading comprehension skills.

2. Accessibility issues anytime, anywhere learning and resource richness and technical problems

"I liked that I could find a lot of resources and materials easily online."

"I can study the materials anytime and anywhere."

"The online quizzes and activities were fun and helped me learn better."

The students' reflections highlight the accessibility and flexibility of technology-mediated PQ4R in improving reading comprehension. One student appreciated the ease of finding resources and materials online, which points to the vast availability of educational content on the internet. This accessibility allows students to explore a wide range of materials that can enhance their learning experience. Another student mentioned the convenience of being able to study materials anytime and anywhere, emphasizing the flexibility that technology offers. This flexibility is crucial for accommodating different learning styles and schedules, making it easier for students to engage with the content at their own pace and in their preferred environment.

The reflections also underscore the effectiveness of interactive online activities in enhancing learning. Students found the online quizzes and activities enjoyable, noting that they helped them learn better. This enjoyment and engagement are important factors in successful learning, as they can increase motivation and retention of information. The interactive nature of these activities provides immediate feedback and allows students to actively participate in their learning process, reinforcing their comprehension skills. Overall, the students' reflections suggest that the accessibility, flexibility, and interactivity of technology-mediated PQ4R contribute to an improved reading comprehension experience.

Apart from positive ones, students experienced negative feelings and mixed experiences.

"My internet connection was sometimes slow, which made it hard to join the class activities."

"Sometimes, I felt frustrated because of technical problems. But other times, I felt happy because the technology made learning fun and interesting."

The students' reflections revealed both the benefits and challenges of technology-mediated PQ4R (Preview, Question, Read, Reflect, Recite, Review) in improving reading comprehension. On the positive side, students enjoyed the ease of accessing online resources, the flexibility of studying anytime and anywhere, and the engaging nature of online quizzes and activities. These aspects made learning more enjoyable and effective, highlighting the potential of technology to enhance educational experiences by providing a

wide range of materials and interactive learning opportunities.
However, students also faced challenges, particularly with technical issues such as slow internet connections and other technical problems. These difficulties sometimes made it hard to participate in class activities and caused frustration. Despite these issues, students still found moments of happiness and engagement when the technology functioned well, underscoring its potential to make learning fun and interesting. These reflections suggest that while technology-mediated PQ4R can significantly enhance reading comprehension and engagement, addressing technical problems is crucial to ensure a smooth and positive learning experience.

3. Self-discipline and motivation

"Using technology made me more engaged and motivated. The interactive parts made reading more interesting, and the feedback helped me learn better. However, I noticed that sometimes it was easy to get distracted with so much happening on the screen."

"I think the interactive quizzes and quick feedback were the best parts. They kept me interested and helped me understand where I made mistakes right away. Sometimes, though, there was too much information on the screen, and it felt a bit overwhelming."

The students' reflections underscore the dual nature of technology-mediated PQ4R in enhancing reading comprehension. On the positive side, technology increased engagement and motivation. The interactive components made reading more interesting, and immediate feedback was particularly beneficial in helping students learn better and understand their mistakes. The ability to receive quick feedback from interactive quizzes kept students interested and facilitated a deeper understanding of the material.
On the other hand, the reflections also highlight some challenges associated with using technology for learning. One student noted that it was easy to get distracted with so much happening on the screen. The abundance of information and the interactive nature of the technology, while engaging, could also be overwhelming at times. This suggests a need for a balanced approach in designing technology-mediated learning activities to ensure they are engaging without being distracting or overwhelming.
Overall, while technology-mediated PQ4R has significant potential to enhance reading comprehension through increased engagement, motivation, and immediate feedback, it is essential to manage the information load and design the interface in a way that minimizes distractions to maximize its effectiveness.

Conclusions

To summarize, the observations obtained from student feedback demonstrate the advantages and difficulties of incorporating technology into PQ4R in improving students' reading comprehension. Technology-mediated instruction provides notable benefits in terms of accessibility, flexibility, and engagement by incorporating interactive features that enhance the learning process. Nevertheless, the advantages of these benefits are diminished by ongoing challenges like connectivity issues and possible distractions, which can impede effective engagement and concentration. The results emphasize the significance of creating strong online learning strategies that tackle technology constraints while optimizing engagement and learning achievements. Subsequent studies could concentrate on optimizing educational technology to achieve an improved equilibrium between interactive functionalities and reducing disruptions, guaranteeing that technology consistently

enhances rather than hinders the process of acquiring knowledge. To enhance the quality and inclusivity of digital learning environments, educators can overcome these hurdles and effectively utilize the advantages of educational technology.

References

Akram, H., Abdelrady, A. H., Al-Adwan, A. S., & Ramzan, M. (2022). Teachers' perceptions of technology integration in teaching-learning practices: A systematic review. *Frontiers in Psychology, 13*, 920317. https://doi.org/10.3389/fpsyg.2022.920317

Asy'ari, A., Saefi, M., & Cholid, F. (2023). Strategi PQ4R terintegrasi model team quiz berbasis e-learning dalam memberdayakan keterampilan berpikir kritis dan aktivitas siswa. *BIOEDUSAINS: Jurnal Pendidikan Biologi Dan Sains*, *6*(1), 80–98. https://doi.org/10.31539/bioedusains.v6i1.5304

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Creswell, J. W. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). Sage publications. http://www.kspjournals.org/index.php/JSAS/article/view/1313

Gibbs, G. (1988). Learning by doing: A guide to teaching and learning methods. *Further Education Unit*. https://cir.nii.ac.jp/crid/1571417125052979584

Hero, J. L. (2019). The Impact of Technology Integration in Teaching Performance. *Online Submission*, *48*(1), 101–114.

Khusniyah, N. L. (2018). The impact of PQ4R strategy use on EFL students' reading comprehension. *Edulangue: Journal of English Language Education*, *1*(2), 166–177.

Mdhlalose, D., & Mlambo, G. (2023). Integration of technology in education and its impact on learning and teaching. *Asian*

Journal of Education and Social Studies, *47*(2), 54–63. https://doi.org/10.9734/ajess/2023/v47i21021

Purnamasari, W., Sukarso, A., Kusmiyati, K., & Merta, I. W. (2023). Implementation of the PQ4R learning method to build disposition and enhance student critical thinking skills. *Jurnal Pijar Mipa*, *18*(5), 692–698. https://doi.org/10.29303/jpm.v18i5.5478

Rodli, M. (2015). Applying PQ4R strategy for teaching reading. *Indonesian EFL Journal: Journal of ELT, Linguistics, and Literature, 1*(1), 31–41.