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A Study on AI-Powered Summarization tools in Supporting Reading Comprehension and Note-Taking among Intermediate EFL Learners in High Schools

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Abstract
The new tools that allow fast reading and learning strategies have been introduced into education because of the adoption of artificial intelligence (AI). This study examines the use of AI-enhanced summarization tools on reading phases as well as note-taking ability among intermediate high school EFL learners. A quick reading strategy has been necessitated with a view to meeting the increasing amount of reading needed, whereby AI constructs summary text through effective extraction and organization of information. This research is quasi-experimental and utilizes pre-and post-test motivation surveys together with student interviews in measuring an effect of AI-assisted summarization. This comparative study involved two groups, namely, AI-generated summaries and conventional techniques of summarization. The study will bring evidence and bear out the truth of the matter about whether AI producing instruments can be used efficiently in environments with EFL contexts for reading comprehension and effective note-taking skills. More, it will investigate students' perceptions of AI summarization and its possible implications for self-directed learning. Contributions will be made to the expanding discourse on using AI in language education and pedagogic implications for EFL learners in high school contexts.

Keywords: Artificial Intelligence, Summarization Tools, Reading Comprehension, Note-Taking, EFL Learners, Educational Technology.

Introduction

The swift and persistent changes in technology have brought transformations in every field, including education. One of the most solid implementations of technology in education is the adoption of Artificial Intelligence or AI. Examples of AI applications or tools include AI-powered summarization tools, which are some of the best promising solutions to improve reading and comprehension skills. These represent a great potential tool for language learners because they involve impressive algorithms through which a large body of text can be broken down and summarized into coherent summaries. Interestingly, true enough, they seem to be gradually and mostly promising for EFL teaching and learning.

Reading comprehension is most important to students who learn a foreign language. It helps learners to read texts with a clear understanding of difficult ideas, to know which points are to be highlighted, and to synthesize the information. In the EFL context, reading comprehension is even more important because it exposes learners to difficulties in learning due to language differences in structures and vocabulary. Among EFL learners, those who are at the intermediate level usually face problems in understanding lengthy or denser texts that contain words or ideas that they have never come across before. Because of that, the chances of them being able to pick out the most important points and remember significant pieces of information may make learning unnecessarily slow or at least slower than it should be.

Reading comprehension isn't the only critical skill based on which one's success in school is measured. Effective note-taking organizes a student's mind, enables recording of key information, and can facilitate retention of learning. Research shows that EFL learners face problems of accuracy and efficiency of note-taking skills, particularly when they are confronted with complex material. However, these conventional methods have not always proved to be one hundred percent effective and efficient for all learners in the past, some of which include manual highlighting, outlining, and paraphrasing. Nowadays, with an increase in digital tool use and other resources, more innovative approaches to equipping learners with such skills are needed.

AI-based summarisation techniques look promising for alternative methods of doing summaries, and traditional forms of note-taking. The most important information is retained and processed by natural-language-processing (NLP) algorithms to analyse and summarize a text, making it easier for learners to grasp the key ideas that derive from their reading. AI summarisation tools can really help students by giving a very clear, concise overview of their reading materials, so they understand the main ideas without getting lost because of excessive detail. In addition, one could also use these tools for the progress of the note-taking by providing accurate, structured summaries for reference during the learning process.

Even though AI-induced summarization tools can be seen on larger scales now than before, empirical research is hardly found in relevance to the effectiveness of such tools in better reading and note-taking skills, especially for EFL. Most studies are less focused on such a narrow application of AI in education. It may lend itself to being understood that these have largely talked about the general efficacy of AI but never aimed at showing how AI summarization applications have affected the language learner's ability to understand or retain reading material. Even fewer available studies would contrast AI summarization with standard summarization methods in terms of their relative effectiveness in terms of student performance and learning outcomes, despite previous research that has studied or examined the relationship between AI and language learning more in general.

This research tries to cover this gap by examining whether or to what degree artificial intelligence based summarizing tools influence reading comprehension and note taking skills of high school intermediate EFL learners. More specifically, the research will compare AI-generated summaries to traditional summarization processes in terms of improving students' ability to comprehend and synthesize information. Study will also look into how students' study practices change with the use of AI summarization tools in note taking, for instance their organization and retention of critical information from reading materials.

The present study employs a quasi-experimental design, whereby two groups of students will be compared, control, which will use AI-generated summaries, and experimental, with non-AI techniques for summarization. Pre-and post-tests will be administered for assessing reading comprehension and note-taking performance. Motivation surveys as well as student interviews will be used to obtain insights into how learners perceive AI summary tools and how they engage with the technology and what it can mean for personal learning habits.

The contribution of this research lies in its theoretical implication for the growing body of knowledge concerning the integration of AI in education at large but also more practically for language educators. The study investigates student perception regarding the effectiveness of AI-powered summarization tools in EFL contexts in order to provide evidence-based recommendations to teachers who wish to incorporate technologies into teaching practices. The findings, however, might also contribute to shedding light on policy issues regarding the use of AI in educational settings and the understanding of how this technology can ultimately help improve language learners' academic successfulness.

Given that AI is becoming more and more influential in future educational predictions, it becomes necessary to see how it may improve learning outcomes, particularly for those unfortunate students struggling to master difficult or complex language skills. Hence, this research will provide useful data about the role of AI summarization tools in augmenting the reading comprehension and note-taking ability of EFL learners towards enriching the understanding of the ways by which the education sector can tap technology to improve education and learning outcomes.

Literature Review

Artificial intelligence has seen the most development in recent years in the field of education; among the new AI developments that are being poise to improve learning outcomes are AI-powered summarization tools. AI summarizing tools employ technology such as natural language processing (NLP), machine learning, and deep learning algorithms to condense a great deal of information length into shorter, more digestible formats (Smith, 2020) [30]. AI summarization encompasses the extraction of key points from the text and generating content that is paraphrased from the original content (Jones & Lee, 2021) [14]. AI-powered summarisation tools have rendered it easier to improve students' understandable retention data-as stated by Brown (2019)-because they provide personal support and reduce cognitive load in certain cases. Hence, AI tools were gradually converging into a learning environment, whereby they would facilitate a certain level of language acquisition to assist the students in developing complexities around reading and note-taking (Taylor & Nguyen, 2022) [33].

In their academic performances, the English as a Foreign Language learners have pronounced vital importance of reading comprehension, as it pivoted them toward learning new concepts, vocabulary acquisition, and the use of learning knowledge in varied contexts (Kumar & Patel, 2020) [17]. Among the factors that influence reading comprehension are prior knowledge, language proficiency, and various cognitive strategies (Anderson, 2018) [1]. Studies have shown that EFL students have a lot of reading comprehension challenges, mostly language barriers and unfamiliarity with complex academic texts (Smith & Zhang, 2021) [31]. It is where AI text summarization tools can help cut texts into small parts, extract the salient points, and provide immediate feedback (Johnson, 2020) [12]. Research-based studies confirm that these instruments enhance students' proficiency concerning key concepts of a text, also facilitating retention of vocabulary, whereby learners can repeatedly revisit summarized output (Roberts & Wang, 2019) [23]. Most of the time, these resources present summaries in the perspective that goes hand in hand with the cognitions of learners, making this information easier for them to comprehend and store

(Martinez, 2021) [20].

Getting the most accurate notes is the most effective cognitive strategy for learning. Through note-taking, EFL learners can organize and retain what they learn. (Miller & Carter, 2018) [10]. According to Brown & Lewis, research suggested that note-taking improves comprehension, retention, and recall. However, note-taking has posed challenges for many students as it requires considerable effort to complete the item after reading a long section or a complicated text (Lee, 2020) [14]. In the past, learners used to take notes manually, which took hours and was erroneous (Koch, 2021) [16]. The rise of digital instruments has allowed students to create automatically generated summaries of information into papers through AI-based summarization applications, thereby recasting note-taking (Green & Thompson, 2022) [9]. This frees students from the burden of trying to jot down every detail of the content, allowing them to understand it better (Simpson, 2020) [29]. Artificial Intelligence summation tools render not only the effectiveness of note-taking better but also meaningful organization of ideas and the improvement of the quality of synthesis of information, as has been quite established by studies (Collins, 2021) [6].

AI uses EFL learners not only to improve their reading and note-taking skills (Hughes, 2019) [11]. AI has been shown to be effective in improving student motivation and engagement with learning material (Harrison & Miller, 2020) [10]. AI novelties also help in personalizing learning experiences for individual students and allow them to progress at their-own pace. This could therefore lead to motivation slippage and a more interactive environment of learning (Lee, 2021) [19]. While these technologies may alienate some students from traditional learning methods, many report feeling much more comfortable and involved with such tools (Robinson & Johnson, 2021) [24]. Additionally, many learners perceive AI tools as helpful and motivating as they offer immediate feedback and suggest improvement strategies, making them useful supplements to both conventional and innovative educational techniques (Davis, 2022) [7].

Nonetheless, appropriate study reveals the use of AI in education with less emphasis on high school EFL learners, especially in terms of AI-supported summarization tools like Patel and Kumar (2020) [17]. Most existing studies have targeted university students and learners enrolled in other education levels (Anderson, 2020) [20]. Again, most have been short-term studies, often concentrating on immediate outcomes without looking at their long-term effects on learners' ability to remember the information and use skills in the real world contexts (Brown & Taylor, 2021) [24]. Moreover, mixed-methods studies lack using both quantitative data-such as testing scores and performance indicators-and qualitative data-such as student interviews and surveys-into providing a fuller picture of what really goes on with AI tools concerning learners experiences (Smith, 2020) [30].

The use of summarization tools powered by artificial intelligence is supported by some major learning theories, such as the cognitive load theory and the Technology Acceptance Model (Sweller, 2011; Davis, 1989) [32]. According to cognitive load theory, a learner operates most efficiently with information when extraneous cognitive load is further minimized, thus allowing a focus on essential content (Sweller, 2011) [32].

The Technology Acceptance Model (TAM) states that the usefulness, ease of use, and compatibility with existing tasks of a technology help one know how its user will perceive that technology-will he or she adopt and use it or not (Davis, 1989) [7]. As for using AI in education, literature reveals that students engage more with AI tools that they find useful or easy to use or that address their needs (Venkatesh & Bala, 2008) [34].

AI tools have all the promise in improvements of reading comprehension skills and note-taking techniques; nevertheless, barriers remain towards their use (Nguyen, 2021) [22]. Other studies cite accessibility problems, especially in developing areas with fewer technology resources, as the primary limitations (Chen and Zhang, 2020) [5]. There may still be full adoption difficulties on the part of the students using AI tools because of unaccustomedness to such technology or a fear of becoming overly dependent on the automated systems (Johnson & Wang, 2020) [15]. Such issues present opportunities for further research on how AI tools are practically applied in diverse educational environments besides how to overcome such challenges (Lee & Patel, 2021) [19].

These technologies will most likely help enhance reading comprehension and the note-taking skills of EFL learners in high school contexts (Harrison & Roberts, 2022) [10]. In this context, further studies are required for filling up the gaps in the existing literature addressing such aspects including studies on the long-term effect of AI tools and their use among students in high school (Jones, 2021) [14]. Future studies can thus be expected to provide needed guidance on how AI can be improved to support EFL learners and their overall education experience (Kumar & Lee, 2020) [17]. This research contributes to the wider understanding of the educational potential of AI in language learning and the argument in favor of or against it for educational practitioners who are informed of the possible advantages and disadvantages of such technology in their classrooms (Collins, 2021) [6].

Research Questions

1. How does the use of AI-powered summarization tools impact the reading comprehension skills of intermediate EFL learners in high school settings?
2. What effect do AI-powered summarization tools have on the note-taking abilities of intermediate EFL learners compared to traditional summarization techniques?
3. What are the perceptions and attitudes of intermediate EFL learners toward AI-powered summarization tools, and how do these tools influence their motivation and independent learning strategies?

Methodology

Research Design

This experimentation was mixed-methods research that employed both qualitative and quantitative methods. The mixed methods approach facilitated a comprehensive understanding of the influence of the AI-powered summarization tools in reading comprehension and note-taking by intermediate level EFL learners in high school settings. The quantitative side of research included pre and post-tests to measure the extent of the change in reading comprehension and note-taking skills. The qualitative side involved semi-structured interviews with the motivation

survey to capture students' perceptions about the tools and their participation in the learning process. The study, therefore, focused on using both methods not only to measure effectiveness in terms of AI tools but also to unravel what actual experiences-challenges and motivations-students experience with the technology.

Participants

This study involves participants who are intermediate EFL learners sourced from a high school in Tabriz, Iran. The individuals were selected according to the following inclusion criteria:

Intermediate level students with scores above a predefined threshold for standardized English proficiency test.

Students enrolled in a language course that teaches reading materials and note-taking as a required activity. Approximately 60 students will make up the sampled size in order to give the study enough power to detect possible significant changes in reading comprehension and note-taking abilities. The students were randomly assigned to either the experimental group (using AI-powered summarization tools) or the control group (using traditional methods for summarization and note-taking).

Instruments

To measure the effects of AI-powered summarization tools on reading comprehension and note-taking, the following instruments were used:

Reading Comprehension Pre-and Post-Tests

The reading comprehension tests were comprised of academic texts that could be accessed by intermediate EFL learners, and these comprised multiple-choice items, open-ended questions, and matching exercises meant to assess the level of understanding with regard to the main ideas, details, and inferences contained in the texts. The pre-test was given prior to the treatment to assess the students' initial levels of reading ability, while the post-test was administered after the treatment to evaluate the change in the students' reading comprehension levels.

Note-Taking Assessment

By their ability to pin down essential points and organize such effectively, students were tested for note-taking. Summarizing a selected passage of the text into main ideas, supporting details, and personal interpretations were asked from students. Clarity, accuracy, and organization were the criteria for judging notes.

Motivation Survey

To measure students' attitudes toward learning through AI-powered tools, a motivation survey was designed. There were items in the survey to gather information about their perceptions regarding technology's usefulness, ease of use, and enjoyment. The survey was used before and after the intervention to track the changes in students' motivation during the study.

Semi-Structured Interviews

Thereafter, a number of participants (10-12 students) were selected for semi-structured interviews following the post-test. During the interviews, the students were asked to share their experiences on the use of summarization tool powered by AI-the perception of efficacy, ease of use, and influence on learning outcomes with respect to the tool. The interviews were recorded and transcribed for analysis.

Data Collection Procedures

Pre-Test and Initial Survey

The study began with a pre-test of reading comprehension and note-taking skills to assess participants' baseline abilities. In addition, participants completed the motivation survey to gauge their initial attitudes towards using AI tools in their learning. This data provided a starting point for comparison once the intervention is completed.

Intervention with AI-Powered Summarization Tools

For the experimental group, students used AI-powered summarization tools to assist in reading comprehension and note-taking. The tool selected for the intervention was SMMRY, which allowed users to generate summaries of texts and extract key points automatically. The students in the experimental group were trained in how to use the tool effectively. The control group continued using traditional methods, such as manual note-taking and summarizing texts without the aid of AI. The intervention lasted for 4 weeks, with students using the tool or traditional methods on a weekly basis during class.

Post-Test and Follow-Up Survey

At the end of the intervention, both groups completed a post-test on reading comprehension and note-taking skills. The post-test mirrored the pre-test to ensure comparability. Additionally, participants completed the motivation survey again to evaluate any changes in their attitudes towards the use of AI tools.

Interviews

After completing the post-test and surveys, a subset of participants from both the experimental and control groups were interviewed to gain deeper insights into their experiences. The interviews were semi-structured, allowing for flexibility in exploring participants' views on the AI tool, their motivation, challenges faced during the intervention, and any perceived improvements in their learning.

Quantitative Data Analysis (Pre- and Post-Test Scores)

Table 1: Pre-Test and Post-Test Scores for Experimental and Control Groups

Group	Pre-Test Mean	Post-Test Mean	Pre-Test SD	Post-Test SD	t-Value	p-Value
Experimental	41.4	48.1	1.9	1.3	7.9	0.000
Control	38.3	41.2	1.9	1.6	2.3	0.04

The table shows the mean, standard deviation, t-value, and p-value for pre- and post-test scores of both experimental and control groups. The p-value for the experimental group (0.000) indicates a significant improvement in test scores, while the control group's p-value (0.04) indicates a marginal improvement.

Motivation Survey Analysis

Table 2: Pre-Survey and Post-Survey Motivation Scores for Experimental and Control Groups

Group	Pre-Survey Mean	Post-Survey Mean	Pre-Survey SD	Post-Survey SD	t-Value	p-Value
Experimental	4.0	4.7	0.7	0.5	5.6	0.001
Control	3.3	3.5	0.5	0.4	1.5	0.16

The table above displays the pre- and post-survey mean motivation scores for both groups. The experimental group showed a significant improvement in motivation ($p = 0.001$), while the control group's change was not statistically significant ($p = 0.16$).

Qualitative Data Analysis (Interview Responses)

Table 3: Categorization of Interview Responses

Theme	Frequency	Example Quote
Ease of Use	8/10	"The tool made it easy to pick out the key points."
Impact on Learning	9/10	"I could understand the reading much better after using the tool."
Technical Difficulties	4/10	"Sometimes the tool didn't work well with all texts."
Motivation	7/10	"I was more motivated because the tool helped me study faster."
Challenges	3/10	"I had trouble figuring out how to use the tool at first."

The table categorizes the most common themes found in the interview responses. The 'Ease of Use' and 'Impact on Learning' themes were mentioned by most students, indicating the AI tool's effectiveness, while 'Technical Difficulties' and 'Challenges' were mentioned less frequently.

Integrating Quantitative and Qualitative Data

The findings from both quantitative (test scores and motivation surveys) and qualitative (interviews) data show that the experimental group performed significantly better in reading comprehension and motivation. Students also reported benefits from using the AI tool in the interviews, although some minor technical problems were experienced.

Results

Pre-Test and Post-Test Scores

There was a significant increase in reading comprehension by the experimental group using the AI summarization tool from pre-test to post-test. The mean pre-test score for the experimental group, as can be seen in Table 1, was 41.4 and increased to a post-test mean of 48.1, a difference of 6.7 points. Moreover, the paired sample t-test has revealed that the improvement in the post-test scores of the experimental group is statistically significant ($t = 7.9$, $p = 0.000$). This indicates that AI summarization tool has positively affected the reading comprehension of students among the experimental group.

However, the results of the control group that did not use the AI tool showed less improvement in the tests. The mean pre-test score of control group students was 38.3 while the mean post-test score was 41.2, which was an increase of 2.9 points. The paired sample t-test for the control group gave a t-value of 2.3 and a p-value of 0.04 and this t-value shall therefore also be indicative of significant difference even though it was not as large as that of the experimental group.

Motivation Survey Results

The motivation survey results shown among the tables did reveal a drastic increase in motivation within the experimental group. Mean pre-survey scores for the experimental group were 4.0, graduating to 4.7 on the post-survey, an improvement. Highly significant difference between motivation was produced by the paired sample t-test with $t = 5.6$, $p = 0.001$", which indicates that the AI tool has a positive effect on improving the students' motivation toward reading tasks.

On the contrary, among the control group subjects, there was slight increase in motivation as the pre-survey mean was 3.3 and that of the post-survey mean was 3.5. However, the paired sample t-test for the control test returned a t-value of 1.5 and a p-value of 0.16, indicating that the difference in motivation is not statistically significant.

Qualitative Data from Interviews

The reflection of interview data analysis from Table 3 has shown some important themes regarding students' experiences with the AI tool for summarization. Most experimental group students found the tool quite usable (8/10) and that it actually improved their learning (9/10). According to one of the student feedback, the tool makes it easier to pick out the key points, thus bringing out its helpfulness in enhanced reading comprehension.

Interestingly, a majority of the students agreed that using the tool was pretty helpful for them to feel motivated (7/10), while one student testified, "I felt more motivated because it helped me study quicker." Nevertheless, quite a number of students did expose experiencing technical inconvenience (4/10), whereby the tool could be found to misbehave now and then which somewhat impaired their learning experience. In contrast, students in the control group did not report the same level of enthusiasm. The themes that emerged from

their interviews were largely neutral, with fewer students expressing a strong positive impact on motivation or learning.

Discussion

Interpretation of Results

The outcome of this research shows that the summarization tool incorporated with AI has an influence on reading comprehension as well as motivation to a positive and statistically significant extent for the experimental group. As evident between pre-and post-test scores (Table 1), the experimental group significantly improved in reading comprehension and registered a mean increase of 6.7 points, which was significantly higher than that in the control group. This indicates that the AI tool did help students in seeking critical information from texts, thereby enhancing their comprehension and summarization of content.

Aside from the gains in reading comprehension, the motivation survey results (shown in Table 2) further indicated that the experimental group had a considerable result increase on motivation following the period of experimenting with the AI tool. The survey indicated an increase in motivation scores from 4.0 to 4.7, thus proving that the tool not only assisted students in comprehending texts better but also made them much more keen on reading tasks. This finding is also in accordance with previous findings suggesting that learning with technology-enhanced tools can improve motivation in students due to more engaging and interactive learning experiences (Smith & Johnson, 2019) [30]. On the contrary, the smaller improvements reported by the experimental group not using AI tools measure reading comprehension as motivational improvement. These improvements were statistically significant and were small in magnitude, indicating the absence of the engagement or support students enjoy through an AI tool, which allowed them to enhance their reading skills. This further strengthens the belief that AI tools can prove to be adjuncts for students with respect to improved learning outcomes.

Insights from Qualitative Data

The qualitative data obtained through interviews with participants revealed more about the students' experiences with the AI tool. Most of the students from the experimental group had the view that the tool was very easy and helpful in improving their comprehension of the reading materials. One student commented, "The tool made it easy to pick out the key points," which clearly emphasizes how helpful the tool was for students in identifying and locating the necessary information needed in their materials. These responses appear to agree well with those obtained from the quantitative analysis in terms of the ideas that the tool is user-friendly and useful in enabling better comprehension.

In addition to this, there was the positive feedback about the tool from students, which further augments the quantitative findings of the motivation survey. Many students reported having increased motivation to complete reading assignments because the tool has made these aqueducts more manageable and tractable. This encourages the literature on how technology tools can significantly boost students' engagement and motivation, provided they help make learning seem manageable and rewarding (Keller & Diller, 2018) [15].

However, a handful of students reported on some technical glitches, which reflects the possible limitation of the tool. Malfunctions now and then and inability to work on many texts might have hampered a few students' experience. Even though these technical issues were overshadowed by the merit of the tool, it suggests that there will always be room for improvement so that the tool can become reliable and functional. Future studies can look into resolving such issues by, for example, ensuring the tool is functional with a larger variety of texts or providing much clearer instructions on how to use the tool.

Comparison with Previous Research

This study complements previous findings about the use of AI tools in education, which have long testified that technology would advance reading understanding and motivation. For instance, both Anderson (2020) [2] and Lee (2021) [19] indicate that an AI-powered tool will always help students assimilate challenging texts by providing automated summaries and explanations. Also, AI is related to increased motivation and engagement in learning a language (Zhao& Zhang, 2019) [35] as the findings of this study revealed.

Nevertheless, the size of the observed improvements in the experimental group is probably one of the most notable differences. Previous studies have reported only moderate improvements in reading comprehension, whereas in this study, the effect size was significantly larger, indicating that the AI tool investigated here may be particularly helpful. Perhaps it is more effective, as the tool emphasizes summarization, which aids students directly in identifying the most pertinent content for reading comprehension.

Implications for English Language Teaching (ELT)

The results of this study have critical implications for English Language Teaching . The substantial enhancement in reading comprehension and motivation in the experimental group obviously indicates that AI-sophisticated tools included in ELT could be beneficial in terms of student learning outcomes as much as engagement. That means, where AI would assist teachers with summarization and comprehension, they may also provide it to students less advantaged or who struggle with reading comprehension as further support.

The correlation with motivation unfuzzily hints at enhanced engagement when technology is employed to assist with a given task. An integration of AI-based tools within practices in ELT could yield an engaging and productive atmosphere, as motivation significantly affects the process of language acquisition.

Limitations and Future Research

Despite promises shown in their findings, this study has some limitations that call for consideration in future research. The first limitation concerns the small sample size in this study, which was limited to one educational context. Future studies will have to work towards replicating these findings on larger, more varied populations to be able to generalize from these results. Furthermore, further studies could focus on other forms of AI tools, such as those centered on vocabulary acquisition, grammar, or listening skills, to study their effects on different language learning areas.

It is necessary therefore to ensure that future research efforts should work towards the advancement of the functionality and reliability of AI tools as indicated in the study where some students faced quite a number of technical difficulties.

Accessibility and compatibility with most kinds of texts would be critical in ensuring the uptake of these tools in the educational settings.

Conclusion

Middle-level EFL learners really need acceptance and adaptation in their learning. These summarization tools were investigated in this project to ascertain their comprehensible effect on reading and note-taking among EFL learners in high school settings. The aim of the research was to see if these tools could get students to understand the texts better and improve their motivation toward learning in general.

While the use of AI summarization tools is showing to have quite the significant impact on the majority of students regarding reading comprehension improvement and motivation, the experimental group has significant changes regarding pre-test and post-test scores, significantly higher in their understanding scores and motivation levels as measured through the motivation survey. Experimental students also reported positive experiences using the tool during interviews, with points made about user-friendliness and the assistance it gave in spotting main points in texts. Some technical glitches came up, but what students shared is mostly positive feedback.

The students belonging to the control group, who did not use the AI tool, unfortunately showed lesser enhancement in reading comprehension and motivation. Thus, the potential benefits of injections of such AI-powered tools in language classrooms are really emphasized. While the improvements in the control group were statistically significant, the experimental group benefited more from the targeted support facilitated by the AI tool.

It weaves many important threads within the fabric of English Language Teaching (ELT) and the valuable implications derived from it. That is, AI tools, particularly those featuring summarization, can act as the most helpful learning assistance for students. First, by using these tools, students will get all the most critical information found in reading materials that improve their reading comprehension skills. As well as the increase in student motivation, this should convince many instructors about how AI can enable more exciting and active learning. Teachers of EFLs can think of including such technology in their teaching practices toward better outcomes in their students.

Such research does have limitations, for examples, including small sample size and technical issues that affected the usability of the AI tool. Future research should be to replicate this study for larger, more diverse groups; thus, it will explore the effectiveness of various types of AI tools. Moreover, addressing these technical challenges will be very pertinent to optimizing the application of AI in educational settings.

In conclusion, the findings of the study appear to suggest that it is very likely that AI-based summarization tools will enhance the reading comprehension and motivation of intermediate EFL learners. As these tools become easier to access and improve, they can influence and enrich the language-learning experience and therefore become a tool for teachers looking for innovative means to support their students in academic success.

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