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The Role of Digital Pedagogies in Motivating ESL Learners: A Critical Review of Technology-Enhanced Strategies for Improving Reading Comprehension Skills

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Abstract

Using digital teaching methods in English as a Second Language (ESL) classes has changed the way people usually learn, creating new ways to keep students interested and improve their reading comprehension. This piece takes a critical look at the latest technology-enhanced strategies that are meant to get ESL students more interested in learning and help them get better at reading. Recent empirical studies are used to evaluate digital tools like multimedia notes, adaptive learning systems, reading platforms with game elements, and online spaces where people can work together. The results show that digital pedagogies enhance motivation and understanding by offering personalised, engaging, and content-rich learning experiences when they are used with care. To get the most out of them, though, problems with digital literacy, access, and educational alignment need to be fixed.

Keywords: Digital Pedagogy, ESL Learners, reading comprehension, gamification in education, Technology-Enhanced Learning

1. Introduction

English as a Second Language (ESL) students need to be able to understand what they read in order to do well in school and in their personal, social, and work lives [1]. Understanding and responding to written texts is an important part of literacy that helps students do well in school, get information, and contribute to society in a useful way [2]. For ESL students, reading comprehension is also a key part of building their vocabulary, improving their grammar, and understanding how discourse patterns work [3].

However, ESL students often face many problems while trying to improve their reading skills. Some of these are not knowing enough words, not knowing enough about the past, not knowing enough about syntax, and having trouble drawing conclusions [4]. Traditional ways of teaching reading, which include processing text in a straight line, little student participation, and methods focused on the teacher, can also make students less interested and motivated. Learners might feel frustrated, bored, or anxious, especially if the texts aren't relevant to their culture or if the lessons aren't stepped up [5]. With the rise of digital technology in schools, there are now hugely improved ways to deal with these problems. Digital pedagogies, which are ways of teaching that use digital tools to help students learn, let teachers give students more personalised, engaging, and context-rich experiences [6]. Some of these methods are using multimedia notes, adaptive reading platforms, game-like apps, digital storytelling, and collaborative online tools to help ESL students understand what they read [7]. These kinds of techniques might not only help students do better in reading, but they might also make them much more motivated to learn [8, 9].

A lot of research [5, 10-12] has shown that reading settings with more technology can help English language learners. For instance, reading tools that combine audio, video, and text can help reduce brain overload and accommodate different learning styles [13-15]. Gamification features like leaderboards, rewards, and badges can boost both internal and extrinsic motivation in students, making reading tasks more fun and interesting [16]. Mobile-assisted language learning (MALL) tools also give students freedom by letting them access reading materials at any time and from anywhere. This is especially helpful for keeping up with the target language [17, 18].

A more learner-centred approach to teaching is also supported by digital methods. For example, adaptive reading systems can change the level of complexity of the text and give immediate feedback based on how well the student is doing. This helps make sure that the reading materials are in the student's zone of proximal development [19]. Tools for working together, like wikis, blogs, and shared papers, make it easier for students to talk to each other, build knowledge together, and think critically. These are all important for improving understanding [20].

Despite these benefits, there are some problems with using digital tools to teach reading to ESL students. Technology-enhanced learning may not work as well as it could because not all students have the same access to gadgets and the internet, students have different levels of digital literacy,

and teachers haven't been trained in digital pedagogy [21, 22]. Also, using technology alone doesn't mean better results; teaching methods must be carefully matched with learning goals and students' mental and emotional needs [23].

2. Digital Pedagogies in ESL Reading Instruction

Digital pedagogy is the use of digital media and tools to help, improve, and change the way we teach and learn [24]. Digital pedagogies have become popular in ESL (English as a Second Language) settings because they can help with common language learning problems like learners losing interest, having different levels of proficiency, and not having enough access to real language input [25].

By using digital tools in ESL reading lessons, teachers can move away from traditional, often passive reading methods and towards more engaging, multimodal, and student-centered classrooms. Some of these tools are e-books with added visuals and digital platforms for telling stories. Others are gamified apps and MALL technologies. Each tool has its own benefits that make it better for different types of learners (Table 1).

Table 1: Key Categories of Digital Pedagogical Tools for ESL Reading [8, 26-29]

Tool Type	Description	Pedagogical Benefits	Example Tools
Multimedia E-books	E-books embedded with audio, video, images, and hyperlinks	Multimodal input enhances comprehension and vocabulary retention	Raz-Kids, BookWidgets
Digital Storytelling Platforms	Software allowing students to create or consume narrative content	Encourages creativity, improves narrative structure understanding	Storybird, Adobe Spark
Gamified Reading Apps	Apps that use game mechanics like points, badges, and challenges	Increases motivation and engagement through rewards and competition	Duolingo, Quizlet, ReadTheory

MALL	Language learning apps for smartphones and tablets	Enables learning on-the-go; supports autonomy and spaced repetition	LingQ, Anki, BBC Learning English
Collaborative Tools	Online platforms for shared reading, annotation, and discussion	Promotes peer learning, critical thinking, and collaborative reflection	Google Docs, Padlet, Hypothes.is

While these digital tools offer significant benefits, their implementation must be pedagogically sound. Teachers need to align tool use with learning outcomes, scaffold student engagement, and ensure accessibility for all learners. Furthermore, teacher training in digital literacy and pedagogical strategies is essential to leverage the full potential of these technologies [30]. Figure 1 shows how digital pedagogies use technology-enhanced tactics to improve reading comprehension among ESL learners. It emphasises three major instructional approaches interactive and multimedia technologies, gamification and adaptive learning, and collaborative platforms as the primary conduits connecting digital pedagogy and comprehension increases.

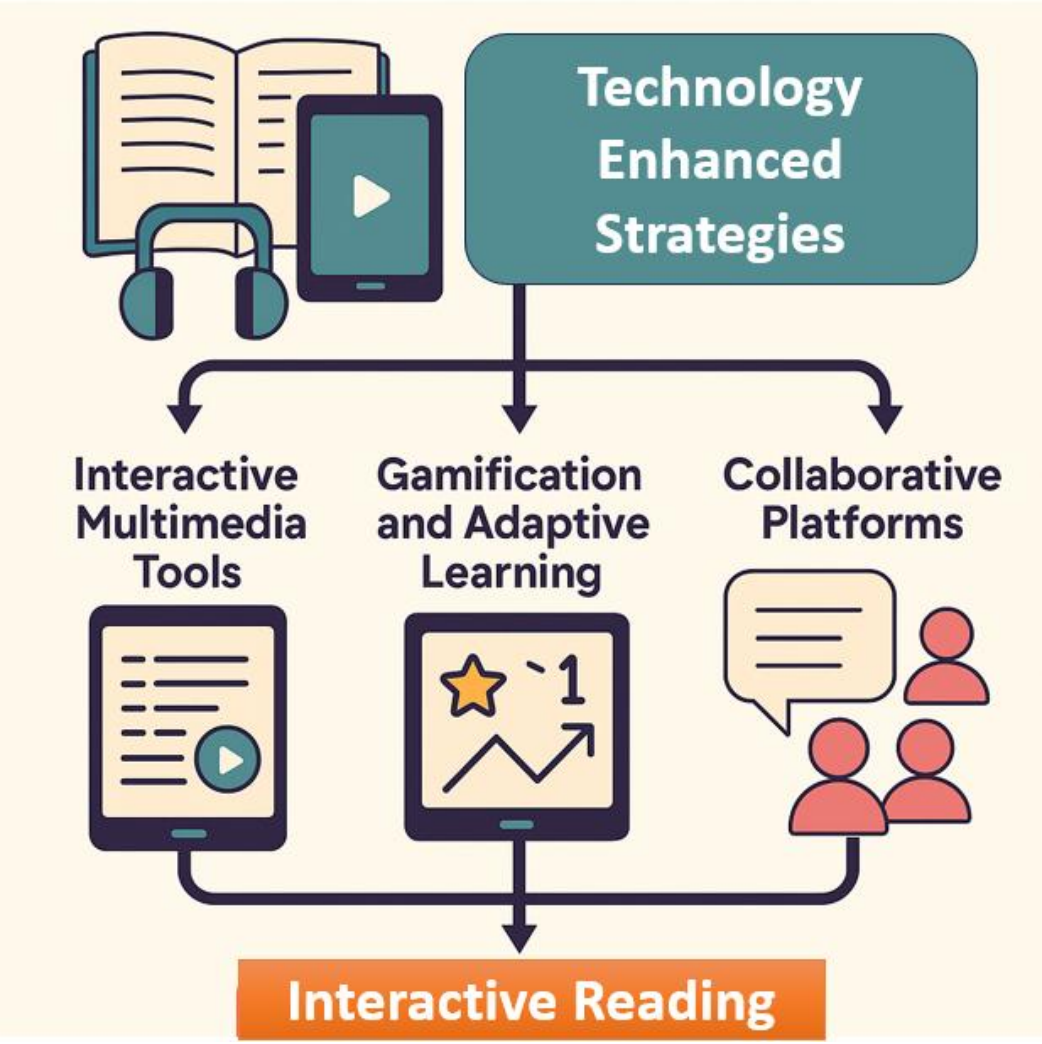

Figure 1: Framework for Digital Pedagogies Enhancing ESL Reading Comprehension [31-33]

3. Motivation through Interactive and Multimedia Tools

Maintaining motivation is important for effectively learning a language, and digital tools can greatly improve student interest in tasks, especially reading ones. Many different types of people learn in different ways, and interactive and multimedia tools offer contextualised, scaffolded support that helps English language learners stay interested and keep going with their studies [31, 34].

Multimedia notes, which add text, pictures, sound, and video to reading materials, help English language learners the most. These tools help people understand what they're reading by giving them more context hints and making it easier for them to understand words and grammar structures they don't know. Visual glossaries, pronunciation audio clips, and embedded videos, for example, give instant, in-context explanations that help people understand and remember more [35, 36].

Multimedia-enhanced e-books have been shown to help students learn on their own because they let them choose how fast they read and what tools they need to help them [37, 38]. According to Dos Santos [39], ESL students who used multimedia e-books did much better at understanding what they read than those who used regular print texts. These improvements happened because the information was shown in a variety of ways, which let students make mental models of the material using both spoken and unspoken forms.

Concrete Example: Using "Raz-Kids" in a Middle School ESL Classroom

"Raz-Kids" is an interactive e-book site with levelled reading materials that are packed with multimedia. In a study Al-Riyami and Al-Siyabi [40] done in an ESL middle school classroom in the Oman, teachers read Raz-Kids as part of their weekly reading plans. Each student had their own digital library that was matched to their level of skill. Texts had audio narration, words that were underlined, and icons that could be clicked on to see definitions, pictures, and videos that explained key ideas.

First, the students were to read the text out loud while following along with the recording. Next, they were to answer comprehension questions based on the story. Teachers said that students were more involved, especially those who weren't interested in reading before. Students felt more confident when they had both visible and auditory support, and they could see and hear their progress right away on comprehension questions [40].

The platform also kept track of success and added motivational features, like earning stars and moving up reading levels, which made it even more important to practise regularly. Teachers noticed that students would log into their accounts to read more books even when they weren't in class. This showed that the students were more motivated to read on their own [40].

Theoretical Support and Implications

Mayer [41] Cognitive Theory of Multimedia Learning says that people learn more deeply from words and pictures together than from words alone. This helps to explain why these kinds of tools work so well. Multimedia tools help English language learners better understand new things by using more than one sense. These tools also fit with the ideas of Self-Determination Theory [42], which says that liberty, competence, and relatedness are the most important things that motivate people. Multimedia reading platforms help students become more independent by giving them control, improve their skills through stepped-up material, and build relationships when used with others [43].

4. Gamification and Adaptive Learning Platforms

Gamification and adaptive learning are two important methods in digital teaching that can help ESL students become more motivated and understand what they read better. Gamification is the use of game design elements like points, awards, levels, and competition in non-game learning situations to make them more interesting and fun [44]. Instead, adaptive learning platforms use AI and learner analytics to change the pace and material based on each student's needs, making the best use of both challenge and support [45, 46].

Gamification in ESL Reading

Gamification turns boring reading into fun, collaborative activities that use both internal and external motivators to get students to read. Gamified platforms can help students feel less anxious, more motivated, and more accomplished by giving them instant feedback, keeping track of their progress, and rewards for success [47, 48].

One popular app for learning a language, Duolingo, turns reading into a game by using daily streaks, XP points, skill trees, and competition leaderboards. Aulia, Wahjuningsih [49] discovered that students who used Duolingo for just 24 hours showed reading and vocabulary gains equal to those gained in a semester of college-level language training. Learners stay in their zone of proximal development [50] thanks to the app's adaptive difficulty levels and instant feedback loops. This is important for keeping them motivated and helping them learn.

Table 2: Comparison of Gamified and Adaptive Reading Platforms for ESL Learners [40, 51-55]

Platform	**Type**	**Key Features**	**Pedagogical Benefits**	**Best Use Case**
Duolingo	Gamified Learning	XP points, levels, streaks, leaderboards, adaptive tasks	Increases motivation, supports spaced learning, builds vocabulary	Beginner to intermediate ESL learners seeking daily practice
ReadTheory	Adaptive Reading	Diagnostic assessments, Lexile-based leveling, instant feedback	Personalized comprehension practice, data-driven instruction	School-based ESL programs focusing on reading skills
Raz-Kids	Gamified + Multimedia	Leveled e-books, quizzes, audio narration, progress tracking	Builds fluency, supports diverse learning styles, tracks reading time	Elementary and middle school ESL classrooms
Epic!	Multimedia + Gamified	Extensive children's e-library, badges, quizzes, read-to-me options	Enhances reading motivation, encourages independent reading	Young ESL learners and early literacy development
LingQ	Adaptive + MALL	Interactive texts, vocabulary tracking, spaced repetition	Builds vocabulary and reading fluency through authentic content	Intermediate to advanced ESL learners with mobile access
Newsela	Adaptive Reading	News articles with adjustable difficulty, quizzes, annotation tools	Promotes reading of current events, critical thinking, vocabulary	Secondary and adult ESL learners needing content-rich material

Adaptive Learning and Personalization

Adaptive learning systems look at real-time data on how well students are doing and change the type, difficulty, and order of reading materials based on that [56]. Individualisation makes sure that students are not too stressed out by difficult books or bored by materials that are too simple. These kinds of systems usually come with built-in scaffolding tools, like glossaries, translation functions, and understanding checks, that help students find their way around new information [57].

Example: Using "ReadTheory.org" in a High School ESL Setting

"ReadTheory" is an online tool for adaptive reading that gives students levelled reading materials based on how well they did on their first diagnostic tests. In a case study [52] done in a secondary school in the Dubai, ReadTheory was used as part of ESL students' weekly reading practice. The platform chose good books from a wide range of topics and levels of difficulty. Students took comprehension quizzes after reading each passage, and the next reads got harder based on how well they did on the quizzes. Teachers said that students were more motivated and independent than before. Students liked seeing their "Lexile" levels go up over time; it made them feel better about their own abilities and inspired them to keep participating. Importantly, students who were having trouble reading weren't punished for getting lower scores. Instead, they were led through easier books that had built-in vocabulary and comprehension help, which cut down on frustration and dropout rates [52].

5. Effects on education and alignment of theories

Using digital teaching methods, like game-based learning and adaptive learning, in ESL classes not only brings new technology, but also strong theory foundations that help guide and support their practical use. These methods are in line with important educational ideas and principles, which makes them more useful for teaching and makes sure they can be used in a variety of learning settings [58].

How Flow Theory and Learner Motivation Work

Csikszentmihalyi came up with the Flow Theory in 1990 [59]. It says that people learn and are most motivated when they are fully involved in an action that is both challenging and easy for

them. When learners are in this "flow state," they are deeply focused and happy with their own progress [59]. This balance can be reached with both gamified and flexible learning platforms:

- **Gamified systems**, like Duolingo and Quizlet, use outside rewards like points, levels, badges, and timed tasks to keep people interested. These features keep students interested and help them stay motivated in the short term, especially when they are first introduced to reading projects or are working to get past early problems [49, 51].
- **Adaptive platforms**, like ReadTheory and Newsela, change the level of difficulty and progression of material based on real-time performance data. This keeps students in their zone of proximal development [55]. This alignment keeps people from getting frustrated with too hard of material or bored with too easy of tasks, which encourages long-term interest and steady progress [52].

When used together, gamification and adaptive learning create a setting that is good for getting into the flow state. This helps ESL learners keep improving their reading skills and stay motivated.

Long-Term vs. Short-Term Engagement

Gamified jobs often give people short bursts of motivation by appealing to their need for immediate feedback and success [60]. This can help people who are just starting out or who are having a hard time and need help right away. But adaptive technologies help students as they read more difficult texts at their own pace and over time, so they can benefit over time. Personalization in adaptive systems encourages a sense of ownership and self-directed learning, which are important for long-term success in learning a language [61].

Support for Differentiated Instruction

Differentiated Instruction, or DI, is a way of teaching that takes into account and adapts to the different needs, interests, and learning styles of each student [62]. DI is very important in ESL settings where students often have different levels of competence [63]. There are several ways that digital methods help DI:

- Gamified tools offer a range of entry points and task types that work for people with different kinds of learning styles (kinesthetic, auditory, and visual) [64].
- Adaptive platforms change the level of difficulty of the content instantly, making sure that each student gets lessons that are just right neither too easy nor too hard [64].

- Peer learning is possible on collaborative platforms like Google Docs and Padlet. This means that more experienced students can help less experienced students and promotes open teaching methods [33].

This multi-level, flexible method makes the classroom more fair and useful so that all students, despite where they begin, can improve and do well in reading comprehension. Digital methods also make it easier to change how you teach [65]. Analytics screens let teachers keep an eye on progress, give tasks based on each student's needs, and get immediate feedback. This real-time data helps with targeted interventions, keeping track of growth, and making changes to the curriculum. Digital tools can also be used by many people in both in-person and online learning settings because they are flexible. This makes quality ESL teaching easier to get [65].

6. Collaborative and Social Learning Environments

Digital platforms that encourage collaboration are very important for improving ESL students' reading comprehension and motivation by encouraging social contact and the creation of shared knowledge. Swain's Output Hypothesis [66] says that meaningful conversation and interaction make learning a language a lot easier because it helps students negotiate meaning, rewrite their thoughts, and improve their language output. Students can read and make notes on books together in real time using tools like Google Docs, Padlet, and Hypothes.is. This lets them ask questions, get help with vocabulary, and talk about the main ideas with their classmates. This process not only helps you understand books better, but it also helps you learn how to read and think critically. For example, students using Google Docs can highlight parts of a reading passage that they find hard, add notes, and talk about how they see it. This turns a job that was meant to be done alone into an interactive learning experience [67]. Ali [68] found that these kinds of reading tasks with peer support not only helped students understand what they were reading better, but they also made them much more motivated and confident. Also, these platforms help learners feel like they belong and give them the freedom to make their own decisions, both of which are important for staying interested in language learning [33, 69].

Enhancing Metacognition and Reflective Thinking

Collaborative digital tools not only help students understand what they are learning, but they also improve their metacognitive awareness, which is very important for doing well in school. When students talk or annotate texts together, they are asked to explain their thinking, defend their interpretations, and judge each other's points of view. This thought helps students keep an eye on their own ways of understanding and make changes as needed, which is a key part of good metacognitive practice [70]. These processes are often easier to see online than in person, since written contributions leave a record of thought processes that can be looked at again and improved over time. This encourages a way of learning through reflection that goes beyond just finishing a job [71].

Scaffolding through Computer-Supported Collaborative Learning (CSCL)

There are places called Computer-Supported Collaborative Learning (CSCL) where teachers can set up planned group reading tasks that help students learn. Teachers can use CSCL to start discussions, give students tasks (like summariser, questioner, or vocabulary checker), and see how the students react to each other's comments [72]. Kollar, Wecker [73] says that this kind of scaffolding helps students improve their language and higher-order thinking skills by teaching them how to deal with texts in a productive and critical way. In real life, structured peer contact is very helpful for people who are learning English because it gives them input and practise output. In other words, CSCL helps with both the mental and emotional parts of learning to read [73].

Inclusivity and Equitable Participation

This is one of the best things about collaborative digital environments that each student can join, no matter how well they speak a language, how sure they are of themselves, or how quickly they learn. Instead of having talks in person, students can work together on asynchronous or written tasks that let them think carefully about what they say and learn at their own pace [69]. This helps students who are shy or who are still working on their speaking skills and might not want to do activity where they have to talk. Padlet and shared Google Docs make it easier for everyone to talk to each other and let all language learners have their say. This is a better and more fair way to learn a language [74].

Building Classroom Community and Motivation

Sharing digital tools with other ESL students not only helps them learn, but it also makes them feel like they are part of a group. Students learn to trust and respect each other when they read, react to, and make sense of texts together. People who feel like they belong are more emotionally engaged, which is a key sign of motivation and persistence in language learning at [75]. From Eden, Chisom [76] we know that a strong community in the classroom makes kids happier and helps them remember what they've learnt. This is very important for ESL students who have a lot of mental issues like worry or feeling alone. Collaborative tools make the classroom more fun and social, and they also help students understand what they're reading.

7. Discussion

Digital pedagogies offer great ways to improve reading teaching for ESL students, but combining them comes with a lot of challenges that need to be carefully thought through. The digital gap, which includes differences in access to technology and big differences in how well students and teachers understand how to use technology, is a major issue [77]. Technology-enhanced learning can't always work well in schools that don't have a lot of money or resources because students may not be able to get devices, have steady internet connections, or be in a supportive environment. So, the benefits of digital methods might go to students from better-off families more than others, making educational inequality worse [78].

Also, the way digital tools are designed and used in the classroom often doesn't live up to their changing potential. If you only use digital tools without planning how to teach with them, you might end up with students who are only briefly interested in technology. Learners may be interested in game-like aspects or interactive texts, but if the tasks don't match up with deeper reading goals like critical analysis, inference, and synthesis, then the learning value is limited [79]. According to [32], some digital tools put engagement metrics or game-based rewards ahead of real cognitive engagement. This means that they focus on the amount of interaction rather than the quality of understanding.

Another big problem with good digital integration is that teachers are still not ready. A lot of teachers don't have enough training in digital literacy and how to make lessons interesting for

students. This is especially true when it comes to choosing and changing tools that meet the specific language and cognitive needs of ESL students [80]. Without ongoing assistance and professional development, teachers may not use all the features of digital platforms to their full potential or may use them in ways that don't help students learn.

In addition, there is often a gap between digital tools and standards for the curriculum. There are many digital tools that don't follow national or regional standards. This means that what students practise online might not match up with what they need to know for tests or class [81]. There aren't any research-based standards for using technology in ESL classes in a way that makes sense and helps students reach their goals, which makes the problem even worse. Lastly, learning can be hard on platforms with a lot of multimedia or games because they require a lot of mental work. This is especially true for people who aren't very good at words. Multimodal input can help students understand, but if it's not handled well, it can also be distracting or make them lose focus. Mayer's research from 2005 warns against cognitive overload in multimedia learning settings and stresses the importance of clear and consistent instruction [41].

8. Conclusion

Digital pedagogies hold significant potential to motivate ESL learners and improve their reading comprehension by providing interactive, personalized, and collaborative learning experiences. However, their successful implementation requires addressing challenges related to access, digital literacy, and pedagogical integration. Future research should explore longitudinal impacts of digital interventions and develop frameworks that guide educators in leveraging technology to support diverse ESL learners effectively.

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