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Bridging the gap: Turkish English teachers' experiences with technology-enhanced vocabulary teaching in rural schools

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Abstract - This study investigates technology use in teaching English vocabulary in rural primary and secondary schools in a city within Türkiye's Black Sea region. Addressing the educational quality and resource gap between rural and urban areas, it focuses on how teachers utilize technology into young learners' vocabulary teaching. Employing a qualitative case study design, data were collected through semi-structured interviews with three English teachers. The findings were analysed under Technology Acceptance Model. It was shown that interactive whiteboards and Web 2.0 tools are widely used to support vocabulary learning by providing visual and auditory input, increasing student engagement, and saving instructional time. Teachers generally perceive technology as useful and have positive attitudes toward its integration. However, ease of use is affected by external factors such as poor internet connection, power outages, and students' age-related needs. Despite these challenges, teachers demonstrate strong motivation and intention to continue using technology in their teaching.

Keywords: vocabulary instruction, rural primary and secondary education, technology integration, teacher perspectives and practices, technology acceptance model (TAM)

1. Introduction

Vocabulary is a core component of language knowledge and supports the development of second language skills which are listening, speaking, reading and writing (Webb & Nation, 2017). It is described as the heart of language learning (Coady & Huckin, 1997; Tozcu & Coady, 2004). Wilkins (1972) further emphasizes that 'without grammar, very little can be conveyed, but without vocabulary, nothing can be conveyed' by highlighting the indispensable role of vocabulary in language teaching. However, before discussing the significance of vocabulary instruction, there is a need to clarify how vocabulary is learned in language education.

Vocabulary learning happens through two main processes. The first is intentional vocabulary learning, which occurs when students deliberately memorize the words by memorizing word lists, analysing word forms or using dictionaries (Nation, 2001). The second is incidental vocabulary learning, which occurs when students encounter new words through meaningful and authentic activities such as watching videos, reading stories or playing digital games. Their primary focus is on understanding the overall meaning rather than learning vocabulary itself (Webb & Nation, 2017). Vocabulary learning

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further includes receptive and productive vocabulary knowledge development. According to Nation (2013), while receptive vocabulary knowledge refers to the ability to recognize and understand a word when it is heard or read, productive vocabulary knowledge involves the ability to accurately use the words while speaking and writing.

Furthermore, Milton (2013) elaborated 'the more vocabulary learners know, the better they are likely to perform through the medium of the foreign language', emphasizing the close relationship between vocabulary knowledge and language performance. Supporting this view, several empirical studies have demonstrated the potential consequences of insufficient vocabulary knowledge. For instance, Khan et. al, (2018) underlined that inadequate vocabulary knowledge prevents learners to understand passages and sentence meanings. Similarly, Noprianto and Purnawarman (2019) found that learners with limited vocabulary struggle to comprehend written texts and spoken discourse, which in turn negatively affects their language proficiency. Beyond comprehension difficulties, insufficient vocabulary knowledge has also been associated with affective challenges. Zahrani and Chaudhary (2022) reported that limited vocabulary can cause stress and anxiety besides discourage learners from active participation in their learning process.

Vocabulary also has an important role in English language acquisition for young learners (Sari & Aminatun, 2021). From an age-related perspective, children's cognitive development, dependence on implicit learning, sensitivity to phonological input and formulaic language use shape their early vocabulary learning. These components also differ young learners' vocabulary development from older and adult learners (Granena & Long, 2012; N. Ellis, 1994; Wood, 2015). Additionally, age is closely associated with learners' motivation. For instance, Carreira (2006) found that third grade learners show higher levels of intrinsic motivation than sixth grade learners. This shows how their motivation declines as their age increases. Therefore, findings underline the importance of teaching vocabulary at early ages when learners are cognitively receptive and have intrinsic motivation.

In line with these significances, early vocabulary instruction in primary education plays a fundamental role in learners' future language proficiency (Stavy et al., 2019). Therefore, Turkish Ministry of National Education (MoNE, 2018) emphasizes the early foreign language instruction to nurture positive attitudes towards English. Accordingly, English language instruction has been integrated into the national curriculum as a compulsory subject beginning in primary school in Türkiye. Therefore, with the transition from the 8+4 education model to the 4+4+4 system, it has been starting from the second grade (MoNE, 2018).

Besides the importance of early instruction of vocabulary, Nation (2001) suggests that vocabulary learning should be deliberate and systematic. Therefore, he underlines the importance of providing 'multiple and various exposures to a word before students fully understand that word and can apply it'. To meet this demand, integrating technology can effectively support vocabulary learning by enhancing classroom interaction and providing numerous sources in and outside of the classroom (Solano et al., 2017).

In the 21st century, the ongoing technological advancements have transformed the education systems (Alamri et al., 2020). Therefore, educational institutions have undergone significant changes since technological tools reshape the way of access to information. The most visible change is switching from blackboards to technology-supported learning environments with computers, tablets and interactive white boards (IWB) (Kolburan-Geçer & Bakar-Çörez, 2020). They facilitate teaching and learning to take place anytime and anywhere without spatial limitations (Rahayu & Wirza, 2020).

As a response the advancements in education systems, Türkiye has implemented two different projects which are the Movement to Enhance Opportunities and Improve Technology (FATİH) and the Education Informatics Network (EBA) to support digital integration in education (MoNE, 2012). Furthermore, curricula have been updated to align education with technological advancements. In its 2018 curriculum, MoNE elaborated 'digital competence' concept and officially emphasize the role of technology in education. Therefore, they aimed to provide equal access to technological resources in and outside of the school by equipping classrooms with IWBs and distributing tablets to students (MoNE, 2012).

Several empirical researches conducted on interactive whiteboards, mobile applications, and online collaborative platforms support vocabulary practice through visual, auditory, and verbal

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mediums and allow learners to interact with new words in meaningful ways (Burston, 2015; Taj et al., 2016). In recent years, easy access to Web 2.0 tools (second-generation of World Wide Web) and multimedia resources through IWBs has become increasingly common in classrooms. From a pedagogical perspective, they enhance instructional processes and access to the authentic target language input (Gunuç & Babacan, 2017; Taghizadeh & Yourdshahi, 2020) and make language teaching and learning more engaging and interactive.

Prior studies also confirmed that Web 2.0 tools are effective supplementary learning tools during English vocabulary learning for young learners. For instance, Nordin and Swanto (2023) investigated the impact of the Quizizz on vocabulary development among Malaysian secondary students in rural areas. They implemented a quasi-experimental design with 33 students. They observed significant improvement in achievement scores (mean increased from 50.76 to 69.15), and students reported feeling more focused and motivated after using Quizizz. Another study conducted by Enayat et al. (2025) compare the effects of two newly developed mobile-assisted language learning (MALL) apps named Sayra and Zabanyad on receptive and productive vocabulary acquisition. They implemented mixed-methods study involving 42 elementary EFL learners divided into two experimental groups and one control group. They found that Sayra users significantly outperformed others in receptive vocabulary due to gamified features like leaderboards and rewards. It is understood that these platforms provide learners game-based vocabulary learning by increasing learners' motivation, engagement and vocabulary exposure as supported by other studies (e.g., Chen et al., 2018; Tsai & Tsai, 2018; Chiu, 2013).

Considering these pedagogical benefits and positive research findings, technology integration is now regarded as fundamental component of modern education because it supplies innovative and real-world approaches that strengthen teaching and student learning. Therefore, a growing body of research has focused on technology-assisted language learning, due to its potential to improve vocabulary development among language learners recently (e.g., Bashori et al., 2024; Hao et al., 2021; Lo, 2024; Papin & Kaplan-Rakowski, 2024; Yu & Trainin, 2021). This study is designed to enrich the existing literature by offering valuable insights into English teachers' experiences with vocabulary instruction and their integration of technology in rural schools.

Building on the literature, technology plays a crucial role in vocabulary learning within foreign language teaching. Many studies emphasize the benefits of technology-supported vocabulary learning (e.g., Papin & Kaplan-Rakowski, 2024; Yu & Trainin, 2021); however, most focus on adults or university learners, with limited attention to young learners in primary education (Polakova & Klimova, 2022; Lin & Lin, 2019). This gap is important because early vocabulary acquisition shapes language proficiency and attitudes toward English (MoNE, 2018).

To address these gaps, this study examines the role of digital technology in English vocabulary instruction in rural primary and secondary schools in a city in Türkiye's Black Sea region. According to TUİK (2025), the region's population is distributed with 103.892 individuals living in rural areas and 102.771 in urban areas. Therefore, rural schools are equally significant as urban schools to ensure equitable access to education. Consequently, examining technology integration in language instruction is essential for addressing educational inequalities. In this regard, teachers' insights are particularly valuable, as they reflect firsthand experiences of the challenges and opportunities in vocabulary teaching (Borg, 2009). Therefore, the study aims to explore how English teachers integrate technology into vocabulary instruction, digital platforms or applications they prefer and their perceived usefulness, perceived ease of use, attitude and behavioural intention will be observed under Technology Acceptance Model.

The study therefore addresses the following research questions: (1) How do English teachers in rural areas integrate technology into vocabulary instruction? (2) Which type of digital platforms they are using while teaching English vocabularies? (3) How do external variables influence rural English teachers' perceived usefulness and perceived ease of use of technology, and how do these perceptions shape their attitudes and behavioural intentions to integrate technological tools into vocabulary instruction based on Technology Acceptance Model?

2. Method

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2.1 Research Design

This study adopts a qualitative case study design to examine how English teachers in rural primary and secondary schools integrate technology into vocabulary instruction. Case study research, grounded in social constructivism, investigates phenomena within real-life contexts where boundaries are not clearly defined, drawing on multiple data sources (Creswell, 2013). It provides rich, panoramic insights (Yin, 2018), enabling a deeper understanding of teachers' practices, experiences, and perceptions of technology use in vocabulary teaching.

The participants of this study were ten English teachers working in rural villages of a city in Türkiye's Black Sea Region. They were selected through purposive and snowball sampling (Creswell, 2013) to ensure relevant experience with technology-assisted instruction. However, only three interviews were selected for in-depth analysis as they represented "information-rich cases" that offered insights into the use of technology into vocabulary instruction (Patton, 2002). Moreover, thematic saturation occurred during the analysis since no new themes emerge from another participants (Guest et. al., 2006). Ethical approval was obtained from Bartın University Ethics Committee (Date: 16.11.2023, Number: 2023-SBB-0698), and informed consent was obtained from all participants.

2.2 Data Collection Tools

Semi-structured interviews were the primary data collection tool, designed to explore teachers' use of technology in vocabulary instruction. This format was chosen for its flexibility, allowing in-depth exploration while maintaining consistency across participants (Brinkmann, 2018). The interview included demographic questions and open-ended items on technology use, teaching practices, challenges, and perceived impact on students. Interviews were conducted in Turkish and audio-recorded then transcribed verbatim for detailed analysis. For triangulation, additional data were gathered from teaching materials shared by participants.

2.3 Data Analysis

Data were analyzed using thematic content analysis, which identifies patterns and organizes them into categories and themes (Yıldırım & Şimşek, 2013). The process began with repeated transcript readings and memoing (Creswell, 2013). Codes were generated through descriptive, analytical, and in vivo methods to capture participants' experiences (Saldana, 2013), then grouped and synthesized into broader themes addressing the research questions. MAXQDA software was used to support systematic coding, organization, and visualization, enhancing reliability and clarity. This methodology allows detailed exploration of rural English teachers' experiences with technology integration in vocabulary teaching, providing insights into both effective practices and challenges faced in this context.

Theme categories were composed based on the components of the TAM model. First theme category was perceived usefulness (PU). Second was perceived ease of use (PEOU). Third was external variables. Finally, fourth was barriers to technology integration.

When the analysis was finalized, to ensure the study's credibility, member checking was employed. Maxwell (2013) emphasizes that member checking is a critical method to minimize misinterpretation of participants' perspectives. The analysed data and initial interpretations were shared with the participants for their feedback and confirmation. This step helped validate the findings and ensured alignment with the participants' intended meanings.

The study also maintained participant anonymity and confidentiality. Teachers' identities were masked using codes (e.g., T1, T2) in all transcripts, analyses, and written reports. Voluntary participation forms ensured that participants understood their rights and provided informed consent before participating in the study.

After receiving confirmation from the participants, findings were systematically examined using the Technology Acceptance Model (TAM) (Figure 1) proposed by Davis (1986). This model is one of the most widely used models for explaining user acceptance behaviour. It is also rooted in social psychology theory in general and Theory of Reasoned Action (TRA) in particular (Fishbein, & Azjen, 1975). This theory (TRA) defends that beliefs influence attitudes that cause intentions and then general behaviour. In line with this idea, Davis (1986, 1989) introduced the constructs in the TAM. These constructs are perceived usefulness (PU), perceived ease of use (PEOU), attitude, and behavioural intention to use. While perceived usefulness (PU) refers to the extent to which individuals believe that

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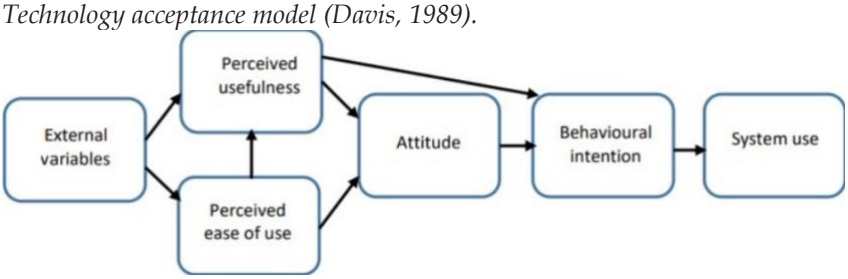
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using a system enhances their task performance, perceived ease of use (PEOU) refers to the extent of ease that individuals perceive when using the system (Davis, 1989).

Based on study findings, the results will be organized in line with the TAM. First, technological tools and applications will be clearly identified, then the analysis will continue with the TAM. External variables will highlight factors promoting or hindering integration. Perceived usefulness will capture teachers' positive evaluations, while perceived ease of use will reflect teachers' and students' views on how technology supports or constrains vocabulary instruction. These dimensions inform overall attitudes toward technology use. Finally, under behavioural intention, findings will show how teachers sustain technology integration despite challenges.

Figure 1

Technology acceptance model (Davis, 1989).



3. Results and Discussion

3.1 Results

3.1.1 Technological Tools and Applications in Vocabulary Teaching

The study revealed that the main technological tool adopted by participants is the interactive whiteboard (IWB), provided through the FATIH Project. Teachers emphasized its importance for vocabulary instruction thanks to internet access and compatibility with Web 2.0 tools make it easier to design interactive lessons and access ready-made materials suited to students' needs.

Some participants emphasized the benefits of technology integration through IWBs. For example, T1 noted that IWBs address the time inefficiency of traditional classrooms: *"What were we doing before the smart board? I don't know. I used to go and write on the board, wasting time. Now, with the smart board, there is no time wasted; instead, they have time for active learning."*

All participants stated that they have IWBs and internet access in their classrooms. Thus, they have a chance to access the Web 2.0 tools and websites they need for vocabulary teaching as T3 mentioned, *"In previous years, we lacked projection devices and had to share a single computer lab with a projector, rushing to appointment time. We've come a long way since then, and the smart board is the summit of my 17-year teaching career."*

Participants also mentioned applications used for vocabulary instruction. For instance, T1 reported using WordWall for ready-made practice, Canva for creating posters, worksheets, and flashcards, and CapCut for video-based tasks. T1 explained that students record short videos using newly learned words, for example, narrating their daily routines in English with subtitles after the "Daily Routine" unit. This practice not only reinforces vocabulary but also develops speaking and writing skills.

On the other hand, T2 mentioned the use of WordWall and Youtube. In the WordWall, they mostly use matching activities, quiz shows and popping balloons activities. Also, they use YouTube to integrate songs and short listening dialogues that are appropriate to students' level and engagement.

T3 also highlighted applications they frequently use, particularly the EBA platform. They integrate online books such as More and More and YDS Publishing, along with interactive materials that provide visual, auditory, and digital accessibility. This is especially useful when students forget their textbooks. As T3 explained, *"Students' textbooks are readily available as e-books on the smartboards that provide visual and auditory materials, entirely interactive and multimedia-rich content to students. So, there is no "I forgot my book" situation and saves time in class."*

Teachers also reported using WordArt to create word clouds for unit reviews and Wordsearch to design engaging vocabulary puzzles. They recommended Duolingo for practicing words and basic sentence structures, providing learners with out-of-class input. In addition, they integrated animations

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and songs via YouTube. For instance, they watch animations from "Bounce Patrol" and "Go Go" channels which align with different units in the curriculum.

3.1.2 External Variables that Hinder or Promote Technology Integration

The first dimension of the Technology Acceptance Model (TAM) is external variables. There are some external variables that promote technology integration into vocabulary instruction. The first variable is IWB support thanks to the FATIH Project. As mentioned before, while T3 describes it as the summit of their 17-year career, T1 views it as a vital investment for educational advancement. Another variable is professional development projects that participants attend. For example, English Together and E-Twinning seminars that T1 and T3 regularly attend, equip them with skills in Web 2.0 tools and game-based learning. Additionally, the availability of EBA and interactive e-books provides visually engaging lessons as T3 mentioned. Finally, T2 who has a master's degree about the use of Web 2.0 tools in English teaching shows that personal academic expertise has a promoting role in technology integration.

In contrast, there are also some external variables that hinder technology integration into vocabulary instruction. The first and the most notable one is infrastructure problems. As T1 and T2 mentioned, internet connection issues and frequent electricity cuts in rural areas prevent the use of technological tools. As T2 notes,

> *"Power outages are common in rural schools, especially in winter, disrupting planned technology-based activities. In such cases, we adapt with alternative activities. If the issue is technical, like a lagging smartboard or internet failure, I compensate by using a phone or computer."*

Another variable is socioeconomic and parental factors. T1 and T2 mention that some parents may restrict technological device use at home and they may lack time and literacy to support homework given via digital platforms, and lead lack of repetition at home. T1 highlights,

> *"Not all families are familiar with technology; some don't provide their children with phones. For instance, when I share information or send videos via WhatsApp, there are times when some children either don't view them or see them later. This can occur because the family either restricts phone access, withholds it as punishment, or doesn't offer support."*

The other barrier is limited lesson time. They have only 2 hours per week and they have a pressure to complete the curriculum, which force T3 to prioritize traditional instruction over digital activities. Furthermore, physical conditions like sunlight glare on boards and crowded rooms also prevent visibility as T1 mentioned.

3.1.3 Perceived Usefulness

Another dimension of the TAM is perceived usefulness (PU). It reflects the extent to which a teacher believes digital tools improve their effectivity of instruction and student outcomes. All participants show a high level of perceived usefulness because they accept technology as a transformative tool which supports instructional efficiency, student motivation and quality of vocabulary learning. In this section, all three participants' PU's will be examined one by one.

T1 perceives technology especially IWB's as 'very good investment' that shifts the classroom to more student-centred. They frequently highlight how technology increases the time for active learning via different activities. Regarding this they mention, *"You give what you need to give, and then you start using it. You move on to the activity. It's a good thing and time remains for active learning."*

On the other hand, T2 perceives technology as highly useful because it provides dynamic and engaging classroom atmosphere and they believe that it is very essential for language acquisition. Also, they perceive it as a tool for inclusion. They observed that technology fosters participation among less-engaged students towards English. They highlight, *"Even the quietest and least engaged students become interested when we incorporate games. They try to participate because technology makes the lesson more engaging."*

Additionally, they perceive technology as beneficial for their professional development and motivation. With technology, they can make their lessons more enjoyable by creating engaging and creative content, which increases both learners' and their motivation.

Furthermore, T3 also shows high level of perceived usefulness. They view the latest technological developments as the 'summit' of their career. Also, they find platforms like EBA, electronic books, YouTube and language learning platforms like Duolingo useful because of providing multimodal input for learners. Surprisingly, they measure the efficacy of technology use with the 'raised

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fingers' of their students. They defend that technology leads students to participate more and they express this situation by saying, *"If that finger is constantly being raised, success has been achieved."*

3.1.4 Perceived Ease of Use

The following dimension of the TAM is perceived ease of use (PEOU). It refers to the degree to which the teachers believe that using a technology is free of effort. Teachers are highly motivated to integrate the technology into vocabulary instruction; however, in some situations their perception of ease is changing. For example, while teachers' digital literacy and continuous technological developments support ease of use, systemic obstacles, technical frustrations, and learners' developmental process hinder ease of use in terms of teachers.

For T1, ease of use was hindered by the lack of formal smartboard training, as they had been at another school during the sessions and they learned through the help of colleagues. Also, although they generally find technology easy to use, technical frustrations reduce this perception. They noted that without a stable internet connection, tools like IWBs become ineffective.

For T2, the ease of use is high due to their academic background, their MA degree on the use of Web 2.0 tools. So, they consider themselves as 'technologically literate'. However, their ease of their teaching is interrupted by problematic rural infrastructure. They mention the difficulty of maintaining technology integration in their lessons because of the frequent power outages in winter season. Therefore, they try to adapt alternative, traditional but effective activities or use their own devices and internet connection. As they mentioned, if the issue is technical, like a lagging smartboard or internet failure, they compensate by using a phone or computer.

For T3, the ease of use is defined by efficacy of technology and timesaving. They view modern technology as easier and more efficient than the tools used in their early career. They mention that in the past, they needed to take an appointment to use computer room. They state,

> *"In previous years, we used to have projectors – actually, at one point we did not even have projectors. In earlier years, we only had one computer lab and a single projector. We had to rush to that room, make reservations, and move students back and forth. Using technology with students was truly very difficult."*

However, now they easily reach any platforms they need to support vocabulary instruction thanks to IWB' and internet connection in the classrooms. Moreover, they also observed that the ease of use is age dependent for students due to developmental process of the young learners. They note that whereas older students in 3rd and 4th grades are more proficient, 2nd graders are struggling in technology adapted activities. They elaborate,

> *"Second-grade students are, of course, younger in terms of age. They are more curious and more eager to learn, but they cannot learn very quickly. Fourth-grade students, on the other hand, know themselves better, so they learn more easily. When I talk about difficulty, as I mentioned, from fourth grade onward I do not experience many difficulties because they already have tablets or smartphones. However, with second-grade students, and sometimes at the beginning of third grade, I do experience some technological difficulties."*

Thus, they elaborate the importance of teacher modelling to support younger learners by explaining, *"A teacher needs to be a model and demonstrate first; then the students understand in some way. You need to put in a bit more effort for them to understand."*

3.1.5 Teachers Attitudes towards Technology Integration

The other dimension of the TAM is attitude. It refers to the user's positive or negative feelings about the use of technology. Participants have positive attitude towards technology because they view it not just as a tool but as a source for professional development and pedagogical improvement.

T1: Visionary Teacher Attitude

T1 has a visionary attitude because they view technology as an important national investment. Despite the obstacles, they keep their resilience and desire to learn. When they come across with technical problems, they adopt traditional but effective ways such as flashcards or drawing. Also, for their professional development, they attend some projects such as E-twinning / English Together project to learn current teaching approaches, methods and technological advancements about how to integrate them into their classroom instruction. Also, they view teaching as a therapy by stating, *"It feels like therapy. People go to the gym and things like that. I sing, jump, dance, and play games – and I get paid for it. It's very enjoyable."*

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T2: Energetic and Cheerful Teacher Attitude

Similar to the T1, T2 also believes that technology provides emotional energy required for language teaching. They mention that an English teacher should be energetic and cheerful and technology is the key to maintain this attitude as elaborated,

> *"The activities we do such as features, positive feedback, and similar practices make the lesson more enjoyable for the teacher as well, which gives them pleasure in teaching. It is not only enjoyable for the students; the lesson also becomes enjoyable from the teacher's perspective."*

T3: Grateful Teacher Attitude

T3 expressed a grateful attitude, often contrasting past conditions with current technological opportunities. They described the developments in classrooms as the "summit" of their career. Like T1 and T2, T3 emphasized the emotional and motivational impact of technology, by noting, 'Now it is more fun. I enter the classroom happily. The students wait for me energetically because they are curious about what we will see today. This is a very nice feeling. It also increases my motivation.' This motivation stems from their belief about technology as a better model for their students. As they explain, *"I always say that the teacher is a role model. If a teacher uses technology effectively and reflects this well, students perform better in their own learning."*

3.1.6 Behavioural Intention

The last dimension that will be mentioned is behavioural intention (BI). In this study, it refers to teachers' likelihood of continued and expanded use of technology in English language teaching. Based on the findings all three participants show a strong positive intention to continue using the technology and developing their technological skills.

T1 demonstrated a strong intention to use technology by continuously improving themselves despite limited formal training. Having missed IWB training sessions while working at other schools, they learned independently by getting support from colleagues. This shows that their intention goes beyond just maintaining their current skills. For example, they have Canva Edu account to create more creative and technological materials for learners to teach vocabulary more engaging way. Also, they attend technology-based projects such as E-Twinning. These efforts reflect their openness to innovation and willingness to adopt new developments in classroom practice.

On the one hand, T2 shows consistent intention to integrate technology into their teaching because they view it as a core component of their teaching style. They use IWBs almost every lesson and considers it as an essential tool. Their intention is also evident in how they solve possible technical problems. When there is an electricity or internet failure, they immediately use their personal phone or computer to continue the lesson. In addition, they design digital materials with long-term use via WordWall and PowerPoint, which can be reused for future classes. Also, they recommend language laboratories where teachers and learners use more advanced technological tools, such as QR codes.

Furthermore, T3 shows a strong intention to integrate technology because they believe that when teachers use technology effectively, students benefit more in their learning. This commitment led them to actively participate in professional development projects such as English Together and E-Twinning, where they explored new Web 2.0 tools. They also incorporated the EBA platform into their teaching, using it for end-of-unit assignments and monitoring student progress through digital forums. Moreover, T3 recommended expanding EBA with more digital storybooks and animations to further support technology integration in lessons.

3.2 Discussion

This study examined how English teachers in rural primary and secondary schools integrate technology into vocabulary instruction, through the Technology Acceptance Model (TAM). Findings revealed that IWBs, supported by the FATIH Project, which aims to equip classrooms with digital resources and ensure equal access to educational platforms (MoNE, 2012), were the main tools used for vocabulary teaching. With internet access, teachers could easily reach diverse materials, and IWBs were compatible with Web 2.0 applications for classroom use. In previous research, IWBs were also identified as time-saving tools that facilitate quick access to resources and enhance student participation (Banoğlu et al., 2014; Hermagustiana & Rusmawaty, 2018).

Participants also reported frequently using platforms such as WordWall, WordArt, Canva, YouTube, and EBA for vocabulary instruction. Their reliance on these tools reflects positive acceptance

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of multimodal and interactive approaches. By exposing learners to vocabulary through visual, auditory, and textual sources in authentic contexts, these platforms support both retention and comprehension. Current studies also support that technology-supported materials provide authentic and diverse language input and enhance instructional effectiveness (Richards, 2017; Taghizadeh & Yourdshahi, 2020). Moreover, as mentioned by Moody et al. (2018), multimodal support via technology is beneficial for young learners who rely on visual scaffolding because of their cognitive development and limited abstract thinking skills.

Participants also reported using songs, animations, word clouds, and interactive games, showing their deliberate integration of technology to make vocabulary learning more engaging and concrete for young learners. Consistent with previous studies, multimedia resources such as songs, videos, and games have been shown to increase students' motivation and learning outcomes by presenting language in authentic and contextualized ways. (Alqahtani, 2019; Burston, 2015). Therefore, in rural settings, where English exposure is limited to classroom environments, these types of tools play an important and valuable role due to improving input and providing repeated exposure to vocabulary in contexts. This aligns with Nation (1990) who mentioned that vocabulary learning is shaped by instructional methods and opportunities that provide meaningful engagement with words.

Technology integration also improves interaction which is a requirement for vocabulary development. Participants mentioned that game-based and interactive activities via different multimodal sources increases motivation, participation and provide authentic language use in appropriate contexts as also highlighted by other studies (Chen et al.,2018; Tsai & Tsai, 2018; Chiu, 2013). This also aligns with Long's Interaction Hypothesis which supports that language acquisition occurs through negotiation of meaning, modification of output and feedback during communicative exchanges (Long, 1996). Additionally, some platforms such as WordWall and Duolingo allow students to actively use vocabularies by making choices and giving responses. This switches vocabulary instruction from passive memorization to active language use (Mohsen, 2016). Therefore, the integration of these types of tools into vocabulary instruction is essential for learners who study in rural contexts where they have limited opportunities to practice English outside the classroom. So, technology integration is necessary to bridge the gap between rural an urban context.

When the findings were analyzed with TAM model, there are some external variables such as availability of IWBs, access to EBA, participation in professional development projects and individual academic backgrounds that play an important role in technology acceptance and use. Participants who attended English Together project supported by E-Twinning have confidence to use Web 2.0 tools appropriately. This shows that how professional development enhances teachers' ability to integrate technology in a meaningful way (Kaya, 2019). Furthermore, the use of MoNE approved textbooks and digital materials on EBA platform are also beneficial for lesson continuity when students forgot their physical textbooks (Bozkuş & Karacabey, 2019).

However, several external factors hinder technology integration. Infrastructure issues such as unstable internet connections, power outages, and IWB malfunctions have been noted, consistent with earlier findings (Atalay & Anagün, 2014; Demircioğlu & Yadigaroğlu, 2014). In addition, limited lesson hours and crowded classrooms restrict opportunities for technology use (Becta, 2004). Socioeconomic factors also play a role: limited access to personal devices and parental restrictions on technology use reduce practice opportunities outside the classroom. This aligns with Ventouris et al. (2021), who highlight the persistence of inequalities despite national initiatives.

Despite these challenges, participants showed high perceived usefulness which is core component of TAM. They mentioned that technology improves their instructional efficiency, students' motivation and vocabulary learning outcomes. Also, it saves time, provides access to ready-made and adaptable materials in terms of learners' needs and levels, and sustains student engagement and motivation. All these perceptions fit well to Davis's (1989) definition of perceived usefulness. Apart from these benefits, participants also associate technology use with their creativity, enjoyment and enthusiasm for teaching as also underlined in Chen and Tsai (2021).

Another important dimension of TAM is perceived ease of use, which depends on teachers' digital literacy, infrastructural sustainability, and learners' developmental readiness. Participants who had received academic training or who frequently explored and adapted digital tools reported fewer

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challenges. However, technical and infrastructural problems reduced ease of use. Learners' ages also played a role. While younger students required more modelling and guidance during technology-based activities, older learners demonstrated greater autonomy in adapting to digital tools. This finding supports Jantke and Hume (2015), who emphasized the importance of considering learners' cognitive readiness when selecting appropriate digital tools and materials.

Teachers' attitudes toward technology were also positive. When they come across a challenge, they still tried to adapt technology by using their own personal devices, internet connections or traditional strategies to maintain the lesson. This attitude shows their belief in the benefits of technology as supported by Prachagool et al. (2015) who highlights that dedicated teachers find ways to integrate technology even in under-resourced contexts.

Finally, teachers' behavioural intentions show their commitment to technology integration in vocabulary instruction. They have willingness to use digital tools, expand their technological information and ability, and participate in different professional development projects. They also shared their recommendation to further support technology integration into vocabulary instruction and to provide equity among learners. These are reintroducing student tablets and opening language laboratories with necessary devices such as headphones, computers and speakers.

4. Conclusion

This study explored how English teachers in rural primary and secondary schools integrate technology into vocabulary instruction, interpreted through the Technology Acceptance Model (TAM). Findings revealed that IWBs play a central role in vocabulary teaching by providing multimodal input, contextualized exposure, and authentic practice. Participants generally perceived technology as useful for enhancing student motivation, attention, and participation. However, their perceived ease of use and behavioural intentions were shaped by external factors such as infrastructure challenges, limited lesson hours, class size, and learners' age and cognitive readiness. Basically, the study highlights that while national initiatives have helped reduce rural–urban inequalities in terms of technological access, effective integration depends not only on availability but also on sustained infrastructure support and teacher competence.

Despite its valuable contributions, this study has several limitations. First, its qualitative design with only three English teachers from rural schools in one Turkish city restricts the generalizability of the findings. Second, the data rely solely on semi-structured interviews; classroom observations and student achievement measures were not included, limiting insights into actual instructional practices and learning outcomes. Third, the study focuses exclusively on teachers' perspectives, without incorporating students' views on technology-supported vocabulary learning. Future research should address these limitations by employing mixed-method or longitudinal designs, integrating classroom observations, vocabulary achievement data, and student perspectives. Comparative studies across rural and urban contexts and different age groups would also help clarify contextual differences in technology acceptance and effectiveness.

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