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МОВУ В СЕРЕДНІЙ ОСВІТІ**

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Qualifying paper

**ASPECTS OF DIGITAL LEARNING AMONG FOREIGN LANGUAGE LEARNERS
IN SECONDARY EDUCATION**

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INTRODUCTION

In an era marked by rapid technological advancement, the integration of digital tools in education has become not just a supplementary resource but a fundamental aspect of pedagogy. As this study navigates the complexities of modern secondary education, understanding the nuanced dynamics of digital learning becomes paramount. This thesis delves into the multifaceted realm of "Aspects Of Digital Learning Among Foreign Language Learners In Secondary Education," asserting its significance in shaping the educational landscape.

Digital learning is highly significant in contemporary schools. The focus extends beyond merely utilizing technology; it encompasses transforming the methodologies of teaching and learning. This transformation affects various aspects such as student performance, teaching practices, and ensuring equitable access to quality education. Despite the extensive use of digital tools in schools, there remains a considerable gap in understanding their true efficacy. It is crucial to explore optimal usage strategies, their impact on students, and the equity of access to these tools.

To address these gaps, this study aims to conduct a comprehensive examination of digital learning in high schools. It will review existing literature, analyze current practices in schools, and undertake original research. The goal is to enhance the effective use of digital tools and ensure that all students benefit equitably from their implementation.

A review of existing literature will offer insights into the evolution of digital learning, theoretical frameworks guiding its implementation, empirical studies assessing its impact, and critical analyses of its implications for pedagogy and student outcomes.

Starting with these foundational references, both Hubbard's (2020) *Teaching English Language Learners Online* and Chapelle's (2001) *Computer Applications in Second Language Acquisition* have been instrumental in shaping the direction of my research. These seminal works provide comprehensive insights into the theoretical frameworks and practical applications of technology in language learning contexts. With a focus on online language instruction, Hubbard's exploration delves into the nuances of facilitating effective language learning experiences through digital platforms. Conversely, Chapelle's foundational text

elucidates the fundamental principles of incorporating computer applications into language teaching, offering invaluable guidance for designing and implementing technology-enhanced language learning activities. Together, these references serve as pillars in understanding the complexities and potentials of digital learning for language acquisition in the modern educational landscape.

The **object** of this research is to investigate the diverse dimensions of digital learning in secondary education, including its conceptual underpinnings, practical applications, and implications for teaching and learning processes.

The **subject** of this research delves into the realm of digital learning within secondary education, focusing specifically on its application in foreign language acquisition. Through an exploration of digital learning methods, we aim to uncover insights into their effectiveness, accessibility, and integration within traditional classroom settings. By examining the experiences and perceptions of foreign language learners, this research sheds light on the evolving landscape of language education in the digital age.

The **aim** of this research is to deepen our understanding of digital learning in secondary education, identify best practices, and inform evidence-based strategies for its integration to enhance student learning outcomes and educational equity.

The **objectives** include conducting a comprehensive literature review, exploring current practices through surveys, analyzing data to identify patterns and trends, and synthesizing findings to offer practical recommendations for educators and policymakers.

The research will employ both theoretical analyses and empirical investigations, drawing on a combination of qualitative and quantitative methods. This includes literature reviews, questionnaire, and data analysis techniques to triangulate findings and ensure robust conclusions.

This thesis contributes to the existing body of knowledge by offering a comprehensive examination of digital learning in secondary education, synthesizing diverse perspectives, and providing insights into emerging trends and future directions.

The **practical value** of this research lies in its potential to inform educators, policymakers, and stakeholders about the efficacy of digital learning methods in secondary

language education. By identifying successful strategies and highlighting areas for improvement, this study aims to contribute practical insights that can enhance teaching practices, curriculum development, and educational technology integration in language learning contexts

Theoretical value lies in advancing theoretical frameworks guiding the integration of digital learning in educational practice, while practical value lies in offering evidence-based recommendations for educators, policymakers, and stakeholders to optimize digital learning experiences for secondary students.

The **novelty** of this research lies in its focus on the intersection of digital learning and foreign language education within the secondary school context. While digital tools and platforms have become increasingly prevalent in education, there remains a dearth of comprehensive studies specifically addressing their application and impact in language learning at this level. By filling this gap, this study offers fresh perspectives and innovative insights into the evolving landscape of language education, addressing the unique challenges and opportunities presented by digital technologies in secondary classrooms

The thesis will be **structured** as follows: Introduction, Part one ,Part two,Research about digital foreign language learning methods and Conclusion. In part one the study will discuss about theoretical aspects of digital learning in foreign language education, The part two will be about The role of digital language learning in secondary education,its characteristics,challenges of it and barriers.

PART 1 THEORETICAL ASPECTS OF DIGITAL LEARNING IN FOREIGN LANGUAGE EDUCATION

Foreign language education has evolved significantly with the integration of digital technology. This thesis delves into the theoretical underpinnings of digital learning in foreign language education, examining various pedagogical frameworks and theories that inform its implementation. By exploring these theoretical aspects, educators have an nsights into effective practices for integrating technology into language teaching and learning, ultimately enhancing learners' linguistic proficiency and cultural competence. In foreign language education, digital platforms provide opportunities for authentic language use and interaction, fostering language acquisition in meaningful contexts. Learners engage with authentic materials, communicate with native speakers, and participate in cultural exchanges, facilitating language development in contextually rich environments. In digital language learning, learners connect with peers, language communities, and authentic resources online, fostering collaborative learning and knowledge construction. Social media, language learning apps, and online forums enable learners to engage in real-life communication, cultural exchange, and global networking, enriching their linguistic and intercultural experiences. Technological Pedagogical Content Knowledge (TPACK) framework integrates technological, pedagogical, and content knowledge to guide effective technology integration in education (Mishra & Koehler, 2006). In foreign language education, educators leverage digital tools to design innovative instructional strategies that enhance language learning experiences. Gamified language learning apps, virtual reality simulations, and multimedia storytelling platforms engage learners in interactive and immersive learning activities, catering to diverse learning preferences and abilities. Different methods also use digital learning, together with TBLT(Task-Based Language Teaching) emphasizes the importance of authentic, real-world tasks in language learning (Ellis, 2003). Digital tasks offer authentic contexts for language use, simulating real-life communication scenarios and cultural practices. Online role-plays, collaborative projects, and virtual language immersion experiences enable learners to develop communicative competence and pragmatic skills in the target language. Multimedia presentations, digital storytelling projects, and interactive language games provide multimodal learning experiences that appeal to different learning styles. Digital learning empowers learners to take control of their learning journey and personalize their experiences (Benson, 2001). Learners have access to a wealth of resources,

tools, and opportunities for self-directed exploration. Adaptive learning algorithms, content recommendation systems, and learner analytics enable educators to create customized learning experiences that scaffold learners' progress, address their unique challenges, and capitalize on their strengths.–In foreign language education, educators facilitate critical analysis of digital texts, media representations, and language ideologies. Digital literacy education promotes responsible and ethical digital citizenship, raising awareness of online privacy, digital security, and cyberbullying. Learners develop critical inquiry skills, discern credible sources, and engage in informed discussions about language, culture, and identity in digital spaces.

By integrating these theoretical perspectives into digital language learning practices, educators can create engaging, effective, and culturally relevant learning experiences that empower learners to develop linguistic proficiency, intercultural competence, and critical thinking skills in the digital age.

1.1 The concept of digital learning

Digital learning, also known as e-learning or online learning, refers to the use of digital technologies to facilitate teaching and learning activities. It encompasses a wide range of educational practices and resources that leverage digital tools, platforms, and content to deliver instruction, engage learners, and assess progress (Clark & Mayer, 2016). Digital learning can take various forms, including online courses, multimedia presentations, interactive simulations, virtual classrooms, and mobile apps, among others.

At its core, digital learning aims to enhance the educational experience by leveraging the affordances of digital technologies to overcome traditional barriers to learning, such as time, space, and access (Means et al., 2013). By harnessing the power of the internet and digital devices, learners can access educational content and resources anytime, anywhere, allowing for greater flexibility and convenience. Additionally, digital learning offers opportunities for personalized learning experiences tailored to individual needs, preferences, and learning styles (Johnson et al., 2015).

Digital learning encompasses both synchronous and asynchronous modes of instruction, catering to different learning contexts and preferences. Synchronous learning involves real-time interaction between instructors and learners, often facilitated through live video conferencing, webinars, or virtual classrooms. Asynchronous learning, on the other hand, allows learners to

access educational content and activities at their own pace and schedule, typically through pre-recorded lectures, discussion forums, and self-paced modules (Simonson et al., 2015).

Key components of digital learning include multimedia content, interactive exercises, collaborative tools, and assessment features (Hodges et al., 2020). Multimedia content, such as videos, animations, and simulations, enhances engagement and comprehension by appealing to multiple senses and learning modalities. Interactive exercises and activities promote active learning, critical thinking, and problem-solving skills through hands-on exploration and experimentation. Collaborative tools enable learners to collaborate with peers, share ideas, and participate in group projects, fostering social interaction and collaborative learning experiences. Assessment features allow educators to monitor student progress, provide feedback, and evaluate learning outcomes effectively.

In summary, digital learning represents a paradigm shift in education, leveraging digital technologies to transform teaching and learning practices, expand access to education, and enhance learning outcomes. By embracing digital learning strategies and technologies, educators can create dynamic, engaging, and inclusive learning environments that empower learners to thrive in the digital age. Language education has undergone significant evolution throughout history, shaped by societal, technological, and pedagogical developments. From ancient civilizations to the digital age, this section provides a narrative of the key milestones and transformations in language education, highlighting the shifts in approaches, methodologies, and goals over time.

The modern era has seen the rapid evolution of digital learning technologies, ranging from early computer-assisted learning programs to sophisticated online learning platforms and virtual reality simulations (Means et al., 2009). The advent of the internet and advancements in computing power have transformed the way knowledge is accessed, delivered, and consumed. Today, learners have access to a wealth of digital resources, including interactive multimedia content, online courses, and educational apps, anytime and anywhere. Online learning platforms and Massive Open Online Courses (MOOCs) have democratized access to education, providing learners with flexible, affordable, and scalable learning opportunities (Khan, 2019). Platforms such as Coursera, edX, and Udemy offer a wide range of courses spanning diverse subjects, from computer science to humanities. MOOCs enable learners to engage with course materials, interact with instructors and peers, and earn certificates of completion, empowering individuals to pursue lifelong learning and professional development. Blended learning models, which

combine traditional face-to-face instruction with online learning activities, have gained popularity in modern education (Bonk & Graham, 2012). Blended learning environments leverage digital technologies to enhance classroom instruction, personalize learning experiences, and provide students with opportunities for self-directed learning and exploration. By integrating digital tools and resources into traditional teaching practices, educators can create dynamic and engaging learning environments that cater to diverse learning needs and preferences. Adaptive learning systems use data-driven algorithms to personalize learning experiences and provide targeted support to learners (Beck & Mostow, 2008). These systems analyze learners' performance data, identify their strengths and weaknesses, and dynamically adjust the pace, content, and difficulty of instruction to optimize learning outcomes. Adaptive learning technologies empower educators to differentiate instruction, address individual learning needs, and maximize student success in diverse learning environments. Virtual reality (VR) and augmented reality (AR) technologies have opened up new possibilities for immersive learning experiences (Dalgarno & Lee, 2010). VR simulations and AR applications allow learners to explore virtual environments, interact with digital objects, and engage in hands-on learning activities. From virtual science labs to historical reenactments, immersive learning experiences foster curiosity, engagement, and deeper understanding of complex concepts, making learning more memorable and impactful. As digital learning continues to proliferate, it is essential to address ethical and social considerations associated with technology use in education (Selwyn, 2010). Issues such as digital equity, data privacy, and online safety must be carefully considered to ensure that all learners have equal access to digital learning resources and opportunities. Educators and policymakers must also promote digital literacy skills and responsible digital citizenship to empower learners to navigate digital environments ethically and effectively. Digital learning has transformed education in the modern era, offering unprecedented opportunities for learning, collaboration, and innovation. From online learning platforms to adaptive learning systems and immersive technologies, digital tools are reshaping the way we teach and learn. As the study embrace the potential of digital learning, it is crucial to remain mindful of ethical, social, and pedagogical considerations to ensure that technology enhances, rather than detracts from, the quality and equity of education for all learners. The 20th century witnessed unprecedented advancements in technology, which revolutionized every aspect of human life, including education. Digital learning emerged as a transformative force, reshaping teaching and learning practices worldwide. This thesis explores the evolution of digital learning in the 20th century and beyond, examining key innovations, trends, and

implications for education. The early 20th century saw the emergence of innovative educational technologies, such as radio and film, which transformed traditional teaching methods (Saettler, 2004). Radio broadcasts enabled educators to deliver instructional content to a mass audience, while educational films provided visual and auditory stimuli to enhance learning experiences. These early technologies laid the groundwork for future advancements in digital learning. The advent of computers in the mid-20th century heralded a new era of digital learning with the development of Computer-Assisted Instruction (CAI) programs (Kozma, 1991). Early CAI systems, such as PLATO and TICCIT, used mainframe computers to deliver interactive instructional content and drill-and-practice exercises. These pioneering efforts paved the way for the widespread adoption of computers in education. The late 20th century witnessed the integration of multimedia and hypermedia technologies into digital learning environments (Mayer, 2001). Multimedia learning systems combined text, graphics, audio, and video to create engaging and interactive learning experiences. Hypermedia systems, such as the World Wide Web, allowed learners to navigate non-linear pathways through educational content, enabling personalized and self-directed learning. The proliferation of the internet in the late 20th century revolutionized distance learning and gave rise to online education (Moore & Kearsley, 2012). Virtual learning environments, learning management systems, and online course platforms enabled educators to deliver instruction remotely, reaching learners across geographical boundaries. Asynchronous and synchronous communication tools facilitated real-time interaction and collaboration among students and instructors. The 21st century saw the emergence of Open Educational Resources (OER), which democratized access to educational content and resources (Atkins, Brown, & Hammond, 2007). OER, such as open textbooks, online courses, and educational videos, are freely available for use, adaptation, and redistribution, making quality education accessible to learners worldwide. The OER movement has spurred innovations in pedagogy and instructional design, fostering collaborative and participatory learning communities. Advancements in artificial intelligence and learning analytics have fueled the development of personalized and adaptive learning technologies (Siemens & Baker, 2012). Adaptive learning systems use algorithms to analyze learners' performance data and dynamically adjust instruction to meet their individual needs and preferences. Personalized learning platforms offer tailored learning pathways, adaptive assessments, and real-time feedback, empowering learners to take control of their learning journey. The evolution of digital learning in the 20th century and beyond has profound implications for education (Bates, 2019). Digital technologies have expanded access to

education, enhanced learning experiences, and transformed pedagogical practices. However, they also raise concerns about digital equity, data privacy, and the impact of automation on employment. Educators and policymakers must navigate these challenges and opportunities to ensure that digital learning serves the needs of all learners in the 21st century and beyond. The evolution of digital learning in the 20th century and beyond represents a remarkable journey of innovation, transformation, and adaptation. From early experiments with radio and film to the emergence of online education and adaptive learning technologies, digital learning has reshaped the landscape of education worldwide. Embracing the potential of digital technologies entails remaining vigilant to the ethical, social, and pedagogical implications of digital learning, ensuring that it promotes equity, inclusion, and lifelong learning for all.

1.2 Digital learning in EFL classroom

Digital learning in the EFL (English as a Foreign Language) classroom refers to the use of digital technologies and online resources to enhance language teaching and learning. It encompasses a wide range of digital tools, platforms, and resources designed to support language acquisition, improve language skills, and create engaging learning experiences for students. Here are some key aspects of digital learning in the EFL classroom. Interactive whiteboards (IWBs), also known as smart boards or interactive displays, are large touch-sensitive screens connected to a computer or projector. They allow educators to interact with digital content using touch, gestures, or digital pens, enabling dynamic and engaging presentations. IWBs are equipped with software that enables teachers to access a wide range of multimedia resources, including images, videos, audio files, and interactive applications (Kennewell, 2013).

Language learning software offers a wide range of digital tools and resources designed to support language acquisition and proficiency. Programs like Rosetta Stone, Duolingo, and Babbel provide interactive exercises, vocabulary drills, grammar tutorials, and immersive language experiences (Godwin-Jones, 2015). Language learning software allows students to learn at their own pace, track their progress, and receive immediate feedback, enhancing motivation and autonomy in language learning.

Multimedia presentations leverage audiovisual elements to enhance language instruction and engage students in meaningful learning experiences. Teachers can create multimedia presentations using tools like PowerPoint, Prezi, and Google Slides to introduce new

vocabulary, explain grammar concepts, and present cultural topics (Lee, 2010). Multimedia presentations stimulate visual and auditory learning modalities, cater to diverse learning styles, and promote active participation in the classroom.

The internet offers a vast array of online resources for language learning, including websites, blogs, podcasts, videos, and digital libraries. Teachers can curate and integrate online resources into their lessons to provide authentic language input, cultural content, and real-world contexts (Reinders & White, 2016). Online resources enable students to access authentic materials, engage in self-directed learning, and explore topics of interest outside the classroom.

Interactive exercises engage students in active learning and language practice, reinforcing key language skills and concepts. Digital platforms and websites offer a variety of interactive activities, such as quizzes, games, simulations, and role-plays (Thomas & Reinders, 2010). These interactive exercises allow students to apply language skills in authentic contexts, receive immediate feedback, and track their progress over time, promoting deeper learning and mastery of language competencies.

Collaborative tools facilitate communication and collaboration among students, fostering peer interaction, teamwork, and social learning (Wheeler, 2015). Online platforms like Google Classroom, Edmodo, and Padlet enable students to collaborate on projects, share resources, and provide feedback to their peers (Hew & Cheung, 2014). Collaborative tools promote communication skills, critical thinking, and digital citizenship while enhancing engagement and motivation in language learning.

In summary, the integration of technology in the EFL classroom offers numerous benefits, including increased student engagement, personalized learning experiences, and improved language proficiency. However, successful integration requires careful planning, pedagogical considerations, and ongoing professional development for educators. By leveraging technology effectively, educators can create dynamic and interactive learning environments that empower students to become proficient communicators in the English language.

Incorporating technology into language learning has revolutionized the way educators teach and students learn in the modern classroom. Through the integration of various technological tools and platforms, language instruction becomes more dynamic, interactive, and

effective. By leveraging technology, educators can create immersive learning experiences that cater to diverse learning styles and preferences, enhance engagement and motivation, and facilitate language acquisition and proficiency development (Bax, 2003; Chapelle, 2001). Language learning apps have become increasingly popular among language learners due to their accessibility, convenience, and interactive features. These mobile applications offer a wide range of language learning resources, including vocabulary drills, grammar exercises, speaking practice, and cultural insights, accessible anytime, anywhere. With features such as gamification, spaced repetition, and personalized learning pathways, language learning apps provide learners with engaging and effective ways to improve their language skills and achieve their learning goals (Benson & Reinders, 2011; Hubbard, 2009). The availability of online language courses has democratized access to language learning opportunities, allowing learners to study languages from the comfort of their own homes. Online language courses offer comprehensive curricula, interactive multimedia content, and personalized learning experiences tailored to individual learners' needs and preferences. Through video lectures, interactive exercises, and virtual classrooms, online language courses provide learners with a flexible and effective way to acquire language proficiency and cultural competence (Levy & Stockwell, 2006; Warschauer, 2000). Virtual language labs provide students with virtual environments where they can practice and refine their language skills in immersive and interactive settings. These digital platforms offer a wide range of language learning activities, including listening comprehension exercises, speaking practice, pronunciation drills, and simulated conversations. By leveraging technology such as speech recognition, virtual reality, and artificial intelligence, virtual language labs provide students with realistic language learning experiences that mimic real-world communication contexts and promote language fluency and confidence (Levy & Stockwell, 2006; Warschauer, 2000).

PART 2 THE ROLE OF DIGITAL LANGUAGE LEARNING IN SECONDARY EDUCATION

Digital language learning plays a crucial role in secondary education by offering innovative and effective approaches to language acquisition and proficiency development. In today's interconnected world, where communication transcends geographical boundaries, digital tools and resources provide students with opportunities to enhance their language skills, explore diverse cultures, and prepare for global citizenship. Here are some key aspects of the role of digital language learning in secondary education.

Digital language learning platforms and online resources provide students with access to a wealth of authentic language materials, including multimedia content, interactive exercises, and virtual language labs (Lee & Lehtonen, 2013). These resources offer diverse learning experiences tailored to students' proficiency levels and learning styles, allowing them to engage with authentic language use in real-world contexts.

Digital language learning platforms leverage adaptive learning technologies and personalized algorithms to tailor instruction to individual students' needs (Reinders & Pegrum, 2016). Through diagnostic assessments, intelligent feedback mechanisms, and adaptive content delivery, students receive personalized learning experiences that cater to their unique strengths, weaknesses, and learning preferences. This personalized approach promotes student engagement, motivation, and autonomy in language learning.

Digital language learning fosters collaborative and interactive learning experiences through online communication tools, collaborative platforms, and virtual classrooms (Dudeny et al., 2013). Students can engage in real-time communication with peers and native speakers, participate in virtual language exchanges, and collaborate on projects using digital tools such as video conferencing, chat forums, and collaborative document editors. These collaborative activities promote authentic language use, cultural exchange, and intercultural competence development.

Digital language learning platforms offer access to culturally authentic content, including literature, films, music, and news articles from target language communities (Hubbard et al., 2019). By engaging with authentic cultural materials, students gain insights into the social, historical, and cultural contexts of the language they are learning, fostering cultural awareness, empathy, and appreciation for diverse perspectives.

Digital language learning provides flexibility and convenience for students to learn anytime, anywhere, at their own pace (Stockwell, 2012). With mobile language learning apps, online courses, and self-paced modules, students can engage in language learning activities outside the traditional classroom setting, fitting language learning into their busy schedules and accommodating diverse learning needs.

Digital language learning

platforms incorporate formative assessment tools and automated feedback mechanisms to monitor students' progress, identify areas for improvement, and provide timely feedback on language proficiency (Gikandi et al., 2011). These assessment features help track students performance, diagnose learning gaps, and guide instructional planning, enabling teachers to support students' language development effectively.

2.1 Characteristics of digital language learning in secondary school

Digital language learning in secondary schools is characterized by several key features that distinguish it from traditional language learning approaches. These characteristics leverage digital technologies to enhance language acquisition, promote engagement, and foster personalized learning experiences. Here are some key characteristics of digital language learning in secondary school.

Interactive multimedia content plays a vital role in digital language learning by providing students with engaging, dynamic, and authentic language input across modalities. Here are some key aspects of interactive multimedia content in language learning. Interactive multimedia content includes authentic materials such as videos, podcasts, news articles, and social media posts sourced from real-world contexts (Kern, 2006). These materials reflect authentic language use, cultural nuances, and communicative purposes, making learning more relevant and meaningful for students. Interactive multimedia content captivates students' attention and stimulates their interest in language learning (Chun & Plass, 1996). Dynamic visuals, compelling narratives, and interactive elements, such as clickable hotspots, drag-and-drop exercises, and multimedia quizzes, foster learner engagement and motivation by providing multisensory and interactive learning experiences. multimedia content contextualizes language practice within authentic communicative contexts, allowing students to encounter language in meaningful, real-life situations (Levy & Hubbard, 2005). For example, video-based simulations of everyday conversations, virtual tours of cultural landmarks, and interactive storytelling activities immerse students in context-rich environments where they can apply language skills in practical and purposeful ways. Interactive multimedia platforms offer personalized learning pathways that cater to individual students' interests, preferences, and proficiency levels (Godwin-Jones, 2018). Adaptive algorithms analyze students' interactions with multimedia content, track their progress, and recommend personalized learning resources, activities, and challenges, promoting self-directed learning and autonomy. Interactive multimedia content

presents language input across multiple modalities, including visual, auditory, and kinesthetic channels (Sweller et al., 1998). For example, videos combine spoken language with gestures, facial expressions, and contextual cues, providing learners with multimodal input that enhances comprehension, retention, and transfer of linguistic knowledge. Interactive multimedia content fosters cultural and intercultural awareness by exposing students to diverse cultural perspectives, practices, and norms (Levy & Kennedy, 2005). Cultural artifacts, authentic materials, and virtual experiences help students develop empathy, appreciation, and respect for cultural diversity, promoting intercultural competence and communication skills. Interactive multimedia content facilitates immediate feedback and reflection on language performance (Thorne, 2010). Interactive exercises, quizzes, and self-assessment tools provide students with instant feedback on their language proficiency, allowing them to monitor their progress, identify areas for improvement, and reflect on their learning strategies and goals. In summary, interactive multimedia content enriches language learning experiences by providing authentic, engaging, and personalized language input across modalities. By immersing students in context-rich environments, fostering engagement and motivation, and promoting cultural and intercultural awareness, interactive multimedia content enhances language proficiency, communicative competence, and global citizenship in digital language learning contexts.

Adaptive learning technologies are innovative educational tools designed to tailor instruction to the individual needs and abilities of each student. Here are some additional insights into adaptive learning technologies. Adaptive learning technologies employ sophisticated algorithms and artificial intelligence (AI) to analyze students' interactions with learning materials. These algorithms assess students' performance, preferences, and learning styles in real-time, allowing the system to dynamically adjust the content and pace of instruction to match each student's needs (VanLehn, 2011). One of the key features of adaptive learning technologies is their ability to create personalized learning paths for students. Based on ongoing assessment data, the system recommends specific activities, resources, and learning modules tailored to each student's strengths, weaknesses, and learning objectives (Kizilcec et al., 2017). Adaptive learning technologies support differentiated instruction by providing students with customized learning experiences that align with their individual abilities and interests. Students who require additional support receive targeted remediation, while those who excel can access more challenging content or enrichment activities (Fryer & Bovee, 2016). Adaptive learning technologies offer immediate feedback to students as they engage with learning tasks and

assessments. This feedback is adaptive and tailored to each student's responses, helping them understand their progress, identify areas for improvement, and make adjustments to their learning strategies (Picciano & Dziuban, 2007). Adaptive learning technologies continuously assess students' knowledge and skills throughout the learning process. By monitoring students' performance in real-time, the system can identify misconceptions, gaps in understanding, and areas of proficiency, allowing educators to intervene with targeted support as needed (Siemens & Long, 2011). Learning technologies generate valuable data insights that inform instructional decision-making. Educators can analyze student performance data to gain insights into learning trends, identify instructional gaps, and tailor teaching strategies to meet students' needs (Knight & Wood, 2015). Adaptive learning technologies have the potential to enhance accessibility and inclusivity in education by providing personalized support to students with diverse learning needs. These technologies can accommodate different learning styles, preferences, and abilities, allowing all students to engage with the curriculum at their own pace and level (Lieberman, 2017). In summary, adaptive learning technologies represent a powerful tool for individualizing instruction, supporting differentiation, and promoting student engagement and success. By leveraging intelligent algorithms, personalized learning paths, real-time feedback, and continuous assessment, these technologies empower educators to meet the diverse needs of students in today's digital age.

Online collaboration and communication tools play a crucial role in modern education, particularly in secondary schools where students are encouraged to collaborate, communicate, and engage in group activities. Online collaboration platforms provide virtual classrooms where students and teachers can interact in real-time. These platforms often feature video conferencing, chat functions, and interactive whiteboards, allowing for synchronous communication and collaboration (Hrastinski, 2008). Discussion forums are commonly used in online learning environments to facilitate asynchronous communication among students. Through discussion threads, students can share ideas, ask questions, and engage in academic discourse outside of traditional classroom settings (Wang, 2008). Group Projects and Online collaboration tools enable students to work together on group projects and assignments regardless of their physical location. Features such as shared documents, collaborative editing, and version control allow students to collaborate effectively on tasks, fostering teamwork and peer learning (Kreijns et al., 2003). Online platforms offer file sharing and document collaboration features that allow students to upload, share, and collaborate on documents,

presentations, and multimedia projects. This facilitates seamless collaboration and enables students to co-create content in real-time (Crescente & Lee, 2011). Online collaboration tools facilitate peer feedback and review processes, where students can provide constructive feedback to their peers on assignments, projects, and presentations. This not only enhances the quality of student work but also promotes critical thinking and communication skills (Hattie & Timperley, 2007). Online collaboration platforms also support communication between teachers and students outside of the classroom. Teachers can use messaging features, virtual office hours, and email to provide personalized support, answer questions, and offer feedback on student progress (Ally, 2008). Online collaboration tools enable students to connect with peers, educators, and experts from around the world, fostering global citizenship and cross-cultural understanding. Through collaborative projects, virtual exchanges, and joint initiatives, students can broaden their perspectives and develop intercultural competencies (Bolliger & Halupa, 2012). Overall, online collaboration and communication tools enhance student engagement, facilitate collaborative learning, and promote the development of essential 21st-century skills such as communication, collaboration, and digital literacy. By leveraging these tools effectively, educators can create dynamic and interactive learning environments that prepare students for success in an increasingly interconnected world.

Gamification and game-based learning are innovative approaches to education that leverage the principles of game design and mechanics to enhance student engagement, motivation, and learning outcomes. Gamification involves integrating game elements, such as points, badges, leaderboards, and challenges, into non-game contexts, such as educational activities, to motivate and engage learners (Deterding et al., 2011). Game-based learning refers to the use of educational games, simulations, and interactive experiences to deliver instructional content, promote skill development, and facilitate learning (Plass et al., 2015). Games are inherently engaging and motivating due to their interactive nature, clear goals, immediate feedback, and sense of progression (Gee, 2007). By incorporating game elements into learning experiences, educators can capture students' interest and sustain their motivation to participate in educational activities (Sailer et al., 2017). Educational games can target various cognitive, affective, and psychomotor skills, including problem-solving, critical thinking, decision-making, collaboration, creativity, and digital literacy (Kebritchi et al., 2010). Through gameplay, students can practice and develop these skills in a fun and interactive manner. Gamification and game-based learning can be tailored to individual learners' needs,

preferences, and learning styles. Adaptive game mechanics, branching narratives, and scaffolded challenges allow students to progress at their own pace and receive personalized support and feedback (Klopfer et al., 2009). Social Many educational games incorporate social elements, such as multiplayer modes, cooperative gameplay, and online communities, which promote social interaction, collaboration, and peer learning (Steinkuehler & Duncan, 2008). By collaborating with peers and sharing experiences, students can deepen their understanding and build social relationships. Games provide built-in assessment mechanisms that track students' progress, performance, and mastery of learning objectives. Through gameplay data and analytics, educators can gain insights into students' strengths and weaknesses and provide targeted feedback to support their learning (Miller & Robertson, 2010). Real-World Gamification and game-based learning can simulate real-world contexts, scenarios, and challenges, allowing students to apply their knowledge and skills in authentic situations (Annetta et al., 2010). This experiential learning approach fosters transferable skills and prepares students for real-life situations. In summary, gamification and game-based learning offer promising opportunities to transform education by engaging students, promoting active learning, and fostering the development of essential 21st-century skills. By harnessing the power of games, educators can create immersive, interactive, and effective learning experiences that inspire curiosity, creativity, and lifelong learning.

Mobile learning (m-learning) and ubiquitous access refer to the use of mobile devices, such as smartphones, tablets, and laptops, to facilitate learning anytime and anywhere. Mobile devices provide learners with ubiquitous access to educational resources, allowing them to engage in learning activities outside the traditional classroom setting (Kukulska-Hulme & Traxler, 2005). This flexibility enables students to study at their own pace and convenience, accommodating diverse learning preferences and lifestyles. Mobile devices are lightweight, portable, and easy to carry, making them ideal tools for learning on the go (Sharples et al., 2007). Whether commuting to school, traveling, or waiting in line, students can access educational materials, multimedia content, and interactive applications conveniently from their mobile devices. Multimedia-rich Mobile learning platforms and applications offer a wide range of multimedia resources, including videos, animations, simulations, podcasts, and interactive e-books (Ally, 2009). These engaging and interactive materials enhance the learning experience, cater to different learning styles, and facilitate knowledge retention and comprehension. Mobile devices support collaborative learning activities through features such

as instant messaging, discussion forums, and social media integration (Crompton, 2013). Students can collaborate with peers, share ideas, and participate in group projects regardless of their physical location, fostering peer interaction and knowledge exchange. Learning platforms can adapt to individual learners' preferences, needs, and contexts through personalized recommendations, adaptive assessments, and tailored content delivery (Ogata & Yano, 2004). By catering to learners' unique requirements, mobile learning promotes self-directed learning and autonomy. Mobile learning applications enable real-time feedback and assessment through quizzes, polls, surveys, and interactive exercises (Koole, 2009). Immediate feedback allows students to monitor their progress, identify areas for improvement, and receive timely support from instructors or peers. Mobile devices can leverage augmented reality (AR) and location-based technologies to provide immersive learning experiences tied to specific physical locations (Dunleavy & Dede, 2014). AR applications overlay digital information onto the real-world environment, enhancing students' understanding of complex concepts and phenomena. Professional Mobile learning empowers educators to access professional development resources, instructional materials, and teaching tools conveniently from their mobile devices (Traxler, 2009). By staying connected to online communities, attending webinars, and participating in online courses, educators can enhance their teaching skills and stay abreast of emerging trends in education. Overall, mobile learning and ubiquitous access offer unprecedented opportunities to extend learning beyond the confines of the traditional classroom, promote lifelong learning, and empower learners to engage with educational content anytime, anywhere.

Formative assessment and feedback play crucial roles in the learning process by providing students with ongoing guidance, monitoring their progress, and informing instructional decisions. Here are some key aspects of formative assessment and feedback in the context of digital language learning in secondary education. Digital language learning platforms allow educators to monitor students' progress continuously through various assessment activities embedded within the instructional materials (Black & Wiliam, 1998). These assessments can take the form of quizzes, interactive exercises, peer evaluations, and self-assessments, providing real-time data on students' understanding and mastery of language skills. Digital language learning tools offer immediate feedback on students' responses to language exercises and tasks (Hattie & Timperley, 2007). Instant feedback allows students to identify and correct errors promptly, reinforcing learning and preventing the internalization of

misconceptions. Moreover, adaptive learning technologies can provide personalized feedback tailored to individual students' needs and learning trajectories. Digital language learning platforms often incorporate self-assessment tools that enable students to evaluate their own language proficiency, set learning goals, and track their progress over time (Boud & Falchikov, 2006). By engaging in self-assessment and reflection, students develop metacognitive skills, become more self-directed learners, and take ownership of their learning journey. Digital language learning environments facilitate peer assessment and collaboration, allowing students to provide feedback to their peers on language assignments, speaking tasks, and written compositions (Topping, 2009). Peer feedback promotes active engagement, fosters a sense of community among learners, and encourages constructive dialogue about language use and proficiency. Digital language learning platforms generate rich data on students' performance, engagement, and learning outcomes, which educators can use to inform instructional decision-making (Heritage, 2010). By analyzing assessment data, educators can identify areas of strength and weakness in students' language skills, adjust instructional strategies accordingly, and provide targeted interventions to support struggling learners. Formative feedback in digital language learning environments is often scaffolded to support students' language development progressively (Hattie & Gan, 2011). Feedback may include linguistic cues, model responses, corrective explanations, and examples tailored to students' proficiency levels, ensuring that feedback is comprehensible, relevant, and actionable. Effective formative assessment and feedback practices in digital language learning promote a growth mindset by emphasizing the importance of effort, practice, and persistence in language learning (Dweck, 2006). Encouraging students to view mistakes as opportunities for learning and improvement fosters resilience, motivation, and a positive attitude toward language learning challenges. In summary, formative assessment and feedback in digital language learning environments support student learning by providing timely, targeted, and constructive guidance, fostering metacognitive awareness, promoting collaboration and peer interaction, and informing data-driven instructional practices.

Data-driven instructional planning in the context of digital learning in secondary education involves leveraging technology and educational data to inform teaching practices and improve student outcomes (National Education Association, 2018). By systematically collecting and analyzing data, educators can gain insights into student progress, identify areas for improvement, and tailor instruction to meet individual learning needs (Garet et al.,

2001). One essential aspect of data-driven instructional planning is the use of formative assessment data to monitor student learning in real-time (Baker & Inventado, 2014). Educators can utilize various digital tools and platforms to administer formative assessments, such as quizzes, polls, and interactive activities. These assessments provide immediate feedback on student understanding, allowing teachers to adjust their instruction accordingly and provide targeted support or enrichment as needed. Additionally, summative assessment data, including standardized test scores and course grades, play a vital role in data-driven instructional planning (National Education Association, 2018). By analyzing these data points, educators can identify trends and patterns in student performance over time, pinpoint areas of strength and weakness, and make data-informed decisions about curriculum and instruction. Furthermore, data-driven instructional planning enables educators to personalize learning experiences for students based on their individual needs and preferences (Garet et al., 2001). Through the use of adaptive learning technologies and digital content, teachers can provide students with tailored instruction that meets them at their current skill level and challenges them to grow. Overall, data-driven instructional planning empowers educators to make evidence-based decisions, optimize teaching and learning experiences, and ultimately enhance student achievement in the digital age.

2.2. Types of digital language learning in secondary education

Interactive Language Learning Platforms are digital tools and platforms designed to facilitate language learning through interactive and engaging activities. Here's more information about them. Interactive Language Learning Platforms typically offer a range of features and components to support language learning. These may include interactive lessons, exercises, quizzes, games, and multimedia content such as videos, audio recordings, and images. The platforms often cover various language skills, including listening, speaking, reading, and writing, and may provide grammar explanations, vocabulary lists, and pronunciation practice. Some interactive platforms incorporate adaptive learning technology, which personalizes the learning experience based on the student's proficiency level, learning style, and progress. Adaptive learning algorithms analyze student performance and provide tailored feedback, recommendations, and content to address individual learning needs and preferences. Interactive Language Learning Platforms aim to enhance student engagement and motivation by offering interactive and gamified activities. These platforms often incorporate elements of gamification, such as points, badges, leaderboards, and rewards, to make learning fun and enjoyable. By

providing immediate feedback and opportunities for interaction, the platforms help keep students motivated and focused on their language learning goals. One of the key advantages of interactive platforms is their accessibility and convenience. Students can access language learning materials anytime, anywhere, as long as they have an internet connection and a compatible device, such as a computer, tablet, or smartphone. This flexibility allows students to learn at their own pace and fit language learning into their busy schedules. Many interactive platforms offer features for teachers to support and monitor student progress. Teachers can track student performance, view detailed analytics and reports, and provide personalized guidance and support as needed. Some platforms also include communication tools for teachers and students to interact, collaborate, and communicate effectively. Interactive Language Learning Platforms may integrate with Learning Management Systems (LMS) used by schools and educational institutions. This integration allows seamless access to language learning resources within the broader educational context and enables teachers to incorporate language learning activities into their curriculum and lesson plans. Interactive platforms often support multiple languages, allowing students to learn a variety of languages based on their interests and learning goals. Whether students are studying English as a second language (ESL), Spanish, French, Mandarin, or other languages, they can find interactive platforms tailored to their specific language learning needs. Overall, Interactive Language Learning Platforms play a crucial role in modern language education by providing engaging, personalized, and accessible learning experiences for students of all ages and proficiency levels.

Language learning apps have revolutionized the way students acquire new languages by providing convenient, accessible, and interactive learning experiences directly on their mobile devices. These apps offer a wide range of features, including interactive lessons, gamified activities, speech recognition technology, and personalized learning pathways, making language learning engaging and effective. Below, we will delve deeper into the characteristics of language learning apps and explore some prominent examples in the field. Language learning apps offer interactive lessons that cover various aspects of language learning, including vocabulary, grammar, listening comprehension, speaking, and writing. These lessons often incorporate multimedia elements such as audio recordings, images, and videos to engage learners and enhance their understanding of language concepts. Many language learning apps use gamification techniques to motivate learners and make the learning process more enjoyable. Gamified activities may include quizzes, challenges, rewards, and progress tracking features,

encouraging users to stay motivated and continue practicing regularly. Some language learning apps integrate speech recognition technology, allowing users to practice pronunciation and speaking skills. By analyzing users' spoken responses, these apps provide instant feedback on pronunciation accuracy and offer suggestions for improvement, helping learners refine their speaking abilities. Language learning apps often employ adaptive learning algorithms to tailor the learning experience to each user's individual needs and preferences. These apps track users' progress, identify areas for improvement, and adjust the difficulty level of lessons accordingly, ensuring that learners receive personalized instruction that meets their unique learning goals. One of the key advantages of language learning apps is their mobile accessibility, allowing users to learn anytime, anywhere. With apps installed on their smartphones or tablets, learners can practice language skills during idle moments, such as commuting, waiting in line, or relaxing at home, making language learning more integrated into their daily lives. Duolingo is one of the most popular language learning apps globally, offering courses in over 30 languages. The app features interactive lessons, gamified activities, and a user-friendly interface that appeals to learners of all ages and proficiency levels (Duolingo, n.d.). Babbel is another well-known language learning app that focuses on practical language skills and real-life conversations. The app offers courses in 14 languages and employs a communicative approach to language learning, emphasizing speaking and listening skills (Babbel, n.d.). Memrise combines spaced repetition with mnemonic techniques to help users memorize vocabulary effectively. The app offers courses in multiple languages and features a variety of multimedia content, including videos, audio recordings, and interactive exercises (Memrise, n.d.). Rosetta Stone is a pioneering language learning program that has transitioned into a mobile app format. The app utilizes immersive learning techniques and speech recognition technology to simulate real-life language immersion experiences (Rosetta Stone, n.d.). Language learning apps have become indispensable tools for learners seeking to acquire new languages in today's digital age. With their interactive lessons, gamified activities, speech recognition technology, personalized learning pathways, and mobile accessibility, these apps offer learners a flexible, engaging, and effective way to develop language skills anytime, anywhere. As technology continues to advance, language learning apps will likely play an increasingly prominent role in secondary education and beyond, empowering learners to become proficient communicators in a globalized world.

Virtual language labs are innovative digital platforms designed to facilitate language learning through interactive and immersive experiences. These labs offer a range of features and tools that enable students to practice and enhance their language skills in a virtual environment. Below, the study explore some key characteristics of virtual language labs and their benefits for secondary education. Virtual language labs provide access to a wide range of multimedia resources, including audio recordings, videos, interactive exercises, and authentic materials such as articles, podcasts, and videos. These resources are carefully curated to expose students to real-life language use and cultural contexts, helping them develop listening, reading, and comprehension skills. Virtual language labs offer interactive activities that engage students in meaningful language practice. These activities may include role-playing simulations, conversation practice with virtual partners, language games, quizzes, and collaborative projects. By actively participating in these activities, students can improve their speaking, writing, and communication skills in a supportive and interactive environment. Virtual language labs incorporate features for providing feedback and assessment on students' language performance. These may include automated feedback on pronunciation, grammar, and vocabulary usage, as well as opportunities for peer and instructor feedback on written assignments and speaking tasks. Additionally, virtual language labs often include built-in assessment tools to track students' progress and identify areas for improvement. Virtual language labs offer flexibility and autonomy for students to learn at their own pace. Learners can access instructional materials, complete activities, and review content asynchronously, allowing them to tailor their learning experience to their individual needs and preferences. This self-paced approach promotes student engagement and ownership of learning outcomes. Some virtual language labs feature tools for real-time communication and collaboration among students and instructors. These may include chat functions, video conferencing capabilities, and discussion forums where students can interact with each other and receive support from instructors. Real-time communication enhances the sense of community and fosters collaborative learning experiences. language labs provide students with anytime, anywhere access to language learning resources, eliminating the constraints of physical classrooms and traditional learning environments. This accessibility allows students to engage in language learning activities at their convenience, accommodating diverse schedules and learning preferences. The interactive and immersive nature of virtual language labs promotes student engagement and motivation. By incorporating multimedia resources, gamified activities, and interactive simulations, these platforms capture students' interest and encourage active participation in language learning tasks. Virtual language labs

support personalized learning experiences by offering adaptive feedback, tailored content recommendations, and customizable learning pathways. Students can focus on areas of language proficiency that are most relevant to their goals and interests, enabling them to progress at their own pace and maximize their learning outcomes. Virtual language labs facilitate collaboration and communication among students, allowing them to practice language skills in authentic contexts and engage in peer learning activities. Through collaborative projects, group discussions, and interactive tasks, students develop interpersonal and communication skills essential for real-world language use. Virtual language labs feature built-in assessment tools that enable instructors to monitor students' progress, evaluate their language proficiency, and provide targeted support and feedback. These assessment capabilities allow instructors to identify students' strengths and weaknesses, inform instructional decisions, and track learning outcomes over time. Virtual language labs offer a dynamic and interactive learning environment that empowers students to develop language proficiency effectively and authentically. By providing access to multimedia resources, interactive activities, feedback and assessment tools, and opportunities for collaboration and communication, these platforms enhance the quality and flexibility of language learning experiences in secondary education. As technology continues to evolve, virtual language labs will play an increasingly integral role in supporting language instruction and promoting student success in today's interconnected world.

Online language courses have become increasingly popular in secondary education due to their accessibility, flexibility, and effectiveness in facilitating language learning (Blake, 2016). These courses provide students with the opportunity to study a foreign language or improve their language proficiency entirely online, often through dedicated platforms or learning management systems. Here, the study explores the key characteristics and benefits of online language courses in secondary education. Characteristics of Online Language Courses Online language courses typically offer a structured curriculum that covers various language skills, including reading, writing, listening, speaking, and grammar. The curriculum is often divided into modules or units, each focusing on specific language topics or themes, and progresses in a logical sequence to build students' proficiency incrementally. Online language courses leverage multimedia resources to engage students and enhance their learning experience (Hubbard, 2020). These resources may include interactive lessons, video tutorials, audio recordings, virtual flashcards, and digital textbooks. By incorporating diverse multimedia elements, courses cater to different learning styles and preferences, making language learning

more accessible and enjoyable. To promote active learning and skill development, online language courses offer a variety of interactive activities and exercises. These activities may include vocabulary drills, grammar exercises, comprehension quizzes, role-playing simulations, and speaking practice sessions. Interactive features encourage students to engage with the language actively and apply their knowledge in meaningful contexts. One of the key advantages of online language courses is their flexibility and self-paced learning format (Warschauer, 2010). Students can access course materials and complete assignments at their own convenience, allowing them to study anytime, anywhere, and progress through the course at their preferred pace. Self-paced learning accommodates diverse schedules and learning preferences, empowering students to take control of their language learning journey. Online language courses incorporate mechanisms for providing feedback and assessing students' progress (Blake, 2016). These may include automated quizzes and exercises with instant feedback, instructor-led assessments, peer evaluations, and self-assessment tools. Feedback mechanisms help students identify areas for improvement and track their language proficiency over time, while assessments provide valuable insights into their learning outcomes. Online language courses offer accessible and inclusive learning opportunities for students, regardless of their geographical location or physical limitations (Hubbard, 2020). Students can participate in language learning activities from anywhere with an internet connection, eliminating barriers to access and promoting equitable education. The flexible nature of online language courses allows students to balance their language studies with other commitments, such as school, extracurricular activities, and personal obligations. Students have the freedom to study at their own pace and schedule, enabling them to customize their learning experience to suit their individual needs and preferences. Online language courses support personalized learning experiences by offering adaptive content, customizable learning paths, and tailored feedback (Blake, 2016). Students can focus on specific language skills or areas of interest, access supplemental resources, and receive targeted support from instructors or tutors, enhancing the relevance and effectiveness of their language learning journey. Online language courses employ interactive features and multimedia elements to engage students actively in the learning process (Warschauer, 2010). Through interactive activities, collaborative projects, and multimedia resources, students interact with the language in authentic contexts, fostering deeper engagement, motivation, and retention of language skills. Online language courses provide students with ongoing support and resources to facilitate their language learning journey (Hubbard, 2020). This support may include access to online tutors or language instructors, peer

support through discussion forums or virtual communities, technical assistance, and academic advising. Continuous support ensures that students receive guidance and assistance whenever they encounter challenges or require additional help with their language studies. Online language courses offer a flexible, interactive, and accessible approach to language learning in secondary education. By leveraging multimedia resources, interactive activities, self-paced learning formats, and personalized support, these courses empower students to develop language proficiency effectively and autonomously. As digital technology continues to evolve, online language courses will play an increasingly important role in expanding access to high-quality language education and promoting student success in today's globalized world.

Language learning software refers to computer programs or applications designed to facilitate the acquisition of foreign language skills through interactive and multimedia-based instruction. These software solutions offer a wide range of features and functionalities to support language learners in developing proficiency in reading, writing, listening, speaking, and comprehension. Here, the study explores the key characteristics and benefits of language learning software in secondary education. Characteristics of Language Learning Software Language learning software provides interactive lessons that engage students actively in the learning process. These lessons may include multimedia content such as videos, audio recordings, animations, and interactive exercises to teach vocabulary, grammar, pronunciation, and language structures. Many language learning software programs incorporate adaptive learning algorithms that personalize the learning experience for each student (Lai & Zhao, 2006). By analyzing learners' strengths, weaknesses, and progress, the software adapts the difficulty level and content of lessons to meet individual learning needs, ensuring optimal engagement and skill development. To enhance motivation and engagement, language learning software often integrates gamification elements such as points, badges, levels, challenges, and rewards (Reinders & Wattana, 2014). Gamified features encourage students to actively participate in language learning activities, set goals, track their progress, and compete with peers, making the learning experience more enjoyable and rewarding. Language learning software provides immediate and multimodal feedback to learners on their performance (Bachman & Palmer, 2010). Feedback may include corrective feedback on pronunciation, grammar, and vocabulary usage, as well as reinforcement of correct responses and explanations of errors. Multimodal feedback helps students identify areas for improvement and reinforce learning outcomes effectively. Language learning software enables students and instructors to

track learners' progress systematically (Lai & Zhao, 2006). Progress tracking features allow students to monitor their performance, review completed lessons, track their scores and achievements, and set learning goals. Instructors can access learners' performance data to assess their proficiency levels, identify learning gaps, and provide targeted support as needed. Language learning software provides students with anytime, anywhere access to language learning resources (Reinders & Wattana, 2014). Students can engage in language learning activities from their computers, tablets, or smartphones, eliminating geographical barriers and facilitating independent learning outside the classroom. Language learning software offers personalized learning experiences tailored to individual student needs and preferences (Bachman & Palmer, 2010). Through adaptive learning algorithms, the software adjusts the pace, content, and difficulty level of lessons to match each student's learning style, proficiency level, and learning objectives, promoting more effective and efficient learning outcomes. Engagement and The interactive and gamified nature of language learning software enhances student engagement and motivation (Reinders & Wattana, 2014). Gamified features, such as rewards, progress tracking, and virtual incentives, incentivize students to participate actively in language learning activities, set goals, and monitor their progress, fostering a sense of achievement and enjoyment in the learning process. Language learning software offers flexibility and convenience for both students and instructors (Bachman & Palmer, 2010). Students can access language learning resources at their own pace and schedule, enabling them to learn at times that best suit their individual needs and preferences. Instructors can supplement classroom instruction with online resources, assign homework, and track student progress more efficiently using language learning software. Research suggests that language learning software can lead to improved learning outcomes and language proficiency levels (Lai & Zhao, 2006). By providing interactive and adaptive learning experiences, personalized feedback, and progress tracking features, language learning software empowers students to develop language skills more effectively and autonomously, leading to greater confidence and competence in the target language. Language learning software offers a powerful and versatile tool for facilitating language acquisition and proficiency development in secondary education. By leveraging interactive lessons, adaptive learning algorithms, gamification elements, multimodal feedback, and progress tracking features, language learning software enhances engagement, motivation, and learning outcomes for students. As digital technology continues to evolve, language learning software will play an increasingly important role in promoting language education and fostering global competence among secondary school students.

Language learning websites are online platforms that offer a wide range of resources, tools, and interactive activities to support language acquisition and proficiency development. These websites cater to learners of all ages and proficiency levels, providing access to comprehensive language courses, multimedia content, interactive exercises, language tools, and community forums. Here, the study delves into the key features and benefits of language learning websites in secondary education. Language learning websites offer comprehensive courses designed to teach various aspects of language learning, including vocabulary, grammar, pronunciation, reading, writing, listening, and speaking skills. These courses often follow structured curriculum frameworks and are divided into different levels or proficiency bands to accommodate learners with varying skill levels and learning objectives. Language learning websites incorporate multimedia content such as videos, audio recordings, interactive lessons, animations, and authentic materials to enhance the learning experience (Hubbard, 2013). Multimedia content provides learners with diverse learning opportunities, exposes them to authentic language use, and makes learning more engaging and interactive. Interactive Language learning websites offer a wide range of interactive exercises and activities to reinforce language learning concepts and skills (Chapelle & Douglas, 2006). These exercises may include vocabulary drills, grammar quizzes, listening comprehension tasks, speaking practice sessions, and writing assignments, allowing learners to practice language skills in context and receive immediate feedback on their performance. Language learning websites provide access to a variety of language tools and resources to support learning and practice (Hubbard, 2013). These tools may include dictionaries, grammar guides, language reference materials, translation services, pronunciation tools, and language learning apps, empowering learners to supplement their studies and address specific learning needs. Many language learning websites offer progress tracking and performance analytics features that allow learners to monitor their progress and assess their proficiency levels (Chapelle & Douglas, 2006). Learners can track their completion of lessons, scores on quizzes and assignments, time spent on learning activities, and areas of strength and weakness, enabling them to set learning goals and track their improvement over time. Benefits of Language Learning Websites in Secondary Education Language learning websites provide students with convenient access to language learning resources anytime, anywhere, using internet-connected devices such as computers, tablets, or smartphones (Hubbard, 2013). This accessibility enables students to engage in self-paced, independent learning outside the classroom, facilitating continuity of learning and skill development. Language learning websites offer flexible learning options that accommodate

students' individual learning styles, preferences, and schedules (Chapelle & Douglas, 2006). Students can choose from a variety of courses, lessons, and activities, tailor their learning experiences to their specific needs and interests, and progress at their own pace, enhancing motivation and engagement. Language learning websites provide learners with diverse learning opportunities by offering a wide range of courses, materials, and activities in multiple languages (Hubbard, 2013). Learners can explore different languages, cultures, and topics of interest, broaden their linguistic and cultural horizons, and develop intercultural competence and global awareness. Language learning websites offer individualized learning support through adaptive learning algorithms, personalized feedback, and tailored learning pathways (Chapelle & Douglas, 2006). By analyzing learners' performance data and learning preferences, these websites can customize the learning experience to meet each student's unique needs, strengths, and learning objectives, maximizing learning outcomes. Collaborative Learning Many language learning websites facilitate collaborative learning experiences through online forums, discussion boards, and community features (Hubbard, 2013). Learners can interact with peers, exchange ideas, practice language skills, and receive peer feedback, fostering a sense of community and shared learning experience. Language learning websites offer a versatile and effective platform for supporting language acquisition and proficiency development in secondary education. By providing comprehensive courses, multimedia content, interactive exercises, language tools, and collaborative learning opportunities, these websites empower students to engage in meaningful and self-directed language learning experiences. As digital technology continues to evolve, language learning websites will play an increasingly important role in promoting language education and fostering global competence among secondary school students.

Language learning websites are online platforms that offer a wide range of resources, tools, and interactive activities to support language acquisition and proficiency development. These websites cater to learners of all ages and proficiency levels, providing access to comprehensive language courses, multimedia content, interactive exercises, language tools, and community forums. Here, the study delves into the key features and benefits of language learning websites in secondary education. Language learning websites offer comprehensive courses designed to teach various aspects of language learning, including vocabulary, grammar, pronunciation, reading, writing, listening, and speaking skills. These courses often follow structured curriculum frameworks and are divided into different levels or proficiency bands to

accommodate learners with varying skill levels and learning objectives. Learning websites incorporate multimedia content such as videos, audio recordings, interactive lessons, animations, and authentic materials to enhance the learning experience (Hubbard, 2013). Multimedia content provides learners with diverse learning opportunities, exposes them to authentic language use, and makes learning more engaging and interactive. Language learning websites offer a wide range of interactive exercises and activities to reinforce language learning concepts and skills (Chapelle & Douglas, 2006). These exercises may include vocabulary drills, grammar quizzes, listening comprehension tasks, speaking practice sessions, and writing assignments, allowing learners to practice language skills in context and receive immediate feedback on their performance. Language learning websites provide access to a variety of language tools and resources to support learning and practice (Hubbard, 2013). These tools may include dictionaries, grammar guides, language reference materials, translation services, pronunciation tools, and language learning apps, empowering learners to supplement their studies and address specific learning needs. Many language learning websites offer progress tracking and performance analytics features that allow learners to monitor their progress and assess their proficiency levels (Chapelle & Douglas, 2006). Learners can track their completion of lessons, scores on quizzes and assignments, time spent on learning activities, and areas of strength and weakness, enabling them to set learning goals and track their improvement over time. Language learning websites provide students with convenient access to language learning resources anytime, anywhere, using internet-connected devices such as computers, tablets, or smartphones (Hubbard, 2013). This accessibility enables students to engage in self-paced, independent learning outside the classroom, facilitating continuity of learning and skill development. Language learning websites offer flexible learning options that accommodate students' individual learning styles, preferences, and schedules (Chapelle & Douglas, 2006). Students can choose from a variety of courses, lessons, and activities, tailor their learning experiences to their specific needs and interests, and progress at their own pace, enhancing motivation and engagement. Diverse Learning Language learning websites provide learners with diverse learning opportunities by offering a wide range of courses, materials, and activities in multiple languages (Hubbard, 2013). Learners can explore different languages, cultures, and topics of interest, broaden their linguistic and cultural horizons, and develop intercultural competence and global awareness. Language learning websites offer individualized learning support through adaptive learning algorithms, personalized feedback, and tailored learning pathways (Chapelle & Douglas, 2006). By analyzing learners' performance data and learning

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Social media and online communities have transformed the landscape of language learning by providing learners with opportunities for collaboration, interaction, and cultural exchange. In this section, we delve into the role of social media platforms and online communities in facilitating language learning and fostering linguistic and intercultural competence among secondary school students. Social media platforms and online communities connect learners with speakers of the target language worldwide, enabling them to engage in authentic language use and cultural exchange (Lamy & Hampel, 2007). Learners can interact with native speakers, language enthusiasts, and fellow learners, transcending geographical boundaries and cultural barriers. Social media platforms enable users to create, share, and access user-generated content related to language learning, including posts, videos, photos, and audio recordings (Thorne et al., 2013). Learners can leverage this diverse array of content to practice language skills, explore authentic language use, and gain insights into the target culture. Online communities provide informal learning spaces where learners can engage in casual conversations, discussions, and language exchange activities (Lamy & Hampel, 2007). These spaces encourage spontaneous interaction, peer support, and collaborative learning, fostering a sense of community and camaraderie among participants. Social media platforms support multimodal communication through text, images, videos, audio messages, and emoticons, enriching the communicative experience and accommodating diverse learning preferences (Kern, 2014). Learners can express themselves creatively, engage in authentic communicative

tasks, and receive feedback from peers and mentors. Social media platforms facilitate real-time interaction and synchronous communication through features such as instant messaging, video conferencing, and live streaming (Kern, 2014). Learners can engage in live conversations, virtual language exchanges, and collaborative projects, enhancing their speaking and listening skills in real-world contexts. Social media platforms provide access to authentic language use in real-world contexts, allowing learners to encounter diverse linguistic varieties, registers, and discourse styles (Thorne et al., 2013). Learners can explore authentic texts, cultural artifacts, and multimedia content, enriching their understanding of the target language and culture. Communities facilitate cultural exchange and intercultural awareness by connecting learners with speakers of different linguistic and cultural backgrounds (Lamy & Hampel, 2007). Learners can engage in cross-cultural communication, share perspectives, and develop empathy and tolerance towards diverse cultural identities. Peer Social media platforms enable peer collaboration, feedback, and peer teaching, empowering learners to support each other's language learning journey (Thorne et al., 2013). Learners can provide constructive feedback, share resources, and co-create learning materials, fostering a collaborative and supportive learning environment. Online communities offer personalized learning experiences tailored to individual learner interests, goals, and proficiency levels (Kern, 2014). Learners can curate their learning resources, participate in self-directed learning activities, and pursue topics of personal interest, promoting autonomy and intrinsic motivation. Social media platforms provide learners with continuous learning opportunities beyond the classroom, allowing them to engage in language learning anytime, anywhere (Lamy & Hampel, 2007). Learners can access language learning materials, participate in discussions, and practice language skills during their leisure time, maximizing their exposure to the target language. Social media and online communities play a pivotal role in enhancing language learning experiences for secondary school students, offering opportunities for authentic language use, cultural exchange, peer collaboration, and personalized learning. By harnessing the power of social media platforms and online communities, educators can create immersive and engaging language learning environments that foster linguistic proficiency, intercultural competence, and lifelong learning habits among learners.

Incorporating digital technologies effectively into language teaching necessitates educators possessing pedagogical expertise and undergoing continuous professional development (Hubbard, 2019). Many teachers may lack the requisite training and assistance to

design and execute digital language learning activities that are pedagogically robust, culturally sensitive, and captivating for a diverse student body. The quality and suitability of digital language learning resources can fluctuate significantly, influencing the efficacy of online language instruction (Zhang & Kenny, 2010). Educators must meticulously assess the authenticity, precision, and suitability of digital materials, ensuring they align with educational standards, language learning goals, and the linguistic proficiency levels of their students. Tackling the challenges and obstacles encountered in digital language learning within secondary education necessitates a comprehensive strategy that addresses issues such as access, equity, pedagogy, technology, and policy. By acknowledging and addressing these challenges, educators and policymakers can establish inclusive, equitable, and impactful digital language learning environments that empower all students to acquire proficiency in a second language and flourish in an interconnected world.

2.3 Challenges and Barriers of digital language learning in secondary education

While digital language learning offers numerous benefits and opportunities, it also presents several challenges and barriers that educators and learners may encounter. In this section, the study explores some of the key challenges and barriers associated with implementing digital language learning in secondary education.

In addition to access to devices, internet connectivity is also a crucial factor in digital language learning. Students in rural or underserved areas may face challenges in accessing high-speed internet, limiting their ability to participate in online learning activities (Gurumurthy & Chami, 2017). Furthermore, disparities in access to technology can exacerbate existing inequalities in educational outcomes, widening the digital divide between students from different socioeconomic backgrounds (Warschauer, 2003). Technological literacy encompasses a range of skills beyond basic digital literacy, including critical thinking, problem-solving, and information literacy (Zheng & Warschauer, 2020). However, many students and educators may lack these skills, particularly in the context of using technology for educational purposes. Educators must not only provide training in the use of digital tools but also promote digital citizenship and responsible use of technology (Selwyn, 2016). Moreover, the rapid pace of technological advancements requires continuous learning and adaptation. Educators need to stay updated on emerging technologies and pedagogical approaches to effectively integrate technology into language learning instruction (Hubbard, 2019). This ongoing professional

development is essential for ensuring that educators are equipped with the knowledge and skills needed to navigate the evolving landscape of digital language learning.

Inadequate internet connectivity and bandwidth can pose significant barriers to online language learning, particularly in rural or remote areas where internet access may be limited or unreliable (UNESCO, 2017). Slow internet speeds, connectivity issues, and bandwidth limitations can disrupt online learning activities, hinder access to multimedia content, and impede real-time communication and collaboration. Addressing these challenges requires investment in infrastructure development, such as expanding broadband access and upgrading network infrastructure, to ensure equitable access to digital learning resources for all students (Wong & Zhang, 2020).

The digital divide refers to disparities in access to digital technologies and digital skills based on socioeconomic status, geographic location, or demographic factors (Warschauer, 2003). Students from disadvantaged backgrounds or marginalized communities may face greater challenges in accessing digital language learning resources, exacerbating existing inequalities in educational opportunities. Bridging the digital divide requires targeted interventions to provide access to technology and digital literacy training for underserved populations, along with efforts to address broader socioeconomic inequalities that contribute to disparities in access (Sakamoto et al., 2019). Privacy and security concerns related to the use of digital technologies in education are another significant barrier. Educators must navigate issues related to data privacy, online safety, and cybersecurity to protect students' personal information and ensure safe and ethical use of digital tools and platforms (Selwyn, 2016). Concerns about data breaches, identity theft, and online harassment may undermine trust in digital language learning environments. Implementing robust data protection measures, educating students about online safety practices, and fostering a culture of digital citizenship are essential for addressing these concerns and promoting a safe and secure learning environment (Dudeney et al., 2013).

PART 3 PRACTICAL RESEARCH

The present study delves into the various aspects of digital learning in secondary education, focusing on its impact on students and teachers. With the rapid advancement of technology, digital learning has emerged as a prominent educational approach, offering diverse opportunities for engagement, flexibility, and improved learning outcomes. This study seeks to explore the effectiveness of digital learning in secondary education settings, examining its potential benefits and challenges.

In recent years, digital learning has gained traction as an effective method to engage students and enhance learning outcomes. This study aims to assess whether digital learning has similarly influenced learning in secondary education contexts. Digital learning offers students the flexibility to learn at their own pace and on their own schedule, catering to their individual learning preferences and styles. The availability of online resources and multimedia content can enrich the learning experience and provide students with diverse learning opportunities.

Employing a mixed-methods approach, this study will gather both quantitative and qualitative data to comprehensively understand the impact of digital learning. Surveys and questionnaires will be used to collect quantitative data from students and teachers, while focus group discussions will provide qualitative insights into their experiences with digital learning.

While digital learning presents numerous benefits, it also poses certain challenges. Some students may struggle with navigating digital platforms and accessing course materials, leading to feelings of confusion and frustration. Similarly, teachers may face challenges in designing and delivering digital learning modules that effectively meet the diverse needs of students.

Overall, this study aims to shed light on the multifaceted nature of digital learning in secondary education. By examining its impact on students, alumnus and teachers, as well as the associated benefits and challenges, this research seeks to inform educators, alumnus, students about effective strategies for implementing digital learning in secondary education settings. Through careful consideration and adaptation, digital learning has the potential to revolutionize secondary education and prepare students for success in a rapidly evolving digital world.

3.1 Research participants and data collection

The core of this study lies in the voices and experiences of 22 current secondary education students. This diverse cohort represents a blend of individuals navigating the intricate landscape of secondary education, offering a nuanced perspective on the efficacy and dynamics of online language learning. This study's participants were carefully selected based on their current enrollment in secondary education institutions. The inclusion of recent alumni, who have completed their secondary education within the last three years, enriches the dataset by providing retrospective insights into their online language learning experiences. The cohort encapsulates a spectrum of demographics, encompassing various grade levels within the secondary education system. Ranging from freshmen to seniors, each participant contributes a unique vantage point, reflecting the evolving needs and challenges encountered throughout their educational journey. By virtue of their current enrollment or recent graduation, participants offer real-time and retrospective perspectives on online language learning. Their firsthand experiences, coupled with the wisdom gleaned from navigating secondary education, form the cornerstone of this study's insights. The data collection process employed a meticulously crafted questionnaire designed to elicit nuanced responses from participants. Through a series of structured inquiries, participants were encouraged to reflect on their online language learning experiences, preferences, and perceptions. Throughout the data collection phase, stringent ethical guidelines were adhered to, ensuring the confidentiality and anonymity of participants. Informed consent was obtained prior to participation, affirming their voluntary involvement in the study. The inclusion of recent alumni fosters a dynamic dialogue between past and present, offering invaluable insights into the longitudinal impact of online language learning. Their reflections serve as a bridge between retrospective wisdom and contemporary challenges, enriching the study's narrative tapestry.

3.2 Data analysis and results

The first research question, about in what grades the students are, aimed to provide insights into the demographic distribution of participants in terms of their educational level. The responses obtained from the survey revealed a diverse range of educational backgrounds among the participants, spanning from 9th to 12th grade, as well as individuals who were no longer enrolled in formal education.

The data analysis indicated that the majority of respondents (56.5%) were no longer studying, suggesting that a significant portion of the sample comprised individuals who had already completed their secondary education. Among those who were still enrolled, the distribution across grades varied, with 21.7% of participants studying in the 12th grade, indicating that they were in their final year of secondary education. Additionally, 13% of respondents reported being in the 10th grade, while the remaining participants were distributed across other grade levels.

These findings underscore the importance of considering the diverse educational backgrounds of participants in research studies, particularly in the context of secondary education. Understanding the grade levels of participants allows for a more nuanced interpretation of research findings and enables researchers to tailor their analyses and recommendations to specific educational contexts.

Furthermore, the prevalence of individuals who were no longer enrolled in formal education highlights the need to consider the perspectives and experiences of non-traditional learners in discussions surrounding digital learning in secondary education. This population may have unique insights and challenges that warrant attention in educational research and policy-making efforts.

Overall, the analysis of participants' grade levels provides valuable context for understanding the demographic composition of the study sample and enhances the relevance and applicability of the research findings to the broader secondary education landscape.

The second research question, aimed to explore the prevalence of online English language learning among the participants. The responses obtained from the survey revealed interesting insights into the adoption of online learning platforms for English language acquisition.

The data analysis indicated that a majority of respondents (60.9%) reported engaging in online English language study, indicating a significant uptake of digital resources for language learning purposes. This finding underscores the growing importance of online platforms and digital tools in facilitating language learning opportunities, particularly in the context of English language acquisition.

Conversely, 39.1% of participants indicated that they did not study English online. While this percentage is lower than those who reported engaging in online study, it still represents a considerable portion of the sample. This suggests that traditional modes of language learning, such as classroom instruction or self-study using printed materials, remain prevalent among some individuals.

The prevalence of online English language study observed in this study reflects broader trends in education, where digital technologies are increasingly integrated into teaching and learning practices. Online platforms offer numerous benefits, including flexibility, accessibility, and a wide range of resources and activities tailored to individual learning needs. Moreover, the COVID-19 pandemic has further accelerated the adoption of online learning, as educational institutions and learners alike have sought alternative modes of instruction in response to physical distancing measures and remote learning requirements.

The findings of this study have implications for educators, policymakers, and stakeholders involved in English language education. Understanding the prevalence of online learning and its impact on language acquisition can inform the development of effective teaching strategies, curriculum design, and resource allocation to support learners' needs in both traditional and online learning environments.

The third research question sought to investigate participants' perceptions of the effectiveness of online language learning as a tool for acquiring language proficiency. The responses obtained from the survey provided valuable insights into the perceived utility of online language learning among the sample population.

The data analysis revealed that a substantial majority of respondents (69.6%) reported finding online language learning useful. This finding suggests that the majority of participants recognize the value and efficacy of online platforms and resources in supporting their language learning endeavors. The positive perception of online language learning highlights its potential to enhance language acquisition by providing learners with access to a wide range of interactive materials, multimedia resources, and opportunities for practice and engagement.

Furthermore, a notable proportion of respondents (21.7%) indicated that they considered online language learning to be the best way to learn a language. This viewpoint underscores the perceived advantages of online platforms over traditional modes of language instruction, such

as classroom-based learning or self-study using printed materials. The convenience, flexibility, and personalized learning experiences offered by online platforms are likely contributing factors to this perception, as they empower learners to tailor their learning journey according to their individual preferences, pace, and objectives.

Conversely, a smaller percentage of participants (8.7%) either did not find online language learning useful or did not engage in online learning for language acquisition purposes. While this represents a minority viewpoint within the sample population, it is important to acknowledge diverse perspectives on the efficacy of online learning and to consider the various factors that may influence individuals' preferences and experiences with online language learning.

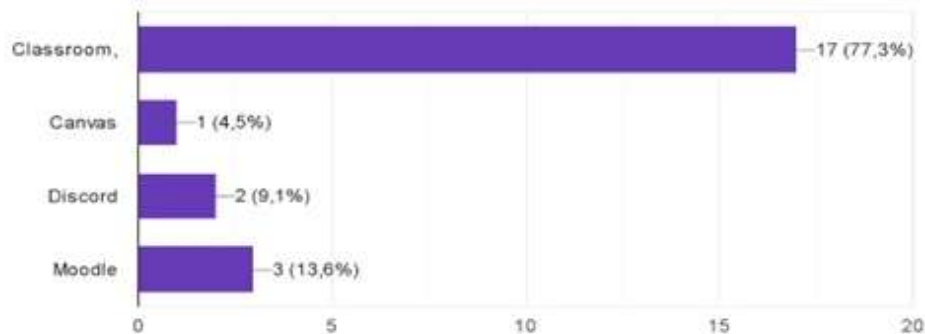
The fourth research question aimed to explore the specific online platforms utilized by participants for language learning purposes. By examining the distribution of responses regarding platform usage, valuable insights can be gained into the popularity and effectiveness of different digital learning platforms among the sample population.

The analysis of participant responses revealed that the majority of individuals (77.3%) reported using a platform simply referred to as "classroom." This finding suggests that a significant proportion of respondents rely on unspecified or generic online learning environments, possibly indicating a preference for traditional learning management systems or educational platforms commonly used in academic settings.

Furthermore, a smaller percentage of participants indicated using specific online platforms for language learning. Among these platforms, Moodle was the most frequently cited, with 13.6% of respondents reporting its usage. Moodle, an open-source learning management system, provides a flexible and customizable online learning environment that supports a wide range of educational activities, including language learning.

Additionally, a minority of participants reported using Discord (9.1%) and Canvas (4.5%) for online language learning. Discord, a communication platform originally designed for gamers, has gained popularity as a versatile tool for online communities and collaborative learning experiences. Canvas, on the other hand, is a proprietary learning management system commonly used in educational institutions to deliver online courses and facilitate virtual learning environments. curricula to enhance engagement, interactivity, and learning outcomes

Figure 3.2.1 Types of platforms used language learning



The responses to the fifth question regarding the perceived effectiveness of online classroom platforms provide valuable insights into participants' experiences and preferences. Among the options provided, the majority of respondents (77.3%) identified "Classroom" as the most effective online platform for their language learning needs.

This finding suggests that a significant proportion of participants found generic or unspecified online classroom environments to be highly effective for language learning. While the term "Classroom" may refer to various online learning management systems or virtual classroom platforms, its widespread usage among respondents indicates a general preference for conventional online classroom setups commonly used in educational settings.

Furthermore, a smaller percentage of participants identified Moodle (9.1%) and Discord (9.1%) as effective online classroom platforms for language learning. Moodle, known for its flexibility and customizable features, offers a versatile learning management system suitable for diverse educational contexts, including language learning. Discord, originally designed for gaming communities, has emerged as a popular platform for online collaboration and communication, providing opportunities for interactive language practice and peer support.

The distribution of responses underscores the diversity of online platforms utilized for language learning purposes and highlights the importance of considering learners' preferences and needs when selecting and designing virtual classroom environments. While "Classroom" emerged as the preferred option among respondents, Moodle and Discord also received

recognition for their effectiveness, reflecting the varied preferences and experiences of language learners in online settings. Ultimately, the perceived effectiveness of online classroom platforms may depend on factors such as ease of use, accessibility, interactivity, and alignment with learners' specific language learning goals and preferences.

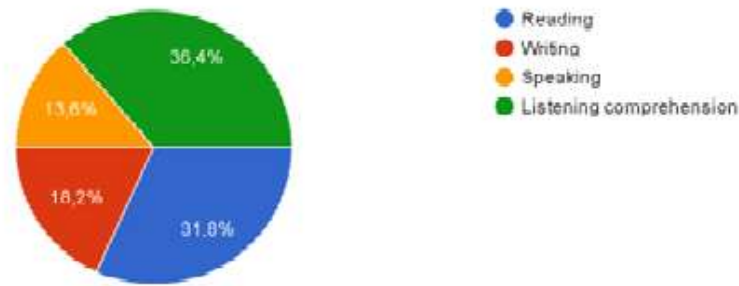
The responses to the 6th question regarding the most effective skill development in an online format offer valuable insights into participants' perceptions of online language learning. Among the four language skills assessed—reading, writing, speaking, and listening comprehension—listening emerged as the skill perceived to be the most effective for development in an online format, with 36.4% of respondents endorsing it.

Listening comprehension is a fundamental skill in language acquisition, and the preference for its development in an online format aligns with the availability of various multimedia resources and interactive listening exercises commonly found in online language learning platforms. These resources often include audio recordings, podcasts, videos, and interactive listening activities designed to enhance learners' ability to understand spoken language in different contexts.

Following closely behind, reading was identified as the second most effective skill for development in an online format, with 31.8% of respondents endorsing it. Online platforms offer a wealth of digital texts, articles, e-books, and interactive reading materials that cater to learners' diverse interests and proficiency levels. The accessibility of online reading materials enables learners to practice reading skills independently, engage with authentic texts, and access supplementary resources such as online dictionaries and annotations to support comprehension and vocabulary acquisition.

Writing and speaking, while still recognized as important skills, received relatively fewer endorsements as the most effective skills for development in an online format, with 18.2% and 13.6% of respondents endorsing them, respectively. Writing proficiency may benefit from online platforms offering writing prompts, grammar exercises, and opportunities for written communication with peers or instructors. Similarly, speaking skills can be developed through online platforms that incorporate voice recording features, video conferencing tools, and virtual speaking practice with conversational agents or language exchange partners.

Figure 3.2.2. The most effective skill development in online language learning



The responses to 7th the question regarding the most difficult online language skill development reveal valuable insights into the challenges learners encounter in digital language learning environments. According to the participants, both reading and listening comprehension were identified as the most challenging skills, each receiving 36.4% of the responses.

Reading comprehension in an online setting presents various obstacles for learners, including unfamiliar vocabulary, complex sentence structures, and cultural nuances embedded in written texts. Without immediate access to instructor guidance or peer support, comprehending written material independently can be daunting. Additionally, the absence of face-to-face interaction may hinder learners' ability to seek clarification or discuss comprehension difficulties, further complicating the reading process.

Similarly, listening comprehension emerged as a significant challenge for learners in online language learning, also garnering 36.4% of the responses. Listening to spoken language in digital environments introduces complexities such as varying accents, speech speeds, background noise, and cultural references. Without visual cues or contextual support, learners may struggle to grasp the meaning of spoken language and accurately interpret auditory input. Moreover, technical issues such as poor audio quality or connectivity disruptions can exacerbate difficulties in listening comprehension.

While writing was perceived as relatively less difficult compared to reading and listening comprehension, it still posed challenges for some learners, receiving 27.3% of the responses. Expressing oneself effectively in writing, particularly in a second language, requires mastery of grammar, vocabulary, sentence structure, and coherence. Despite the availability of

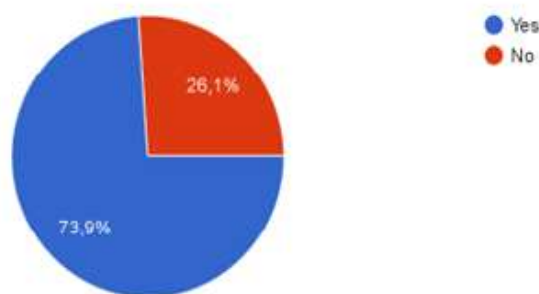
online writing resources and feedback mechanisms, learners may encounter obstacles in producing clear and coherent written texts without direct instructor guidance.

Speaking, although identified as challenging by a minority of respondents (13.6%), also presents difficulties in online language learning. Developing spoken language skills requires opportunities for oral interaction, pronunciation practice, and receiving feedback on speaking performance. In digital environments, limitations such as the absence of real-time conversation partners or opportunities for spontaneous interaction can hinder speaking skill development.

In the 8th question the majority of respondents, comprising 78.3%, indicated a preference for online language learning, while 21.7% preferred offline methods. This trend suggests a growing inclination towards digital platforms for language acquisition, possibly influenced by factors such as convenience, accessibility, and the diverse range of resources available online. The preference for online learning underscores the evolving landscape of education, where digital tools and resources play an increasingly significant role in facilitating language acquisition and proficiency.

In 9th question the data reveals that a significant majority, comprising 73.9% of respondents, believe they have made more progress in language learning online compared to offline methods. Conversely, 26.1% indicated that they did not perceive online learning to be more effective for their language progress. This suggests a prevailing sentiment among learners that online language learning offers advantages or opportunities for improvement that may not be as readily available through traditional offline methods.

Figure 3.2.3. online language learning progress



In the 10th question the overwhelming majority of respondents, constituting 91.3%, expressed a positive view towards the internet's role in language learning, considering it beneficial. Only a small fraction, 8.7%, held a contrary opinion, indicating that they did not perceive the internet as beneficial for language learning. This widespread acknowledgment of the internet's benefits underscores its significance as a valuable resource and tool in the

language learning process.

In the 11th question the survey indicates that the majority of respondents, comprising 86.4%, are satisfied with online language learning at their school. However, a minority of 13.6% expressed dissatisfaction with the online language learning experience provided by their school. This suggests a generally positive perception of the online language learning environment, although there is room for improvement to address the concerns of the minority who expressed dissatisfaction.

3.3 Implications

The survey aimed to explore various aspects of online language learning among secondary school students, covering topics such as preferred learning formats, perceived effectiveness of online platforms, difficulty levels of different language skills, and overall satisfaction with online language learning experiences.

The majority (78.3%) of respondents preferred online language learning over offline methods. A significant portion (73.9%) of respondents believed they had made more progress in language learning online compared to offline. A vast majority (91.3%) found the internet beneficial for language learning, highlighting its importance as a resource. The majority (86.4%) of respondents reported being satisfied with online language learning at their school. Reading and listening comprehension were identified as the most challenging language skills for online development, each noted by 36.4% of respondents. Writing was perceived as slightly less difficult, with 27.3% of respondents indicating it as the most challenging skill. Speaking was considered the least difficult, cited by 13.6% of respondents. The "classroom" platform was deemed the most effective for online language learning by a large margin (77.3%), followed by Moodle (9.1%) and Discord (9.1%). Canvas received the lowest percentage (4.5%).

The high preference for online learning underscores the importance of incorporating digital tools and platforms into language learning curricula to meet students' preferences and needs. Recognizing the internet's significance in language learning, educators should continue to leverage online resources and platforms to enhance students' learning experiences. Educators should focus on developing strategies and resources to support students in overcoming challenges associated with reading and listening comprehension, which were identified as the most difficult language skills for online development. Schools should consider the effectiveness and user experience of different online platforms when designing language learning

environments, with a particular emphasis on platforms like "classroom" that received high ratings from students. While the majority of students expressed satisfaction with online language learning, schools should remain attentive to the needs and feedback of students who reported dissatisfaction, striving for continuous improvement in online learning experiences.

CONCLUSION

In conclusion, this thesis has explored the multifaceted landscape of digital learning in the realm of foreign language education, particularly focusing on its theoretical underpinnings, practical applications, and implications for secondary education.

In Part 1, the concept of digital learning was explored, elucidating its significance and relevance in contemporary educational settings. The integration of digital tools into English as a Foreign Language (EFL) classrooms was examined, highlighting their transformative potential in enhancing language learning experiences and outcomes.

In Part 2, the focus shifted to the role of digital language learning specifically within secondary education. By identifying the characteristics and types of digital language learning in secondary schools, insights were gained into how technology is shaping language education in these contexts. Additionally, the challenges and barriers associated with digital language learning were discussed, emphasizing the importance of addressing these issues to maximize its effectiveness and accessibility.

Finally, in Part 3, research was conducted to further investigate the practical implications of digital language learning in secondary education. By engaging with research participants and collecting relevant data, valuable insights into the current landscape of digital language learning practices were obtained. Rigorous data analysis enabled the drawing of meaningful conclusions and the identification of areas for future research and improvement.

Overall, this thesis contributes to the existing body of knowledge by providing a comprehensive examination of digital learning in the context of foreign language education in secondary schools. By synthesizing theoretical insights with empirical research findings, it offers practical recommendations for educators, and students to optimize digital language learning experiences and promote educational equity and excellence.

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РЕЗЮМЕ

У висновку ця дисертація дослідила багатогранний пейзаж цифрового навчання в галузі вивчення іноземних мов, зокрема зосередившись на його теоретичних основах, практичних застосуваннях та наслідках для середньої освіти.

У частині 1 ми заглибилися у поняття цифрового навчання, прояснивши його значення та актуальність у сучасних освітніх установах. Вивчаючи його інтеграцію в класах англійської як іноземної мови (EFL), ми підкреслили трансформаційний потенціал цифрових інструментів у покращенні процесу вивчення мов та результатів.

Переходячи до частини 2, ми дослідили роль цифрового вивчення мов, зокрема в середній освіті. Ідентифікувавши характеристики та типи цифрового вивчення мов у середніх школах, ми отримали уявлення про те, як технології формують освіту з мов у таких контекстах. Крім того, ми обговорили виклики та перешкоди, пов'язані із цифровим вивченням мов, підкреслюючи важливість вирішення цих питань для максимізації ефективності та доступності.

Нарешті, у частині 3 ми провели дослідження для подальшого вивчення практичних наслідків цифрового вивчення мов у середній освіті. Залучаючи до співпраці дослідників та збираючи відповідні дані, ми отримали цінні уявлення про сучасний ландшафт цифрових практик вивчення мов. Шляхом виснажливого аналізу даних ми змогли зробити міцні висновки та ідентифікувати напрямки подальших досліджень та вдосконалення.

У цілому ця дисертація вносить свій внесок у наявне наукове доробку, надаючи комплексний огляд цифрового вивчення мов у контексті вивчення іноземних мов у середніх школах. Синтезуючи теоретичні уявлення з емпіричними даними, вона пропонує практичні рекомендації для вчителів, політиків та зацікавлених сторін для оптимізації досвіду вивчення мов за допомогою цифрових технологій та просування освітньої рівності та відмінності.

APPENDIX

1.What grade is the student in ?

Answers:

9

10

11

12

Not studying anymore

2.Do you study English online?

Answers:

Yes

No

Do you find online language learning useful?

Answers:

Yes

No

Best way to learn language

Didn't learn online

Which platform do/did you use for online learning?

Answers:

Classroom

Canvas

Discord

Moodle

In your opinion, which online "classroom" was the most effective?

Answers:

Classroom

Canvas

Discord

Moodle

Which skill development do you find most effective in online format?

Answers:

Reading

Writing

Speaking

Listening comprehension

In your opinion, which online language skill development is the most difficult?

Answers:

Reading

Writing

Speaking

Listening comprehension

What is your preferred language learning format?

Answers:

Online

Offline

Do you think you have made more progress in language learning online than offline?

Answers:

Yes

No

Do you find the internet beneficial for language learning?

Answers:

Yes

No

Are you fulfilled with online language learning at your school?

Answer:

Yes

No

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