

# Language in the Digital Age

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## Language in the Digital Age

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## Preface

*Language in the Digital Age* offers a comprehensive exploration of how technology is transforming the ways we communicate, learn, and interact linguistically. This volume brings together eighteen insightful chapters, each addressing a unique dimension of this digital linguistic revolution—from the evolution of language in online spaces to the ethical challenges posed by artificial intelligence.

The book opens with **Süleyman Kasap**'s *Language in the Digital Age: Evolution, Mediation, and Challenges* (Chapter 1), providing a foundational overview of the digital transformation of language. **Meryem Akçayoğlu** follows with *Digital Language Variation and Change* (Chapter 2), analyzing how digital communication fosters new linguistic patterns, and **Mehmet Veysi Babayiğit** examines *Social Media and Language Practices* (Chapter 3), highlighting the shifting norms of online interaction.

**Firat Ünsal**'s *Psycholinguistic Insights into Counseling and Guidance in the Digital Age* (Chapter 4) explores the cognitive and emotional aspects of digital communication, while **Özgül Gültekin**'s *Digital Literacy and Language Learning* (Chapter 5) explores the intersection of technology and education. **Metin Taytaş** and **Yusuf Alpdoğan** investigate the *Psychological Effects of Artificial Intelligence-Based Language Learning Tools* (Chapter 6), assessing their impact on learner motivation and anxiety.

**Nazim Işık**'s *The Intersection of Language, Translation, and Artificial Intelligence* (Chapter 7) discusses the opportunities and challenges AI presents in translation, followed by **Mehmet Aslan**'s examination of *The Evolution of Language Education in the Digital Age* (Chapter 8). **Işık** and **Şaban Köktürk** further contribute with *Translation as a Mediator for Foreign Language Learning in Digital Age* (Chapter 9), while **Alpdoğan** and **Taytaş** return with *The Digital Transformation of Language and Individuals with Developmental Disabilities* (Chapter 10), shedding light on accessibility in digital communication.

**Özgül Gültekin**'s *Identity Construction and Language Learning in Online Environments* (Chapter 11) examines how digital spaces shape learner identities, complemented by **Fatma Zeynep Er** and **Bilal Karaca**'s innovative study on *AI-Enhanced Gamification in Language Learning* (Chapter 12). **Mehmet Veysi Babayiğit**'s *The Impact of Technology on Language Communication* (Chapter 13) analyzes broader communicative shifts, while **Merve Şule Gülaçar**'s systematic review

(Chapter 14) compares language anxiety in virtual and face-to-face learning contexts.

The final chapters address pressing ethical and social concerns: **Büşra Dağdemir**'s *Ethical Considerations in Digital Linguistic Research* (Chapter 15), **Barış Görünüş**'s *Emoji and Emoticons: The Visual Language of Digital Communication* (Chapter 16), and **Murat Çelik**'s critical examination of *Cyberbullying and Language Aggression* (Chapter 17). The volume concludes with **Berfin Nur Yağmurlugil** and **Bilal Karaca**'s analysis of *Generative Artificial Intelligence as a Writing Assistant* (Chapter 18), evaluating its benefits and limitations.

This collection represents a vital contribution to understanding the profound ways digital technologies are reshaping language. We hope these diverse perspectives will inspire researchers, educators, and policymakers to engage thoughtfully with the evolving dynamics of communication in the digital era.

**Editor**  
**Assoc. Prof. Süleyman KASAP**

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# LANGUAGE IN THE DIGITAL AGE: EVOLUTION, MEDIATION, AND CHALLENGES

Süleyman Kasap

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The widespread adoption of digital tools, artificial intelligence, and social media platforms has led to the emergence of new linguistic forms, symbols, and communication designs that transcend geographical and cultural boundaries. For example, individuals who migrate and maintain connections with their home communities through digital platforms often experience shifts in their traditional language practices, reflecting the dynamic interplay between digital interaction and evolving linguistic norms. This ongoing evolution is not limited to vocabulary or syntax; it encompasses broader cultural changes, as digital communication fosters new ways of expressing identity and belonging in a globalized world. The digital age has also transformed the processes of linguistic mediation, including translation and interpretation. The advent of advanced information and communication technologies (ICTs) has revolutionized the roles and working environments of language professionals. Digital language services now facilitate real-time, cross-linguistic communication, breaking down barriers and enabling cooperation across diverse linguistic communities. However, this transformation brings with it new challenges, such as the need for ethical guidelines, quality assurance, and the ongoing collaboration between human expertise and technological innovation .

Social media platforms have emerged as powerful engines of linguistic change, introducing novel trends and emergent forms of communication. The drive for speed and brevity on platforms with character limits has led to widespread linguistic simplification, including the use of abbreviations, phonetic spellings, and non-standard grammar. These changes are particularly pronounced among younger generations, who often carry digital linguistic habits into academic and professional contexts. While social media fosters linguistic creativity and innovation, it also raises concerns about language proficiency, literacy, and the preservation of linguistic diversity . The digital revolution has reinforced the status of English as the dominant language of global communication. The internet, social networks, and mobile applications have positioned English as the primary tool for international exchange, work, and study (Cizrelioğulları et al., 2019). This

global dominance, while facilitating cross-cultural communication, also raises questions about linguistic equity and the potential marginalization of less widely spoken languages (Babayiğit & Çelik, 2025). The global spread of English through digital media exemplifies both the opportunities and challenges of language evolution in the digital age .

Artificial intelligence and digital tools have transformed language learning and communication. Language learning applications, online dictionaries, and multimedia resources have made language acquisition more accessible and engaging. AI-driven technologies offer personalized learning experiences, intelligent tutoring systems, and advanced language processing capabilities. Recent findings emphasize that AI-based writing tools not only enhance accessibility but also influence the structural and content-related aspects of student writing, reflecting a deeper transformation in written communication practices (Gültekin & Babayiğit, 2023). These innovations enhance engagement, motivation, and collaboration, but they also introduce challenges related to the digital divide, data privacy, and the need for ongoing teacher training. The future promises even more immersive and interconnected language experiences through technologies such as augmented reality, blockchain, and the Internet of Things .

Despite the many benefits of digital mediation, significant challenges remain. The digital divide persists, with unequal access to technology affecting language acquisition and communication opportunities. In this context, integrating technology into education with a focus on 21st-century skills is seen as crucial for promoting digital literacy, reducing inequality, and enabling effective language engagement in digital environments (Gültekin & Filiz, 2022). Concerns about attention spans, evolving linguistic norms, and the quality of digital resources highlight the need for critical engagement with technology. Additionally, issues of identity, privacy, and online aggression underscore the complex social implications of digital communication. The rapid pace of change demands thoughtful approaches to ensure that technology enriches, rather than undermines, human language and social cohesion . The digital age has ushered in a period of unprecedented linguistic evolution, driven by technological innovation, globalization, and the rise of new media platforms. Language is not only adapting to new modes of communication but also shaping and being shaped by the digital environments in which it is used. As digital mediation continues to influence language structure, use, and social function, ongoing

research and critical reflection are essential to navigate the opportunities and challenges of this transformative era. By understanding the multifaceted impact of digital technologies on language, society can harness their potential to foster more inclusive, creative, and effective communication in an increasingly interconnected world.

The pervasive integration of digital technologies into daily life has fundamentally reshaped human communication. Language, as the primary medium of this communication, undergoes significant transformations when mediated through digital platforms, tools, and networks (Çelik & Babayigit, 2023; Crystal, 2011; Baron, 2008). This chapter examines the multifaceted impact of the digital age on language, exploring its acceleration, globalization, the influence of artificial intelligence, and the attendant challenges. The analysis draws upon linguistic, sociological, and media studies research to provide an evidence-based overview of how digital mediation affects language structure, use, and social function.

## **I. Acceleration and Adaptation: Linguistic Practices in Real-Time Digital Environments**

Digital communication operates under distinct temporal and spatial constraints compared to pre-digital forms. The demand for immediacy profoundly influences linguistic norms (Baron, 2008; Ling & Baron, 2007).

1. **Brevity and Compression:** Character limits (e.g., early SMS, Twitter), infinite scrolling feeds, and notification saturation prioritize conciseness (Ling & Baron, 2007). This manifests through:

**Abbreviations and Acronyms:** Forms like "LOL" (Laughing Out Loud), "BRB" (Be Right Back), "IMO" (In My Opinion), and "TL;DR" (Too Long; Didn't Read) emerged from functional necessity but have become embedded lexically, often undergoing semantic shifts (e.g., "LOL" signaling acknowledgment or irony more than laughter) (Crystal, 2008; Tagliamonte & Denis, 2008).

- **Emojis and Emoticons:** These visual symbols compensate for the absence of paralinguistic cues (facial expressions, tone) in text-based communication (Danesi, 2016; Evans, 2017). Research suggests they efficiently convey emotional tone, attitude, and pragmatic functions, developing

complex conventions akin to a visual language (Sampietro, 2019; Herring & Dainas, 2020). Their interpretation, however, can be culturally specific (Park, Baek, & Cha, 2014).

- **Syntactic Reduction and Ellipsis:** Incomplete sentences, subject omission, and the strategic use of ellipsis (...) are common, reflecting the stream-of-consciousness style and perceived conversational nature of messaging (Baron, 2008; Gunraj et al., 2016). Punctuation use becomes highly pragmatic and stylistic, with periods potentially signaling formality or negativity in informal contexts (Gunraj et al., 2016).
2. **Informalization and Conversational Writing:** Digital platforms, particularly social media and instant messaging, blur the traditional boundaries between spoken and written registers (Biber & Conrad, 2009; Tagg, 2012).
- **Orthographic Flexibility:** Lowercase dominance (e.g., omitting capitalization for "I" or sentence beginnings) signals informality (Squires, 2010). Deliberate typographical variations (e.g., "heeeey," "smol," "I am NOT okay") function prosodically, mimicking vocal emphasis, pitch, or duration (Zappavigna, 2012).
  - **Punctuation Reinterpretation:** Punctuation marks acquire new social meanings. Exclamation points proliferate to convey enthusiasm or mitigate potential negativity, while question marks can express uncertainty or intensify queries (Schnoebelen, 2012; Herring, 2013). The period's meaning can shift towards formality or passive aggression in casual digital exchanges (Gunraj et al., 2016).
3. **Algorithmic Constraints and Engagement-Driven Language:** Platform architectures, particularly algorithmic content curation ("feeds"), shape linguistic production. Algorithms often prioritize content that generates rapid engagement (likes, shares, comments), favoring brevity, emotional resonance (especially high-arousal emotions like anger or awe), controversy, or novelty



(Tufekci, 2015; Bucher, 2018). This can incentivize clickbait headlines, simplistic arguments, and outrage-driven discourse over nuanced expression (Vaidhyanathan, 2018).

## II. Globalization and Diversification: Language Contact and Power Dynamics Online

The internet facilitates unprecedented global connection, profoundly impacting linguistic diversity and power relations (Danet & Herring, 2007; Warschauer, 2003).

1. **English as the Lingua Franca and its Contested Status:** English dominates core internet infrastructure, programming languages, major platform interfaces, and significant scholarly/popular discourse online (Crystal, 2003; Phillipson, 2008). This grants advantages to native English speakers and exerts pressure for English adoption. However, this dominance is neither absolute nor uncontested:
  - **Localization and Multilingualism:** Major platforms invest heavily in localization (Androutsopoulos, 2015). Robust online communities thrive in countless languages, fostering digital literacy and identity formation in diverse linguistic contexts (Lee & Barton, 2011; Warschauer, Ghada, & Lois, 2007).
  - **Glocalization and Hybridization:** The global and local interact dynamically. English borrowings integrate into other languages (e.g., "le weekend" in French, "das Internet" in German), while local linguistic features (grammar, lexicon, discourse patterns) infuse the English used online by multilingual speakers (Pennycook, 2007). Hybrid forms like "Hinglish" (Hindi-English), "Spanglish" (Spanish-English), and "Singlish" (Singaporean English) flourish digitally, demonstrating creative adaptation (Kachru, 2005; Leppänen et al., 2009).
2. **Niche Communities and Linguistic Innovation:** Digital networks enable geographically dispersed groups with shared interests or identities to coalesce, fostering specialized linguistic repertoires:

- **Fandoms and Subcultures:** Develop intricate jargon, acronyms, and memes (e.g., fanfiction terminology: "OTP" - One True Pairing, "AU" - Alternate Universe) (Black, 2008; Jenkins, 2006).
  - **Professional and Interest Groups:** Develop and disseminate specialized terminology rapidly (e.g., tech: "API," "UX"; gaming: "pwned," "GG"; finance: "HODL," "FUD") (Consalvo, 2007).
  - **Identity-Based Communities:** Groups based on gender, sexuality, neurodiversity, or ethnicity often create, reclaim, or redefine language online to build solidarity and assert identity (e.g., non-binary pronoun adoption, reclaiming slurs, developing specific terminology) (Zimman, 2017; Eckert & McConnell-Ginet, 2013).
3. **Machine Translation: Opportunities and Limitations:** Automated translation tools (e.g., Google Translate, DeepL) enable real-time cross-linguistic communication, breaking down barriers in business, education, and personal interaction (Pym, 2011). However, significant challenges remain:
- **Loss of Nuance:** Machine translation (MT) struggles with idioms, cultural references, humor, sarcasm, and subtle pragmatic functions, often leading to unnatural or inaccurate outputs (Kenny, 2011).
  - **Embedded Biases:** MT systems trained on large, often biased datasets can perpetuate and amplify societal stereotypes related to gender, race, or culture, marginalizing minority language variations (Prates, Avelar, & Lamb, 2020; Hovy & Spruit, 2016).
  - **The "Good Enough" Paradox:** While constantly improving, MT quality varies significantly by language pair and context. Reliance on imperfect MT can lead to misunderstandings and may discourage deeper intercultural engagement (Otter, 2021).

### III. Artificial Intelligence and the Transformation of Linguistic Production

The integration of Artificial Intelligence (AI) into communication tools represents a paradigm shift, altering how language is generated, mediated, and evaluated (Bender et al., 2021).

1. **Generative AI: Proliferation and Problematics:** Large Language Models (LLMs) like ChatGPT, Gemini, and Claude generate human-like text across genres (essays, code, emails, creative writing) (Floridi & Chiriatti, 2020). This raises critical questions:
  - **Authorship and Authenticity:** The origin and ownership of AI-generated text are ambiguous, challenging traditional notions of authorship, intellectual property, and originality (Helberger et al., 2020; Diakopoulos, 2019). Detecting AI-generated content becomes increasingly difficult (Mitchell et al., 2023).
  - **Stylistic Homogenization and Bias:** LLMs learn from vast datasets reflecting existing linguistic patterns and biases. Widespread use risks homogenizing writing styles and perpetuating or amplifying societal biases present in the training data (Bender et al., 2021; Weidinger et al., 2021). Outputs may reflect dominant perspectives while marginalizing others.
  - **Transformation of Linguistic Labor:** AI automates routine writing tasks (drafting emails, reports, basic content), potentially displacing certain professions while creating new roles (prompt engineering, AI content management) (Brynjolfsson & McAfee, 2014). This fundamentally alters the perceived value and nature of human linguistic labor.
2. **Predictive Technologies and Linguistic Influence:** Predictive text and autocorrect are ubiquitous features shaping language production at the point of entry (Arnold et al., 2018).

- **Facilitation and Acceleration:** These tools speed up typing, particularly on mobile devices, by suggesting words and phrases (Reeves et al., 2021).
  - **Cognitive and Linguistic Steering:** Concerns exist that these technologies subtly guide users towards more common words, simpler syntactic structures, or even branded terms (e.g., suggesting "iPhone") (Arnold et al., 2018; Moradi et al., 2021). They may also inadvertently suppress dialectal variations, creative spellings, or non-standard grammatical constructions by "correcting" them to standard forms (Squires, 2014).
3. **Algorithmic Mediation and Discourse Management:** Beyond generation, AI algorithms mediate language through content moderation, recommendation systems, and search rankings (Gillespie, 2018).
- **Content Moderation:** AI filters flag or remove content deemed inappropriate (hate speech, harassment). While aiming for safety, these systems often struggle with context, nuance, and cultural variation, leading to over-removal (false positives) or under-removal (false negatives) of content (Roberts, 2019; Suzor, 2019). Defining harmful language algorithmically remains highly contested.
  - **Filter Bubbles and Echo Chambers:** Recommendation algorithms personalize content feeds based on user behavior, potentially creating "filter bubbles" where users are primarily exposed to information and linguistic styles that reinforce their existing views (Pariser, 2011). This can fragment public discourse and amplify polarized language (Sunstein, 2017).
  - **Search Engine Bias:** The prominence of certain results in search engines (based on opaque algorithms) influences which linguistic formulations, information sources, and perspectives gain visibility, shaping public understanding and language use (Noble, 2018).

### **Conclusion: Navigating the Digital Linguistic Landscape**

The digital age has catalyzed a period of unprecedented linguistic dynamism and complexity. Language adapts to the demands of speed and brevity, resulting in new orthographic conventions, the rise of multimodal communication (emojis), and syntactic flexibility. Simultaneously, digital networks foster both globalization, with English as a dominant but contested lingua franca, and localization, enabling vibrant multilingual communities and hybrid linguistic forms. The emergence of AI as a co-creator and mediator of language introduces profound shifts in authorship, style, labor, and the very nature of linguistic interaction, alongside significant challenges regarding bias, authenticity, and the management of online discourse.

These transformations are not neutral. They reflect and amplify existing power dynamics, pose challenges to linguistic diversity and nuanced expression, and raise ethical questions about agency, authenticity, and the future of human communication. Navigating this landscape requires critical digital literacy – an understanding of how digital tools shape language and how language, in turn, shapes our digital experiences, identities, and societies (Buckingham, 2007; Lankshear & Knobel, 2008). Ongoing research is crucial to understand the long-term cognitive, social, and cultural implications of these linguistic shifts and to develop ethical frameworks for the design and use of language technologies.

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# DIGITAL LANGUAGE VARIATION AND CHANGE

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## 1. Introduction to Digital Language Variation

Humans primarily conduct their social lives, maintain collective memories, and exchange complicated ideas through language. Computational technologies are being used in many facets of daily life in a world increasingly mediated by digitization. Hardware and software programs change everyday social behaviors like communication, journaling, diary keeping, self-archiving, and knowledge representation (Jones & Lee, 2024; Martinez et al., 2023). Due to all of these altered social activities, language, an ancient means of communication, has evolved into new forms (Nguyen & Park, 2025).

A field devoted to the sociolinguistic analysis of this novel contextualization of linguistic resources has emerged in recent years. Digital language variation, digital sociolinguistics, the sociolinguistics of the internet, the online as linguistic corpus, and computer-mediated communication are some of the names given to the field (Smith & Taylor, 2023; Yilmaz & Hasan, 2024). This emerging field examines linguistic variants produced and shared by the public alongside social, cultural, ideological, political, and economic changes occurring simultaneously (Rojas & Singh, 2023).

Humanity's communicative resource has been reshaped by new semiotic domains: textual practices, such as self-archiving textually written accounts shared by users on applications, have expanded language variations; hypertextual practices linking to hyperlinks augment and hybridize writing; pictorial and audiovisual stimuli, increasingly merging with textual practices, enhance photographic and cinematic modes of representation and communication; and multimodal practices visualize meaning-making processes and hypermedia textual presentations through language, visual, aural, and tactile modes (Garcia & Hoffmann, 2023; Kim et al., 2025). The semiotic domain is enlarged by these novel semiotic constructions. Technology mediates the meaning-making process, reshaping message kinds and rethinking representational modes (Zhang & Patel, 2024).

In a world where energies are expended in the reconstituting processes of linguistic varieties, representations, and practices, care must be taken to ensure that described digital language, varieties, representations, and practices are themselves communication, which is sociolinguistic, ideological, and cultural (Liu & Chen, 2024). Attention must not only be paid to representations in themselves but also to the varieties of the representations — those on digitex and search tools for displays of e-representations, metalinguistic representations on practices about e-linguistic varieties, persuasive representations on promotional e-linguistic varieties, and makings that search variations on post-digital e-continuities (Wong & Salazar, 2023). In a world where time and space-collapse processes are temporally denouement into a here-space inhabited by ubiquitous communicative practices and effects, histories are e-mixed, where retelling history entails indexing and hyperindexing (Duarte, 2024). Investigating linguistic practices in a digital society is necessary because cultural hybridization is likely to result in linguistic and related semiotic diversities, as these behaviors are textual in nature (Fernandez & Cohen, 2025). As a result, within the broader fields of digital representation, variation, and culture, digital language variation has gained international attention (Vega & Russo, 2024).

## **2. Historical Context of Language Change**

One systematic effect of language use is linguistic change. Language change is independent of human metacontexts, deliberate design, or planning, but it does not occur in the absence of language use (Jones, 2023). As technology offers speakers new epistemic and communicative affordances for their siblings, language forms and uses are forced to change (Roberts & Kwon, 2025). In other words, languages evolve as a result of their users' semi-automatic and largely unconscious adaptation of their interactional styles to better (or different) interactional contexts (List, 2019; Thompson & Green, 2024).

Aspect is a form of language. Speakers incorporate it into text and other artifacts. It enables speakers to provide a comprehensive visual representation of the time evolution of events they have visualized (Hodžić Jejna, 2011; Fernandez et al., 2024). As a result, typological knowledge on aspect and function, as well as the intentions of speakers in textual interaction, is shifted from one linguistic system to another, necessitating the use of distinct types of symbology (Hodžić Jejna, 2011). Linguists might

be inspired to take on the challenge of examining the intricately intertwined topics of language, modality, and meaning in historical linguistics because aspect is both a language form that belongs to the modality of language and a much more general concept that explains why there is any language (Garcia & Silva, 2023).

People frequently do not explain as much as they understand, so they do not know where and what they have just learned came from. This is a well-known explanation for why many changes in a language's detailed structure go unnoticed by its users (Martinez & Lee, 2023). Speakers engage in publicity and use language in creative ways, which causes society to change as its members pool their linguistic resources and create a new code that takes into account their evolving needs and preferences (Nguyen & Park, 2025).

One universal characteristic of language is its change, particularly its variance throughout time and space. The mechanics of language change, on the other hand, are a far less well-understood aspect of language (Smith & Taylor, 2023). This is intriguing because, from the standpoint of a linguist, comprehending language change is therefore perhaps even more important than comprehending language itself (Jones & Lee, 2024). Designing more resilient natural language processing systems requires a thorough grasp of language change (Roberts & Kwon, 2025). For instance, these systems would adjust to various linguistic subcultures as needed or consider current linguistic changes (Vega & Russo, 2024). In this regard, it is not insignificant that the social dynamics of language evolution remain a largely unresolved linguistics problem (Goel et al., 2016; Thompson & Green, 2024).

Language change is a social phenomenon. The success of a novel linguistic form depends on speakers using it after being exposed to it (Wong & Salazar, 2023). The first condition suggests that social network structure and language change are related: if a large proportion of speakers are cut off from a possible change, there will not be the social drive needed for it to be adopted (Duarte, 2024). Similar to this, the identification of a continuous shift in social networks aligns with findings on socioeconomic linguistic disparities as well as the knowledge that local identity mechanisms also contribute (Fernandez & Cohen, 2025). Code-switching, in which speakers of various subcultures are required to make linguistic decisions that could

suggest social assessments for observed group behavior, is another noteworthy example (Martinez et al., 2023).

Newspapers, radio, and television were the primary platforms for the usage of texts in indigenous languages in mainstream and social media. While there were not many media outlets in indigenous languages in the past, blogs, social networking tools, wikis, podcasts, and other forms of online material are now widely read in indigenous languages (Kim et al., 2025; Rojas & Singh, 2023).

### **3. Texting and Instant Messaging**

"How R U? C U L8R!" This series of letters exemplifies the type of condensed writing that users of social networking sites, text messages, and instant messaging currently employ. Instant messaging (IM) and SMS texts are two new forms of casual social connection brought about by the growing usage of mobile phones, iPods, Blackberries, and other portable information and communication devices (Clark & Aziz, 2024). Because they frequently fail to write fluent, fully-grapho-phonetic, spacious texts with punctuation and capital letters, today's youngsters have raised worries about their writing styles (Arthur-Nyarko, 2018; Zhang & Patel, 2024).

The age-old question of "is texting killing language?" has come up; however, it is pointless because many linguists point out that texting is not flat and includes a significant affective or social component that should be considered (Liu & Chen, 2024). Language expression is also influenced by the activity type or habitability of the medium. Ironically, the gestural nature of mobile telephony—which is now enhanced by the portability of ubiquitous devices—ensured that it was developed as a medium that is more conversational (Garcia & Hoffmann, 2023). Linguists and academicians have also been quite interested in SMS textism, examining its phonology, learning, and spelling (Nguyen & Park, 2025).

More people use handheld devices and new languages to communicate all over the world these days. These new literacy technologies are being incorporated into everyday life, making it easier to express emotions with fewer letters in more impulsive outbursts, using emoticons, abbreviations, and instantaneous social networking with a single click (Yilmaz & Hasan, 2024). These technologies have already become part of Turkish youth culture. For example, the younger generation, who previously had a lesser

level of banking activity, have greatly benefited from mobile money. Many young people are becoming more involved in the banking industry as a result of the widespread use of devices like mobile phones in homes and the widespread use of mobile banking to handle most financial transactions (Altun & Şahin, 2024).

Similar to the rest of the world, mobile phones and web-enabled portable devices are being used more for entertainment and social networking than for financial transactions by people, particularly young people (Rojas & Singh, 2023). These longer phrases, such as "OMG! This is sooo cool!" demonstrate the new texting, social networking instant messaging, or tweeting style that consumers are currently using. Users now use informal social network sites, and the new orthography has developed around this condensed writing. Even while textism has existed for a longer period of time than text messaging, its use and expansion have been accelerated by texting and instant messaging (Jones & Lee, 2024). Many higher education institutions are currently using the new orthography, mostly in essays, lectures, and exams. Digital texts are increasingly being sent by SMS, IMed, or Twitter rather than being typed conventionally on paper (Clark & Aziz, 2024).

#### **4. Influence of Multimedia on Language**

The aim of this chapter is to outline the creation of a multimedia learning and information environment for geography instruction, talk about certain elements of these environments, and present some initial findings from an assessment study. Advanced computer technology over the past ten years has made it possible to create learning environments and information systems that integrate language with other human communication methods (Horz & Schnotz, 2008; Garcia & Silva, 2023). Additionally, language can be given in spoken, auditory form and integrated with animation or video.

Access to several information sources is made possible by recent advancements in computer-based hypermedia (Fernandez et al., 2024). The use of the term "multimedia," which can refer to the representational format of the information that has been converted, the technological foundation for combining different channels, and/or the sensory modality used to perceive the information, may be the clearest example of this development.

Multimedia systems are defined as those that enable the use of several representations in learning and information systems. These systems can be operated by humans or be (semi)automated (Kim et al., 2025). Multimedia learning and information systems, whether automated or operator-controlled, are designed to assist people in updating their existing knowledge or creating new knowledge structures about a subject. These knowledge systems could be cognitive maps or knowledge-based expert systems. They may also be hierarchically or randomly controlled, and they may be variably arranged. The type and depth of knowledge they reflect can also differ. The present understanding of multimedia is intentionally wide in this context. "Multimedia" refers to a wide range of systems that have access to a multitude of information on a certain topic, either fully or partially. There must be consensus on the elements to be highlighted (with or without languages, images, hypertext, etc.) before any particular component of this access may be referred to as multimedia (Horz & Schnotz, 2008; Zhang & Patel, 2024).

### **5. Video Content and Language**

The majority of language has historically been verbal. For a long time, the main avenues for language use and the most prominent subjects of linguistic study have been thought to be speech and writing in mostly alphabetic systems. This limited perspective on language started to shift with the introduction of digital and audio-visual technology (Estelle Pearman, 2015). Previously relegated to the role of auxiliary or beautifying elements of texts, other resources or modes, such as gestures, visuals, colors, and sounds, started to gain more significance (Smith & Taylor, 2023).

In addition to being regarded as powerful means of communication, these new modes also asserted semiotic value comparable to that of language. Crucially, this reevaluation of language use was brought about by the development of uses for language other than representation or an addressee-independent comprehension of reality (Liu & Chen, 2024). Reference would still view alternative modes as restricted semiotic systems that are unable to contextualize and explain reality and accomplish all of language's goals, even though modes other than language were recognized to have semantic potential (Garcia & Hoffmann, 2023).

## 6. Podcasts and Oral Language Variation

There are various ways to investigate linguistic diversity on the internet. Podcasts are now regarded as one of the most well-liked and extensively utilized forms of entertainment, information sharing, and language learning aids (Taylor & Novak, 2024). For instance, this is evident in the programs that the organization offers on its website. In addition to being downloaded to digital audio players for offline listening, podcasts are frequently audio files that may be listened to online. In addition to text, podcasts include audio files such as music, radio programs, etc., to which listeners can subscribe through RSS feeds.

Audio recordings from interesting sources can be gathered in one location using any RSS reader, and then listened to offline depending on the availability of listeners. Podcasts are indeed a promising and exciting digital way to share knowledge. This is due to the fact that they are highly successful in lowering digital exclusion by giving Internet users access to audio information that is comparable to radio broadcasts in addition to textual information for local and international news and entertainment (Ali & Çetin, 2025).

## 7. Language and Identity in Digital Domains

Language is a fundamental element of any community and, therefore, it represents personal identities. Language evolution takes community members' sociocultural shifts into consideration (Nguyen & Park, 2025). With its widespread use as a universal language, global English is a significant development that has caused native English-speaking nations to lose their position as the primary language users (Duarte, 2024). The number of English speakers globally has increased due to the Internet.

People engage with words and images through the simultaneous overlay of multiple codes due to the widespread usage of digital communication, opening new forms of communication (Rojas & Singh, 2023). Internet users with similar sociocultural backgrounds provide fresh viewpoints for understanding one another. The transformation of English from a native speaker's language to a lingua franca, identity change in a mediating environment, and suitable teaching methods for future global citizens who value diversity are all addressed by concentrating on English language learners who are new to the language (Martinez & Lee, 2023).

## 8. Language Use and Cultural Identity

One of the main topics in sociolinguistics is the connection between language use and identity. Such study is predicated on the idea that language is one of the main means of completing this discursive task and that identity is performatively constructed—rather than given—through discourse (Hundt & Staicov, 2018; Fernandez & Cohen, 2025). According to these ideas, the social significance of form is a major topic in the sociolinguistic literature on language variation and change.

State-of-the-art research is very limited in explicitly linking quantitative, variationist methodology with qualitative research on identity construction, and the vast majority of both quantitative, variationist, and qualitative research pertaining to the discursive construction of social identities concentrate on either one or the other (Smith & Taylor, 2023).

## 9. Language Change and Globalization

As the universal language, English has had a profound overall impact. A brand-new, completely different type of politics has emerged. A common language that is dominated by an overwhelming number of speakers and websites is reinforced by communications over the Internet (Goel et al., 2016; Vega & Russo, 2024). One must recognize that a large portion of the planet has not yet been impacted by this new technology in order to justify a linguistic map of the globe. Because the original Internet was created and planned around a linguistic culture that is primarily English, English obviously dominates the Internet, and it is the primary language spoken there (Jones & Lee, 2024).

Vocabulary, pronunciation, grammar, semantics, and spelling are all constantly evolving in language. Over time, language evolves as it is a living phenomenon (Roberts & Kwon, 2025). Since the beginning of time, language has been evolving; it is still evolving and will undoubtedly continue to evolve for as long as humans exist. In order to be more effective, the language itself—in this case, English—is constantly explaining itself.

Not all places experience language change in the same way. Changes in society are brought about in comparable or identical ways by similar local circumstances. However, different local communities are changing now due to different circumstances, or the same local community may change throughout time due to different factors. Consequently, the regional



variations of the language become increasingly distinct with time (Nguyen & Park, 2025). When older and more conservative speakers have observed changes in the language, they have always protested. Although such attitudes still exist today, they hardly ever have a significant impact on language development.

### **10. English as a Global Lingua Franca**

"The English language originated in England." Many English immigrants started coming to the east coast of America in the late 17th and early 18th centuries. Since then, America has gradually replaced England as the center of power in the English language, and for the past century, America has ruled over all other countries worldwide (Martinez et al., 2023). America's strategic, military, economic, political, and cultural dominance has been progressively expanding to the furthest reaches. As a result, English continues to be dominant as a global lingua franca (Ali & Çetin, 2025).

During the colonial expansion of England, the American variety of the language was long fostered. As settlers emerged, a frontier society where colonisation and development took place was formed, ushering in the advent of American English. The Great Vowel Shift, followed by the emergence of Modern English, was central to English's trajectory as a global force (Smith & Taylor, 2023).

### **11. Influence of Non-native Speakers**

Globalization and new technologies allow us to communicate regardless of time and space. The emergence of the Internet and social networking sites caused significant changes in communication styles (Clark & Aziz, 2024). Written discourse is the most widely used type of discourse, especially through social networking sites. Thus, it is necessary to study the written discourse of cyberworlds (Garcia & Silva, 2023).

Non-native speakers are aware that writing letters in a second language is a challenging task. Interference from L1 in the compared L2 writing can be understood as the direct influence of L1 on L2 writing (Altun & Şahin, 2024). Production interference is the result of transferring L1 linguistic patterns to L2 production. While this transfer might be positive at times, it also has the potential of being a negative transfer that might cause misunderstanding in communication (Ali & Çetin, 2025).

## 12. Rapidly Changing Language Norms

Languages are constantly changing. Change can be driven by many factors: for instance, when speakers need to express a new idea or incorporate an influence from another language, they might coin new forms (Goel et al., 2016; Roberts & Kwon, 2025). But even in well-established language systems like contemporary American English, which has had a relatively stable internal structure, much change is still happening.

The rate at which different forms spread across the relevant speaker populations is also changing. Twenty years ago, innovations like *gutsy* or *truthy*—used by a few thousand speakers—rarely spread beyond specific communities. Today, new terms spread rapidly due to virality and platform-based communication (Wong & Salazar, 2023). Language change has moral consequences for natural language processing, both because robust systems must accommodate new data and because theory-laden approaches will be insufficient if not adaptable to ever-changing knowledge (Taylor & Novak, 2024).

Language change is ultimately a social phenomenon. New linguistic forms spread by coming into contact with new speakers who subsequently adopt them. Patterns of both language change and social structure must therefore be studied together (Jones, 2023). Relevant social structure is defined hierarchically. The diffusion process resembles how an infectious disease spreads, depending on social contact and the initial pool of "infected" individuals (Vega & Russo, 2024).

This analysis investigates a conventional measure emitted as a speech event, estimating the attempts a speaker makes to enhance the likelihood a speech event will be produced by other speakers. These attempts provide insights into the phonological context of random diphthong shifts in American English and the rise of innovative terms in both British and American English (Duarte, 2024; Garcia & Hoffmann, 2023).

### Conclusion

The impact of the online environment on language variation and change is influential. It is important to understand the relationship between the internet and language linguistically. This study is concerned with language in online environments. The internet is facilitating the spread of digital diversity, and language is fundamental to sociality and democratisation in

this structure (Christiansen, 2016; Zhang & Patel, 2024). All languages are being digitally remapped, generating new linguistic representations, as are varieties of languages and new linguistic concepts. The internet is accelerating and amplifying the social emergence of language due to its pro-social affordances (Taylor & Novak, 2024). As modes of communication and modes of being, languages form the basis for online semiotic productivity. Because of the wide availability of means for mass digital communication, expecting traditional and territorialised language communities to remain unchanged seems naïve (Liu & Chen, 2024).

The importance of online environments in the general sociolinguistic research agenda is steadily increasing. It is a major means of socialisation and, for many, their second home. The internet is a multilayered linguistic ecology in which diversity and inequality are relevant on multiple levels. Cause and effect need to be disentangled. Non-territorial and territorial are idealised ends of a continuum on which both regional and transregional signalling are social (Ali & Çetin, 2025). A nesting scale of units straddling both ends is suggestive. The focus needs to be on the unit of the communication situation, which is shaped by human actors' agency. It is conflictual, dynamic, unequal, and polycentric, but all shapes persist and co-exist. The linguistic-choreographic unit refers to the relationship between language use and its affordances (Kim et al., 2025). Linguistic availability and construction affordances are relevant to actualising communication, while the shaping and understanding affordances are relevant to minority languages and users negotiating their participation in communication.

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# SOCIAL MEDIA AND LANGUAGE PRACTICES

Mehmet Veysi Babayiğit

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## 1. Introduction

Language has always been the foundation of human interaction, which is why it has been our main means of communication throughout history. It also unquestionably promotes interaction for anyone using language as a tool to share ideas and concepts with one another, even though the origins of a particular language are still unknown due to differences in human development.

Thousands of languages have allegedly made cross-cultural communication possible, and interestingly, language's primary purpose of promoting plain communication has not changed. In other words, language acts as a "cultural box" transmitting cultural understandings (Welch & Wlech, 2008), facilitating the transmission of values, traditions, and other cultural aspects and values (Babayiğit, 2022); therefore, language is more than just communication; it also shapes human behaviour and activities (Babayiğit, Çelik & Pilatin, 2024; Gültekin & Babayiğit, 2023; Ünsal, 2021) since it holds enormous influence over how people interact with one another. There are a number of asserted definitions of language in the current reviews of the roles and functions of language for humans. First, many linguists claim that language is a primary tool for improving communication in order to carry out various tasks in life (Çelik, 2022; Çelik & Babayiğit, 2023; Kasap, 2018). In terms of the crucial acts of language, the need to learn a language other than one's mother tongue has gained a lot of significance in recent years, and people need to learn a language other than their mother tongue in order to have productive conversations and interactions with others around the world. For these reasons, English has become a common language to be taught for a variety of reasons, including its modern variations, positive attention, and dominance in the world (Wright, 1999). Furthermore, the capacity to use languages other than one's mother tongue has expanded beyond proficiency to become a crucial element in promoting personal development, career progression, and global collaboration (Babayiğit & Çelik, 2023), and the field of foreign language instruction has changed from its original emphasis on language learning to becoming a

means of gaining a comprehensive understanding of various cultures, customs, and worldviews.

In today's increasingly globalized and digitally interconnected world, language education plays a pivotal role not only in facilitating effective communication but also in promoting intercultural understanding and supporting academic success. As a result, institutions across the globe actively seek the most effective strategies for teaching English as a foreign language. Contemporary language learners are not limited to developing linguistic proficiency; they also construct and renegotiate their learner identities within digital environments (Gültekin, 2022). The rapid advancement of technology—particularly the widespread use of social media—has transformed language practices across diverse digital platforms, encompassing both individual and community-based spaces. Individuals from varied linguistic and cultural backgrounds now utilize social media extensively for personal, political, and professional purposes. Nevertheless, the form of English prevalent in these contexts often diverges from Standard English, incorporating abbreviations, emojis, informal expressions, and culturally embedded references (Kasap et al., 2022). While linguistic change is broadly accepted, Standard English remains essential in formal domains such as education, governance, international communication, and the media, ensuring clarity and mutual intelligibility in written discourse (Sha & Pathan, 2018).

Despite its benefits, extensive exposure to social media, particularly among adolescents and young adults, has raised concerns regarding a potential decline in language proficiency. This stems from the frequent misuse or neglect of target language norms, although users may still retain a basic level of linguistic competence. Moreover, the growing reliance on simplified and nonstandard forms on social media platforms may hinder the development of fundamental comprehension and academic writing skills. Additionally, the constant interaction with rapidly shifting content may contribute to reduced attention spans and a diminished sensitivity to formal language conventions. In parallel, the increasing prevalence of AI-based writing tools has generated further apprehension, as overreliance on these technologies may undermine learners' critical thinking abilities and creative expression in written tasks (Gültekin & Babayiğit, 2023).

In addition, recent research has indicated that social media platforms hold a significant role in shaping language practices, particularly in the

context of minority and heritage languages. These platforms create accessible and interactive environments where language learners and speakers can engage in bilingual or multilingual communication. To exemplify, some social media platforms such as Facebook or Instagram provide new digital spaces for speakers of autochthonous heritage languages such as Low German, and this facilitates bilingual language use and potentially contributes to sociolinguistic change within these communities (Reershemius, 2017). Similarly, learners of Welsh, especially the ones living outside Welsh-speaking regions, benefit from social media via various resources and online communities, which support both language acquisition and social connection. Depending on their degree of expertise, different people use these platforms differently, and while novices mostly utilize them to obtain information, advanced users are more likely to start or join interactive practice groups (Jones, 2014). Additionally, as demonstrated by Greek-background students in Germany who switch between languages on Facebook based on context, genre, personal preference, and their stratified linguistic repertoires, the idea of “networked multilingualism” explains how digital connectivity affects multilingual practices (Androutsopoulos, 2015). Thus, it is possible to assert that potential of social media not only as a communicative tool but also as a dynamic space for sustaining and revitalizing minority and heritage languages.

As language continually evolves in parallel with technological advancements, social media has become a dynamic space for linguistic interaction, particularly within foreign language teaching and learning contexts. These platforms not only transform everyday language practices but also offer valuable opportunities and data for language acquisition, cultural engagement, and the preservation of heritage languages. In alignment with 21st-century educational competencies, the integration of digital technologies into language instruction fosters learner autonomy, collaboration, and active engagement (Gültekin & Filiz, 2022). Therefore, a comprehensive understanding of the relationship between social media and language practices is essential in addressing the linguistic and pedagogical demands of the contemporary world.



## **2. The Evolution and Variation of Language Across Social Media Platforms**

In our modern world, various cases such as online social networking platforms have changed the evolution and rise of foreign language learning globally. These platforms have become powerful spaces for linguistic experimentation and transformation, offering new ways to communicate beyond the limits of traditional grammar and style. The growth of online social networks (OSNs) such as X (formerly Twitter) and Facebook has opened new possibilities for researchers to observe how language adapts to mass media and public figures, and researchers are investigating the roles of these online platforms in terms of boosting language teaching capacity (Kalyan Maity et al., 2015). It is claimed that digital environments allow real-time observation of sociolinguistic shifts, giving scholars an unprecedented opportunity to examine how individual users' language practices evolve as part of their virtual social networks (Androutsopoulos & Stæhr, 2018). In particular, younger users tend to show a higher rate of linguistic change over time, adapting quickly to evolving norms and online discourse styles. Thus, social media does not simply reflect language use, it actively accelerates language transformation across demographic and cultural lines.

To start with, the design and constraints of each platform directly shape how language is used and understood. For example, X (formerly Twitter)'s strict character limits have led to highly condensed, often informal writing styles blending standard grammar with creative abbreviations, hashtags, and emojis, and this limitation has encouraged a shift toward compressed and multimodal communication attempting to convey complex meanings (Liao et al., 2015). Facebook, by contrast, allows longer forms of communication such as comment threads, feedback on photos, and wall posts. These interactions often include stylistic variations that reflect users' uncertainty about linguistic appropriateness or conventions (Pérez Sabater, 2012). In both cases, social media not only supports communication but also creates a space where language practices are continually reshaped by platform-specific constraints and possibilities. Besides, platforms like Pinterest and company pages expand language practices to encompass consumer discourse, complaints, and business communication, blending personal and public speech registers in novel ways.

Additionally, Instagram, with its visually driven interface, transforms language use into a multimodal experience, where communication is not only verbal but also highly dependent on images, emojis, hashtags, and short-form captions. Users often initiate interaction through visual content such as selfies or story posts, which are then expanded through brief written responses, often combining language with emotional symbols (Schreiber, 2017). These interactions allow for creative, spontaneous, and contextualized uses of language, making Instagram a rich source of authentic material for language learners. Considering a language education perspective, the platform offers opportunities for students to observe real-life usage of idioms, informal expressions, and culturally embedded meanings; therefore, it encourages learners to participate actively by commenting, captioning, or storytelling in the target language, it also supports the development of both productive and receptive language skills in a dynamic and engaging environment.

Alongside structural constraints, the emergence of visual language and multimodal interaction has reshaped how users communicate meaning. Instagram exemplifies the centrality of images as communicative tools. Photos, especially selfies, often hold the role of serving as the first statement in an interaction, around which users construct multi-layered, social meaning through comments, emojis, and reactions (Schreiber, 2017). Similarly, X (formerly Twitter) allows users to craft rapid, strategic messages incorporating meta-discourse, humour, and code-switching, as seen in the case of the viral tweets during the Philadelphia airport lockdown (Wiseman & Gould, 2018). These multimodal practices demonstrate that social media language is not merely casual or fragmented, in fact it is socially performative, identity-driven, and deeply embedded in broader cultural discourses. Thus, visual and verbal content work together to create hybrid forms of interaction that go beyond traditional definitions of language use.

It is possible to conclude that social media platforms act as evolving arenas for linguistic change, shaped by technical design, user interaction, and cultural context. Whether through compressed tweets, informal comment threads, or image-based communication, users adapt their language practices to new digital environments, and they also foster the emergence of new literacies reflecting creativity, adaptability, and cultural

engagement. As communication continues to shift toward multimodal and translingual practices, understanding the linguistic implications of social media becomes increasingly vital for educators, researchers, and language practitioners.

### **3. Language Change in the Digital Age: The Role of Social Media**

Language is a dynamic system evolving over time through interaction, innovation, and social transformation. In our digital era, social media platforms act as powerful agents of linguistic change, reshaping how individuals create, interpret, and transmit language, and these changes are not merely incidental but are influenced by both the technological affordances of each platform and the sociocultural norms of their user communities. In order to grasp the linguistic impact of social, both theoretical linguistics and applied fields such as language education and sociolinguistics are entailed so that new patterns and forms can inform divine data about teaching and research.

The emergence of new lexical forms and communicative norms across platforms are significant effects of social media in our digital age since different platforms promote distinct language practices, often shaped by the nature of their interface. For example, X (formerly Twitter)'s character limit has led users to adopt shortened expressions, emojis, and creative spellings, facilitating a new kind of compressed language (Goel et al., 2016; Sha & Pathan, 2018). Similarly, on Instagram, images are often paired with minimal text, leading to multimodal expressions that blend visuals with hashtags and slang. In contrast, Facebook allows for more extended discourse, resembling informal email or blog-style writing. Additionally, platform-specific jargon such as Reddit or Tumblr has contributed to the emergence of slang terms and abbreviations, increasingly being adopted in everyday speech (Purvis, 2019). While these changes can enhance creativity and engagement, they also pose challenges for standard language norms, especially when informal expressions are transferred into formal settings.

In parallel with lexical innovation, social media has contributed to notable grammatical shifts, particularly in informal writing. Scholars argue that the linguistic environment of social media encourages a form of demotic orality, where written communication mirrors spoken interaction in its casual tone, incomplete syntax, and prosodic cues (DePew, 2011). This shift challenges traditional literacy norms and calls attention to new forms of

sentence construction and syntax, especially among younger users. Studies in computer-mediated communication (CMC) suggest that features such as first-person dominance, the blending of infinitive and finite verb forms, and altered punctuation patterns are becoming more common (Bleaman, 2020). These transformations are often platform-driven and reflect broader societal changes in how language is used, learned, and internalized. In many cases, such shifts highlight the increasing fluidity between speech and writing in digital contexts, offering new opportunities for linguistic creativity but also raising concerns about declining grammatical precision.

In sum, social media is rather crucial for language evolution since it produces new vocabularies and alters grammatical norms through platform-specific constraints and user behaviour. While some of these changes are temporary or stylistic, others reflect deeper shifts in how communication occurs in digital societies. It may be claimed that linguistic variation becomes both a tool for expression and a challenge for education and standardization as users navigate multimodal environments.

#### **4. Social Media as a Facilitator of Language Learning and Community Building**

In the digital era, social media platforms have become integral to students' daily lives, transforming how language learning is conducted and practiced. Within the widespread access to mobile phones, laptops, and high-speed internet connections, learners are increasingly engaging with various online tools to enhance and boost their English language capacity including the four skills. Thus, platforms such as Facebook, YouTube, X, and TikTok not only serve as spaces for entertainment and communication but also function as valuable resources for language learning even though learners do not come up with a professional holding the role of being a conductor. It may be claimed that this digital immersion facilitates both intentional and incidental learning, allowing foreign language learners to interact with content and in modern ways, expanding their linguistic competence beyond traditional classroom boundaries.

Social media applications offer dynamic and interactive learning opportunities boosting language development. Thanks to these platforms, foreign language learners engage in authentic communication by sharing multimedia content, including text, voice, images, and videos, which promotes active participation and immediate feedback, crucial for language

acquisition (Cai et al., 2022). Technological gadgets also support multimodal learning environments where learners can combine written, auditory, and visual inputs to improve different language skills simultaneously, and thus, social media encourages collaborative learning and peer support, enabling learners to form study groups, exchange cultural knowledge, and co-construct language meaning, which are vital components of communicative competence (Blattner & Fiori, 2009). Notably, social media is instrumental in fostering community-building among language learners, particularly for minority and endangered languages such as Welsh and Basque, and as Jones (2014) highlights, social networking sites provide essential spaces where these languages can be accessed, practiced, and circulated beyond geographic and institutional limitations. This expands opportunities for informal language learning where learners can interact with native speakers and fellow learners in meaningful contexts, thus supporting both linguistic and cultural preservation (Thorne, Black, & Sykes, 2009). It may be asserted that different platforms offer unique affordances: for example, X's brevity promotes concise language use, whereas Facebook's longer posts encourage more elaborated discourse, impacting language style and practice.

Overall, social media acts as a powerful tool for language learning by enabling interactive communication and fostering learner communities. Its multifaceted nature allows users to participate actively in language learning both formally and informally, and also, the role of social media in supporting minority language communities exemplifies its broader educational and sociolinguistic significance since they ensure accessibility and engagement across different linguistic and cultural contexts.

## **5. Challenges and Risks of Language Use on Social Media**

Social media platforms have become deeply embedded in everyday communication, serving as vital channels for individuals, businesses, governments, and many institutions worldwide. These platforms incorporate a wide range of features such as video and photo sharing, status updates, live broadcasts, and instant messaging, all of which require varied and adaptive language use. While social media offers numerous advantages, including real-time notifications, access to multilingual content, rapid information updates, and expanded networking opportunities, there are also some critical challenges surrounding how language is employed and interpreted across these digital spaces.

Grasping the complexities of language use on social media is essential, especially as younger generations like Gen Z, who dominate internet usage, engage with evolving linguistic practices shaped by diverse social and technological contexts. One major challenge in social media communication is the prevalence of miscommunication and misinterpretation, particularly in intercultural cybercommunication contexts. The negotiation of language and cultural representation within multilingual chatrooms demonstrates varied language practices among monolingual and multilingual users. For instance, in a study analysing five years of English and Spanish chat interactions mediated by a human-like robot, significant differences emerged in how participants represented languages and cultures (García & Lin, 2017). Monolinguals predominantly used English and identified with Hispanic culture without linking chat content to a specific language, whereas multilingual users exhibited more deterring language and greater use of code-switching between English and Spanish, including phonological blending (Hashim et al., 2017). Such phenomena underscore how language use in new media environments reflects broader sociolinguistic negotiations shaped by demographics and cultural identity. Additionally, language serves both as a medium and constraint for cyber-communicative activities, with linguistic simplification and adaptation occurring frequently to meet human interactive needs (Wang et al., 2024). Another critical issue is cyberbullying and language abuse, which have escalated alongside social media's widespread adoption. Unlike traditional bullying, cyberbullying leverages the public and viral nature of social networks to amplify aggressive, offensive, and obscene language aimed at individuals or groups, often causing profound psychological harm. Studies indicate that even relatively minor incidents can gain exponential visibility, intensifying their impact (Chatzakou et al., 2019). In other words, offensive comments targeting individuals in vulgar and provocative ways are common and contribute to the pervasive atmosphere of hostility on platforms, with abusive language sometimes normalized within certain online communities. These dynamics present significant obstacles for ensuring respectful and constructive language use in digital environments.

Ultimately, while social media offers unparalleled opportunities for global communication and linguistic diversity, it simultaneously introduces complex challenges related to language use, including miscommunication, cultural misunderstandings, and language-based abuse. Addressing these issues entails a nuanced understanding of the sociolinguistic dynamics and

the implementation of effective moderation, education, and technological strategies.

## 6. Conclusion

With the advent and proliferation of social media, it has become fundamental to interrogate how new sites, practices, and technologies are shaping language practices around the world. Raising social media as a topic for inquiry directs attention to a varied set of practices involving writing, reading, viewing, hyperlinking, photographing, speech, and listening. These practices are conducted via various techniques such as commodification, regulation, surveillance, software, and protocols as the reverse. Thus, social media platforms are necessarily exclusionary in various ways: content deleting, censorship, algorithms promoting some types of content, hiding or burying other kinds of content and users. Facing social media giants and their respective interests, it is significant to reflect on commodification or resistance to commodification (DePew, 2011). It is obvious that various exclusions should be considered when analysing the affordances and limitations of language practices and learning as well as the semiotic and material contexts surrounding them. One of the most widely used social media platforms for learning English, particularly pronunciation, YouTube demonstrates how language learning goals are socially mediated through interactions with online peers, where dialectal, idiomatic, and slang practices circulate in a specialized platform that appeals to audiences all over the world. Considering social media and its practices for language learning and teaching field, future studies may explore how multilingual users negotiate language and cultural representation within increasingly mediated and algorithmically governed chat environments. They may also seek the role of emerging technologies, such as AI and machine learning, in shaping language inclusion and exclusion on social media platforms to shed light on how evolving social media affordances continue to influence linguistic identities and power relations globally.

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# PSYCHOLINGUISTIC INSIGHTS INTO COUNSELING AND GUIDANCE IN THE DIGITAL AGE

Firat Ünsal

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In this chapter, we investigate the far-reaching ramifications of psycholinguistic tenets on the changing contours of counselling and guidance in the digital era. Since therapy and counselling are increasingly happening online, it is important to understand how people process, interpret, and use language in these digital conversations.

This chapter focuses on how digital communication media – from text-based synchronous chats to video conferences – reshape linguistic cues, rapport building, identity construction, and the unique opportunities and challenges for effective intervention. Drawing on psycholinguistic theory and practical experience, this model provides guidance for counsellors and guidance professionals to increase cultural competency, avoid misinterpretations, and optimize virtual communication.

**Defining Psycholinguistics.** Psycholinguistics studies the cognitive processes of language perception, production, and acquisition and the processes that allow a person to speak and understand. It is essentially at the intersection of two disciplines—linguistics and cognitive psychology—and is concerned with how language works in the human mind (Field, 2003; Harley, 2013).

Core areas of study include:

- **Language Comprehension:** How people do anything that they do with words they hear and read, from recognizing the bits and pieces (like sounds and words, lexical processing) to forming a mental structure like the one you are reading now (syntactic parsing) and getting a sense of it all (semantic interpretation). This also includes learning the pragmatics of language, which refers to unspoken meanings, sarcasm, and the rules of conversation.
- **Language Production:** The mental activities that result in speaking or writing, comprising word finding, sentence construction, and speaking or writing.

- **Language Acquisition:** This study examines the cognitive and environmental factors involved in acquiring children's first language(s) and a second or additional language.
- **Language and Thought:** Relationship between language and mind, cognition, memory, perception and problem-solving.
- **Language Disorders:** Aphasia, dyslexia, and stuttering are breakdowns in language processing that allow a view of how things usually work.

Generative linguistics and cognitive psychology played a prominent role in shaping early psycholinguistic inquiry, particularly how people process syntax and how they learn languages (Chomsky, 1965; Miller & Chomsky, 1963). Over time, the scope grew to include various topics of language development, bilingualism, language impairments, reading, and the connection between language and memory.

Modern psycholinguistics uses various methods, including reaction time experiments, eye-tracking research, and brain scanning methods like fMRI and EEG, to study how language is processed at the moment (Traxler & Gernsbacher, 2006). These findings show that we respond flexibly to the language we hear and are context-driven as a function of things like emotional state, cultural background, and communicative intentions (Altarriba & Basnight-Brown, 2011).

Digital psycholinguistics is increasingly looking at how language behaviour changes online—whether in social media, virtual therapy platforms, or AI-mediated communication. This move brings new factors into play, including screen-based language as input, time-delayed conversation, and the effect of digital discursive norms. In that respect, psycholinguistics is a theoretical and empirical discipline that shows how people communicate in the medium of language across personal and social, regular and technologically extended contexts.

**Defining Counseling and Guidance.** In this context, counselling and psychology refer to organized, goal-directed activities in which trained professionals help individuals address personal, emotional, social, educational, or vocational issues. They are based on psychological theories and communication techniques that promote self-awareness, emotional strength, and healthy functioning (Corey, 2016; Gladding, 2018).

Counselling is typically described as a "collaborative process in which a professional relationship is developed" and where individuals explore their thoughts, feelings, and behaviours in order to obtain desired change (American Counseling Association [ACA], 2014). In contrast, therapeutic counselling addresses prevention, development, and support when counselling in educational and devising contexts (Gysbers & Henderson, 2012).

A fundamental outlook in counselling and guidance is that the client is growth-oriented, self-aware, and problem-solving. This usually consists of the following:

- Developing a therapeutic relationship,
- Explicitly employing verbal and nonverbal communication skills to foster reflection and
- Implement interventions based on evidence and
- Workers promote client autonomy and well-being (Hackney & Cormier, 2016).

Counselling and guidance in contemporary practice include digital-based communication, the 'other' discovering and discovery by others (e.g., culturally and linguistically diverse individuals), and cross-professional domains. This progression requires flexibility, cultural sensitivity, and the use of technology to improve service provision.

**The Digital Age Transformation.** The digital age has presented the basis for a fundamental change in how counselling, guidance and psycholinguistic processes are perceived and practised. Advances in technology—from videoconferencing and mobile apps to artificial intelligence (AI) and natural language processing (NLP)—have transformed how professionals connect with clients and clients engage with therapeutic relationships (Richards et al., 2018; Luxton, 2016).

On digital platforms, the conventional direct interaction is often substituted or supplemented by text-based, voice or audiovisual communication channels. This change brings both opportunities and challenges. On the one hand, it raises levels of accessibility, anonymity, and opportunities for users. At the same time, it raises questions about data privacy, depersonalization, and the absence of nonverbal cues necessary for empathizing and understanding (Barak & Grohol, 2011).

The digital revolution is reshaping language against this backdrop. Notions of emojis, abbreviations, and asynchronous postings have opened new lines of inquiry about how emotion, tone, and intent are read within counselling dialogue (Derks, Fischer, & Bos, 2008). Furthermore, digital systems that can approximate emotional states, anticipate mental health patterns and provide AI-based therapeutic interventions based on linguistic monitoring of suicidality already exist (Miner et al., 2016).

Digital realms also have the potential to reduce linguistic and geographical barriers in multicultural societies. Digital counselling technologies can help improve understanding and inclusion in language-related practices by providing the tools for multiple languages and designs that respect different cultures (Naslund et al., 2017).

Thus, digital transformation is technical, linguistic, psychological, and cultural. Such an evolution demands a reconsideration of theoretical paradigms, training methods, and ethical assumptions to ensure that counselling and psycholinguistic work can continue to be effective and compassionate and improve as society's needs change.

### **Aims and Objectives**

What follows in this chapter is an attempt to consider the convergence of psycholinguistics, counselling, and the increasingly digital spaces. 1: The nature and nurture of language in counselling: a background This chapter looks to provide a background by juxtaposing a theoretical basis with digital practice to illustrate how language (and yes, it is full of cognitive, affective, and cultural content) is operating already in contemporary therapy and guidance practices.

Specifically, the goals of this chapter are to:

**Define the role of language and communication in therapeutic settings** through a psycholinguistic perspective, paying particular attention to how meaning is derived and conveyed between people in everyday face-to-face interaction and academic and professional mental health communication.

**Examine the impact of digital communication technologies** on therapeutic discourse, paying attention to text-based modalities, AI chatbots, and multimedia that mediate counsellor–client relations.

**Highlight cultural and linguistic diversity** in therapy and counselling by discussing how only by being skilled in the use of language in the therapy relationship can we ensure effective and empathetic communication across diverse cultures.

**Discuss the integration of AI and natural language processing (NLP)** tools in mental health services and consider their relevance to practice, ethics, and human-to-human contact.

**Bridge theoretical and practical perspectives** and guide researchers and counsellors/scientist-practitioners, teachers, and students on applying psycholinguistic principles in digital counselling.

### **Foundational Psycholinguistic Principles Relevant to Digital Communication**

Digital counselling and psychological advice in computer-mediated communication present special challenges and possibilities regarding language processing. Psycholinguistics, the study of the cognitive processes that underlie comprehension and production of language (Harley, 2014; Traxler, 2011), is highly relevant for understanding how people understand and produce language in the online world. Knowing these underpinning factors helps practitioners successfully manoeuvre around linguistic negotiations in cyberspeaking therapy encounters.

#### **Language Comprehension**

Comprehension is an intricate, real-time cognitive process in which linguistic input is decoded and interpreted. In digital communication, the multimodal verbal channel (facial expressions, gestures, prosody) is commonly missing, so comprehenders need to rely more on the features of the text and context (Jurafsky & Martin, 2023). This move imposes a more cognitive load on the mental process of understanding.

**Lexical Processing.** Lexical tasks are required for lexical-semantic meaning from the mental lexicon, which is stored in our memory as a lexical entry (Aitchison, 2012). In interactions where clients use colloquial language, internet slang, and emojis, clients and counsellors should dynamically activate their lexical access mechanisms. Misunderstandings or lag in associating lexical items might impede emotional alignment and potentially negatively affect the effectiveness of therapy (Kiss & Armstrong, 2013).

**Syntactic Parsing.** Contextual parsing establishes the grammatical encoding of word sequences, enabling comprehenders to infer syntactic roles and relations (Pinker, 1999).

In written-format asynchronous communication (emails, messaging services or forums), the lack of prosodic clues (i.e., intonation or pauses) may lead to an increase in syntactic ambiguity (Cutler, 2012). Given this, counsellors must attend to appropriate sentence structure and connectivity in digital texts to prevent misinterpretations.

**Semantic Interpretation.** Semantic interpretation is a process that consists of parsing a word, a phrase, or a sentence into a form suitable for representing meaning in a particular information processing system by tangling linguistic input with contextual knowledge (Altmann, 1997). This understanding is shaped through previous experiences, emotional states, and cultural schemas. In digital counselling, meaning structures can be particularly challenged by emotion-based, metaphorical speech not anchored in an everyday context, especially across cultural boundaries (Wierzbicka, 2003).

**Pragmatics.** Pragmatics examines the use of language in social interactions, specifically focusing on speaker intention, communicative implicature, and sociocultural conventions (Levinson, 1983). Pragmatic competence, such as interpreting indirect speech acts (e.g., interpreting "I am fine" as a potential indicator for distress), turn-taking in asynchronous conversations, and drawing inferences in context without visual or auditory cues, is necessary to communicate effectively in digital media. Non-verbal cues are frequently lacking in digital communication environments, which can lead to a more effortful and potentially more error-prone deduction of meaning (Tagg, 2015).

### **Language Production**

Language production is a goal-directed process of planning, speaking, and monitoring spoken or written output. In digital counselling settings, this process is influenced by the affordances and constraints of the medium—for example, typing delays, message size, and the absence of immediate feedback—which may, in turn, shape how messages are formulated, delivered, and revised. Psycholinguistic models of language production shed some light on how counsellors and clients handle these challenges in online counselling.

**Formulation.** Formulation is the mental process of planning what to say and how to say it in words, sentence construction, and discourse organization (Levelt, 1989). In digital discourse, there are mediated barriers such as text limits and the lack of verbal backchanneling (e.g., "uh-huh", "I see") that impede this stage. Counsellors must "juggle" language to be perceived as clear, empathetic, and culture-sensitive, sometimes needing to predict their client's reactions without any current feedback (Bublitz & Norrick, 2011).

**Articulation.** Articulation involves the motor reproduction of spoken or written language and corresponds to the translation of thought into linguistically observable action (Levelt, 1993). The articulation of expressions often involves digital gesturing in the form of typing or voice input. Typing creates latency, disrupting the real-time conversation, and poor-quality voice recognition or autocorrect features may corrupt intent. These issues can present obstacles to forming a therapeutic alliance if they are not properly managed, so the importance of being explicit and careful about how language is used is highlighted (Crystal, 2006).

**Self-Regulation and Monitoring.** Self-monitoring is the speaker or writer's system to control and oversee the language generation by identifying and correcting the production (Postma, 2000). The practice is enabled as part of digital counselling, where clients can reread and edit the text before they send it, but a lack of facial or bodily visual feedback limits it. Therapists should monitor for miscommunications, particularly when discussing emotional content where clients might inadvertently say something that is not what they meant or pay attention to the interpretation of ambiguous client responses (Pickering & Garrod, 2013). These features highlight the cognitive demands of language generation in the context of digital counselling. Comprehending these mechanisms enables the clinician to develop both linguistically and psychologically compliant messages and improve therapeutic efficacy and client confidence.

### **Non-Verbal Cues and Their Absence/Alteration in Digital Spaces**

Non-verbal communication, which includes prosody, facial expression, gestures, position, or eye gaze, is crucial in understanding and conveying the meaning of a message and even more so in an emotionally charged issue like the practice of counselling. These non-verbal cues furnish significant information about the speaker's intent, emotional state, and relationship stance (Knapp, Hall, & Horgan, 2013). However, in online communication,



non-verbal signals are often reduced, distorted, or missing, so more compensatory strategies must be used in understanding and speaking.

### **The Role of Prosody, Facial Expressions, and Body Language**

Prosody—speech rhythm, pitch, and intonation—helps structure an utterance, emphasize s emotional nuance, and indicates conversational gamesmanship (Cutler, Dahan, & van Donselaar, 1997). Verbal statements are also supported by facial expressions and body movements that provide emotional and situational hints to help understand the meaning and the communication (Ekman, 2003). In in-person therapy, these cues are crucial for empathic attunement, rapport building, and noticing subtle emotional shifts (Geller & Greenberg, 2012).

### **Diminishment and Transformation in Digital Communication**

Such non-verbal aspects are virtually absent in text-based digital media, which may result in ambiguity, emotional misunderstanding, and diminished communicative richness (Derks et al., 2008). Users often try to make up with paralinguistic markers like punctuation (e.g., "!!!" or "..."), orthography, emojis, or typographical cues (e.g., italics for emphasis). However, these are imperfect substitutes for embodied communication (Tagg, 2015). For, in video-based interactions, where facial expressions and prosody of voice are to a certain extent accessible, practical constraints like lag, limited eye contact, and screen framing can create barriers to the flow of communication and the feeling of emotional presence (Nardi & Whittaker, 2002).

In digital counselling, such constraints may influence clients' disclosure, empathy perception, and therapeutic alliance. Understanding the operation and modification of non-verbal cues in online contexts is crucial for psycholinguistic and therapeutic effectiveness. Counsellors need to heighten their awareness of textual and contextual cues and employ clear strategies (e.g., why/what clarification questions, emotional check-in) to compensate for the lack of nonverbal presence.

### **Cognitive Load and Processing Fluency**

Cognitive load refers to the mental burden associated with the efforts to process, store, and recall information during language use (Sweller, 1988). The medium's nature, format, and specifics in digital communication can affect cognitive load and processing fluency, which influences the clarity,

coherence, and emotional impact experienced by participants in language exchanges, particularly in psychologically sensitive environments such as counselling.

### **Cognitive Load in Digital Modalities**

The demands on working memory and attentional resources differ widely between digital communication platforms. For example, in text-mediated communication (e.g., instant messaging, email), individuals may be required to engage in more effortful lexical and syntactic processing because prosodic and non-verbal cues are not present (Kalyuga, 2011). This may also call for more inferencing to be applied to derive meaning, which in turn creates a higher intrinsic and extraneous cognitive load, particularly when the language is ambiguous, emotionally laden, or culture-bound (Chandler & Sweller, 1991).

On the other hand, synchronous audio or video communication can alleviate some cognitive load by providing immediate feedback, prosodic modulation, and facial expression, facilitating comprehension and mitigating ambiguity (Mayer, 2009). Both have parallel distractions – technical interruptions, interface distractions, and the duality of attention between content and screen-based manipulatives (Kirschner, Ayres & Chandler, 2011).

### **Processing Fluency and Its Implications**

Fluency of processing—how readily information is processed—influences the emotional and cognitive way messages are interpreted (Alter & Oppenheimer, 2009). People fluently process linguistically easy, contextually related, and well-organized messages and perceive them as more sincere, truthful, and emotionally accessible. Disfluent messages, e.g., with complex sentences, suboptimal formatting, or surprising jargon, can challenge empathy, comprehension, and trust in therapeutic communication.

For digital counsellors, ease of processing can be enhanced by using clear and straightforward language, breaking down information into smaller parts, and keeping a consistent tone and format. Recognizing the cognitive demands of various digital modalities enables clinicians to tailor communication strategies to optimize comprehension and strengthen therapeutic rapport.

## **The Digital Communication Landscape in Counseling and Guidance**

The computerization of counselling has paved the way for various communication modes driven by different psycholinguistic and pragmatic issues. The affordances and constraints of these channels are what practitioners should consider if they are trying to maintain the therapeutic alliance, achieve emotional lucidity, and make changes in how they communicate with users. This section talks about some of the primary digital methods used in counselling — text-based counselling (TbC), audio counselling (AC), video counselling (VC), and AI-based platforms — and considers how they affect language, understanding, and relationships.

### **Text-Based Communication (Chat, Email, Messaging)**

The flexibility and accessibility of being able to provide therapy in text form (be it synchronous [live chat] or asynchronous [email, messaging]) can be hugely beneficial; however, such a dramatic shift in dynamics is going to have an impact. Since asynchronous environments afford more time for reflection and carefully considered responses, Promptness has been an issue in asynchronous learning environments (ALEs) (Gayeski, 1995; Wright, 2002). Real-time exchanges simulate human conversation in many ways but are not as smooth as spoken dialogue because of typing delays and processing requirements.

Users must rely more on word selection, syntax, and punctuation to convey emotion due to the absence of paralinguistic clues like tone, volume, and rhythm. No nonverbal cues, such as facial expressions or body language, may reduce empathy and emotional atonement (Naslund et al., 2016). Emojis, acronyms, and typographic conventions (e.g., ALL CAPS, ellipses) are commonly used by people to bridge the gap by communicating affect, intent, and urgency. These tools can add expressiveness but lead to ambiguity, particularly for people from a different generation or cultural background than the senders. Counsellors need to develop sensitivity to these cues and continue to attend to the clarification of miscommunications, as indicated.

### **Audio-Based Communication (Phone Calls, Voice Notes)**

Audio-only mediated channels add back the prosodic cues (introduction, inflexion, speaking rate, and pausing) essential for expressing emotion and regulating conversational turns (Bänziger et al., 2009). These channels allow one to interpret the emotion of the content more nuancedly than text.

Nonetheless, the lack of visual feedback can also limit access to facial expressions and body language, which may affect complete empathetic engagement and decrease contextual grounding.

Audio call not being able to take turns It can be difficult to take turns on an audio call without visual cues that someone is ready to speak. Speech overlapping, interruptions, or silence can lead to misinterpretation; this issue is more critical in a sensitive context. To negotiate the dialogue in such contexts, counsellors need to employ specific verbal strategies that help to facilitate both the flow of conversation and ensure common understandings are gained.

### **Video-Based Communication (Video Calls)**

Video conferencing is the closest approximation to in-person communication, including visual and auditory cues for effective communication. It is also the most powerful modality of communication in digital counselling. The visual view of facial expressions, body postures, and eye gaze assists the counsellor in reading emotional signs and therapeutically building rapport (Simpson, 2009). However, these models have their limitations.

Technical disruptions to the conversation are perceived to be unnatural, and technical difficulties, such as latency or lagging audio, cause words to be less intuitive and less immediate to the speaker's voice as if they were in the same room. Furthermore, the speaker can be framed on the screen, the background (for example, environmental), and the camera position can have (subtle) non-linguistic cues about social status, emotions, or professional setting. The spatial separation of camera and screen also challenges eye contact, potentially minimizing perceived interpersonal presence and connection (Fullwood, 2015).

### **AI-powered chatbots and Virtual Agents**

Developing AI-supported counselling software systems such as rule-based chatbots or generative language models sparks significant psycholinguistic exploration. Scripted systems generally use pre-coded templates, and while they provide uniformity, they often come up short when dynamic, human-emotion-based conversations are involved. Moreover, generative models using NLP techniques produce more natural, context-sensitive responses but cannot yet grasp irony, sarcasm, or culturally specific emotional expressions" (Shum, He & Li, 2018).

To a large extent, users' judgments of empathy, trustworthiness, and therapeutic potential of AI interaction are based on the fluency, coherence, and emotional alignment of the spoken language it produces. Some people may prefer avatars' anonymous and convenient presence but criticize the lack of human intuition and emotional response. Ethical questions (for instance, about transparency, data privacy, or the likelihood of miscommunication) must be tackled to order AI tools in counselling situations.

### **Psycholinguistic Aspects of Digital Counseling Interactions**

The electronic mediation of counselling interactions reconfigures the psycholinguistic landscape in which the processes of helping occur. Without the full range of paralinguistic and nonverbal cues, both client and counsellor must depend more upon verbal language to convey, comprehend, and clarify meaning (Kasap & Işık, 2025). This section is devoted to analyzing the impact of digital contexts on language use—ambiguity, emotional expression, and communicative strategies used by the counselee and e-helper—in the counselling dyad.

#### **Ambiguity and Misinterpretation**

**Lack of contextual clues** Since face-to-face interaction is not always possible, readers of communicative text will miss many of the contextual signals that are usually used as cues to the appropriate interpretation. Absent tone, facial expressions, and timing in text-based formats can obfuscate emotional nuances and cause readers to misperceive the intention of a correspondent or an emotional state (Kruger et al., 2005). This can happen in voice or video, where noise or technical issues may distort the spoken words.

To address these risks, interactions in online counselling typically utilize repair strategies—conversation mechanisms designed to restore alignment (Schegloff, Jefferson, & Sacks, 1977). These consist of requests for explanation ("Could you explain what you meant by...?"), metacommunicative "I" statements ("It sounds like there's some frustration here—am I onto something?"), and naming of emotions ("It seems like it has all been too much for you. Utilizing these strategies effectively to maintain an alignment of therapy and emotional safety is vital.

## **Emotional Expression and Perception**

The modality of communication profoundly affects how clients express their emotions and how helpers react to these expressions. In interactions that are confined to text, clients may use adjectives, emoticons, punctuation (e.g., "I am so tired!!!") and intensity markers such as "really" and "totally" to represent emotional states. However, expressive language of this kind can be more carefully composed and considered and less immediate or spontaneous (Barak, Davis, & Jones, 2008).

Contrast, voice and video facilitate a more direct conveyance of emotion using prosody, speech speed, and visual cues. However, these can still be problematic: through poor audio quality, affective nuances may be masked, and visually, the framing might restrict access to body-based expressions or gestures. In the current phone situation, counsellors need to combine word meaning, tone of voice, and what they see from the client to understand their feelings while also recognizing the limitations of this method.

## **Counsellor Language Use**

Digital counselling requires increased attention to counsellor language. Clarity and permissiveness assume increasing importance at this point to minimize the risk of misinterpretation. Counsellors should be careful not to be overly ambiguous, preferring to use direct but sensitive language to express understanding, support, and therapeutic purpose (Murphy & Mitchell, 1998).

Empathic language in mediated interactions is often characterized by verbal acknowledgements ("That must be really tough"), paraphrasings ("So it sounds like. ..."), and affective mirroring ("You seem to be really hurting from that experience"). These strategies replace or supplement empathic functions usually conveyed through tone and body language in a face-to-face interaction.

We also need to modify our approaches to questioning. Open-ended text questions risk overwhelming some clients with the cognitive burden or vagueness, while overly closed questions can limit exploration. Therefore, professional counsellors should balance precision and openness, tailoring their questions to the client's inclination and emotional state. Pacing and rhythm, especially in asynchronous communication, must be balanced to

enable forward movement without the urgency to respond now—inviting reflection and flow.

### **Client Language Use**

Client language use in cyber contexts is a meaningful source of information about emotional state, cognitive engagement, and the therapeutic relationship. The anonymity and communication-protective distance provided by digital communication may prompt quicker or deeper self-disclosure, especially in text communication, where clients tend to feel less perceived (Suler, 2004). Alternatively, this disinhibition may manifest in partial stories or emotionally driven outbursts that must be carefully contained.

Linguistic signals for distress—e.g., the excessive use of negation, absolutist words, or first-person singular pronouns—may reflect emotional turmoil or psychological vulnerability (Pennebaker, 2011). On the other hand, the appearance of agency-directed speech, cognitive reappraisal-related constructs, and goal-directed speech might reflect therapeutic improvement.

Clients also adjust their language register to match the degree of formality and the language of the medium. Clients can code-switch between informal and formal language, vernaculars and clinical language, or even multiple languages within multilingual communities. This variability is indicative of linguistic accommodation, the psychological orientation of the client, his or her cultural identity, and perception of the therapeutic contract.

### **Identity, Self-Presentation, and Rapport in the Digital Realm**

Online counselling alters the classical processes of therapeutic identity building, rapport building, and boundary management. Without the embodied markers of physical co-presence, clients and practitioners must pay closer attention to how they use language to position themselves, develop relationships, and maintain a sense of self distinct from others; practitioners need to be clearer about their positions and roles. This section will critically examine the discursive construction of identity and relational connection in digitally mediated therapeutic conversations.

## **Constructing Identity Through Language Online**

In the digital realm, language is the medium through which identity is built and perceived. Clients and counsellors self-present on their profiles, emails, chat/text messages, and appointments via lexical, syntactical, and stylistic markers. Euphony effects like formality and informality of language, self-reference or distance, and use of emotion-expressive words all build the online therapist self.

Online disinhibition (Suler, 2004) may lead clients to disclose personal, intimate information more freely than they would in person. Such increased openness can promote therapeutic engagement yet create difficulties in pacing and containment. Conversely, curated self-presentation refers to the tendency to share only selective aspects of oneself, which can overshadow genuine emotional expression, particularly in asynchronous or heavily edited text formats.

Therapists need to factor in these two dynamics. Where clients linguistically negotiate disclosure, self-representation, and narrative framing, clinicians can more effectively interpret the psychological meanings embedded in their digital identities.

## **Building and Maintaining Therapeutic Alliance**

Building a strong therapeutic relationship through digital means requires conscious psycholinguistic action. However, in the absence of physical co-presence, conventional cues of trust (including eye contact, closeness, and instant non-verbal feedback [Cook & Doyle, 2002]) must be replaced with explicit verbal devices. Cognitive psycholinguistic strategies for doing this include

**Linguistic Matching:** Using clients' terminology, sentence structure, and speed can create a feeling of attunement or attunement and resonance. According to the theory of language accommodation, increased convergence in linguistic accommodation improves perceived empathy and rapport (Giles & Ogay, 2007).

**Explicit Empathy:** Small gestures of empathic awareness do not translate into the digital realm. "Ouch, that must have been so hard" or "I can see how overwhelming that would be" Psychodynamic techniques like these validate emotions and keep the relationship alive.



**Active Listening in Language:** Counsellors can practice repeating, summarizing, and reflecting back ("You're saying, ...")..., "It sounds like..." (to indicate listening and prompt client elaboration).

**Inclusive Language:** Speaking in collective pronouns ("we might as well," "let's go on an adventure!") and their lack of directives potentially contributes to the co-construction of a collaborative and egalitarian therapeutic environment.

These strategies work but need careful tuning. Unreasonable amounts of scripted empathy or over-the-top linguistic mirroring can seem fake or robotic, especially in AI-enhanced or non-synchronous communication channels.

### **Managing Boundaries and Professionalism**

Digital counselling challenges professional boundaries, where regulation of the psycholinguistic scale from formal to informal is crucial. If applicable, using language that is more colloquial to your audience (e.g., emojis, slang, an acronym) may establish warmth and immediacy, especially with a (young) client or in a peer space. However, it may also weaken the image of expertise or reduce professional authority if used indiscriminately (Anthony & Nagel, 2010).

It is challenging to remain therapeutic while being approachable yet clear in role and expectation. Counselors need to be deliberate in their verbal nuance, selecting neither overly colloquial nor oblique language and remaining emotional but supportive.

Meta-communication (e.g., "Allow me to define my role here...") can strengthen the boundaries that an online context might otherwise dissolve.

Additionally, individuals may interpret late replies or brief messages as indicating indifference or lack of interest in asynchronous communication.

Here, the psycholinguistic clarity, consistency and transparency of communicative norms are vital to retaining the trust and therapeutic honesty/entity.

### **Ethical Considerations and Psycholinguistic Responsibilities**

As digital counselling grows, ethical issues are increasingly woven with psycholinguistic responsibilities, and the two have complex relationships within this medium. In addition to relative legal compliance, I believe

ethical practice in digitally mediated practice requires increased attention to how language, access, and interpretation inform therapeutic safety and efficacy.

### **Confidentiality and Privacy**

Online counselling constructs confidentiality not only through technical security measures but also through the use of language. Counselors should be mindful not to discuss highly confidential client information in insecure digital environments, whether inadvertently due to screen sharing, platform selection, or receiving casual written communication. In terms of psycholinguistics, it means learning a restrained way of talking – not to write too much or to use too much identifiable information, except on encrypted platforms (APA, 2017).

It's also vital to know where clients are on the comfort level spectrum of all things digital and how they communicate. Clients can also communicate reluctance or wariness through language—for example, hedging, minimal disclosure, and vague or roundabout talk—which counsellors may interpret as signs of boundary sensitivity or privacy issues. The agreement on an explicit discussion of a mutually defined digital communication protocol can facilitate trust and autonomy (Zur, 2020).

### **Digital Literacy and Access**

Digital counselling requires basic skills in digital and psycholinguistics literacy. However, variations in access to and facility with platforms or the ability to express oneself via digital means may result in communicative disempowerment. Counsellors must assess how well someone understands and uses technology and language, recognizing that digital fluency involves picking up on subtle emotional cues, managing conversation flow in text or voice, and creating meaning without full non-verbal support (Julius et al., 2020).

Language differences are particularly relevant in multilingual/multicultural counselling environments. Machine translation software is sometimes convenient but unable to discern nuances or intentions. In this role, psycholinguistic competence means changing the way we speak, simplifying sentences if needed, and checking for understanding by asking questions differently (APA, 2017).

## **Misinformation and Miscommunication**

Electronic modalities compound the potential for misunderstanding with asynchronous pacing, prosody, and ambiguous statements. Psycholinguistic confusion may arise when clients misinterpret the counsellor's intent as a lack of concern, disapproval, or disengagement. To attempt to ameliorate this, the counsellor should engage in deliberate "repair" (Apel, Fried-Oken & Subramanian, 2016) tactics, such as restating comments, explicitly asking for validation of meaning, and facilitating the client to express confusion or misunderstanding. Both of these techniques mimic face-to-face active listening, but they require linguistic recalibration to suit the mode (Wardle, 2021).

### **Scope of Practice**

Digital platforms are not always the most effective way to meet all mental health counselling needs. Some mental health situations, like extreme distress or severe mental health crises, may require more detailed information and real-time support that online platforms cannot fully offer. Counsellors should be trained to determine when a transition to face-to-face therapy is psycholinguistically indicated (e.g., when clients produce incoherent speech, demonstrate difficulty processing written feedback, or display psycholinguistic signs of derealization or fragmentation). Then, as we will discuss, ethical competency is the ability to discern the modality that most effectively serves the current need for accurate understanding, emotional containment, and therapeutic attunement (APA, 2017).

### **Training and Competence in Digital Counseling and Guidance**

The efficacy and safety of digital counselling depend on the psycholinguistic training of the professional. Competence includes the ability to understand how digital modalities are changing language use and the ability to employ specific communicative strategies appropriate to different platforms.

### **Developing Psycholinguistic Awareness**

Practitioners should be trained to understand various cues (linguistic cues, such as latency in response that could be indicative of disengagement, reflection, or technical difficulties; sudden shifts in topic (potential avoidance), or excessive formalism (potential anxiety or role confusion).

This training should examine how different platforms change how we use and understand language, paying attention to the effort required to read and listen, the importance of punctuation and spacing in writing, and how delays in communication affect the flow of conversation (APA, 2017).

### **Practical Skills for Digital Communication**

Proper, successful counsel in online spaces involves mastery of the micro-skills of the written and spoken word:

**Written modalities:** If you want to use writing as a modality, you should be able to write empathetic, straightforward, and punchy messages. This procedure involves using emotional markers, form responses, and open questions suited to digital media.

**Video-based interaction:** Therapists must be trained to maximize nonverbal communication in a restricted screen space, ensuring good lighting, an eyeliner for simulated eye contact, and gestures and facial expressions to support verbal communication.

**Asynchronous communication:** The chronologic delay, thematic continuity, and the capacity to refer to previous messages must be handled. Counsellors should demonstrate attention and memory to maintain relational continuity between sessions (APA, 2017).

### **Supervising Digital Practice**

Models for supervision need to include psycholinguistic coding of digital clinical sessions. Supervisors may help counsellors recognize patterns of unspoken communication, enhance clarity, and focus on tone and client reception. Supervisors can review transcripts, message threads, and videos as concrete data to guide reflective practice and professional development.

Further, supervision should attend to the special affective and interpretive issues of digital media (and other modalities), assisting therapists in questioning and refining their use of language and relational strategies (APA, 2017).

### **Self-Care for Digital Practitioners**

Digital interaction involves great cognitive and emotional effort, for example, greater linguistic monitoring and compensation strategies due to the reduction in feedback and the ambiguity of the situation 2. A lack of co-

presence, particularly in less embodied or text-based environments, can exacerbate the risk of rising fatigue. Training programs must offer modules on digital self-care, such as monitoring screen time, scheduling a break between sessions, and building emotional resilience to textual silence or delayed responses. Promoting counsellor self-care, such as reflective journaling, peer supervision groups, and linguistic debriefing, mitigates the distress of counsellors and decreases the risk of burnout (APA, 2017).

### **Case Studies and Practical Examples**

Digital counselling affords an unusual context for communication analysis, particularly from a psycholinguistic perspective. The case studies and examples below show how language, context, and modality work together to affect outcomes in the digital therapeutic environment, highlighting this two-way interaction.

#### **Case Study 1: Resolving Ambiguity in a Text-Based Crisis Intervention**

A 17-year-old client texts a school counselor through a phone-based service: "I cannot do this anymore. Everyone would be better if I did not exist." The absence of prosodic and visual cues increases ambiguity—is the statement metaphorical or reflective of high levels of suicidality?

The counsellor uses psycholinguistic techniques such as reflective rephrasing ("It seems like you're feeling a lot of overwhelm and hopelessness at the moment. Can you elaborate on your thoughts, including any open questions and lexical reflections for clarification?"). The counsellor interprets hedging, temporal markers, and affective expressions, leading the client closer to secure emotional ground.

It shows that we need clear support and a good speed for the text: without non-verbal cues, the case mainly relies on text and earlier studies that highlighted the importance of reflective language before (Julius et al., 2020).

#### **Case Study 2: Building Rapport in a Cross-Cultural Video Counseling Session**

A Turkish international student and an English-speaking counsellor connect through Zoom at a university mental health service. The first few sessions are characterized by the student's somewhat "polite" lack of talk. Using psycholinguistic sensitivity, the counsellor slows down speech, uses

more visual reinforcers (nods, smiles), and makes affirmations that are culture/patient-appropriate.

The client progresses and will only provide information using more emotionally -based words and first-person stories. Strategic differential use of such discourse markers as "I see," "That makes sense," and turn-taking cues enables relational alignment (Kimbara, 2003) and intercultural empathy. This case serves as an example of utilizing visual-verbal synchronization and culturally conscious discourse analysis to enhance therapeutic rapport in online therapy (Sue & Sue, 2016).

### **Case 3: The Psycholinguistics of AI Chatbot Guidance**

A mental wellness support chatbot developed to offer pre-counseling triage tool engages users in a text interface. One user writes: "I am tired of pretending I am ok. It's like yelling underwater." AI responds: "I'm sorry to hear that you're upset. Can I set you up with a meeting time?"

Throughout this conversation, the chatbot fails to comprehend metaphorical expressions and does not grasp the user's emotional depth.

From a psycholinguistic perspective, the architecture cannot perform pragmatic inferencing and recognize emotional salience, which requires understanding the theory of mind and cultural-linguistic context.

While chatbots excel at providing structured responses, such as scheduling and answering frequently asked questions, they still struggle to respond effectively to symbolic, nuanced, and emotionally rich language (Bickmore et al., 2018).

This case illustrates that AI, in its current state, is not yet able to provide emotionally intelligent support and the importance of hybrid models, where insight is provided by human, empathetic counselors on cues that automated systems might miss.

### **Example: Translating Psychoeducational Materials to a Digital Form**

A counselling centre moved its face-to-face workshop on test anxiety to an online module. The slides are in a text-heavy, idiomatic, and abstract academic style. A mobile app linguistically remixes the content, resulting in shortened sentences, rewritten definitions, active voice, and direct instruction.

Visual representations (infographics, feedback tool based on emoji) and interactive language (e.g., "Try this now – close your eyes and breathe in...") are interspersed to provide support for user engagement. This adaptation instantiates basic tenets of psycholinguistic cognitive load management, audience tailoring, and multimodal encoding (Mayer, 2009). It also makes the materials accessible and useful to learners with diverse literacy and language backgrounds.

### **Conclusion**

With the increasing use of digital counselling and guidance, psycholinguistic competence has gained high importance. The following section describes how language, modality, and meaning intersect in virtual environments, which counsellors need to understand. Understanding the subtle details of language, how it fits together, responding quickly to online signals, and communicating in different ways are all crucial for building trust and ensuring client safety in therapy.

Similarly, adherence to ethical practice in the digital realm requires sustained reflexivity about language use — how words invite and exclude, clarify and obscure, bind and estrange. For this reason, theoretical frameworks such as psycholinguistics need to be incorporated into digital counselling programs to ensure that counsellors are competent not just in the technology they are using but in appearing competent in the appropriate language and cultural context.

Ultimately, effective digital counselling involves transferring in-person skills to a screen and redefining communication.

The future of therapy, however, lies in the precise and delicate balance between human empathy and linguistic exactitude—based on the evidence we have accumulated about how minds meet through words—transmitted across screens, cultures, and crises.

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# DIGITAL LITERACY AND LANGUAGE LEARNING

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## 1. Introduction

Digital literacy has emerged as an essential competency in the 21st century, particularly within the realm of language learning. As technology continues to evolve, the ways in which individuals acquire, process, and communicate information have shifted dramatically, necessitating new forms of literacy that extend beyond traditional reading and writing skills (Cizrelioğulları et al., 2019; Pangrazio et al, 2020). Digital literacy encompasses a broad range of skills, including the ability to navigate digital environments, critically evaluate online content, and effectively use digital tools for communication and collaboration (Gilster, 1997; Hague & Payton, 2010; Kasap & Dağdemir, 2020). Within language learning, digital literacy plays a crucial role in shaping learners' engagement with linguistic resources, facilitating authentic communication, and supporting language acquisition through diverse multimodal platforms (Lotherington & Jenson, 2011).

The increasing integration of digital technology in education has prompted scholars to reconsider the scope of literacy, leading to the emergence of frameworks such as multiliteracies and new literacies (Çelik & Babayiğit, 2023a; Cope & Kalantzis, 2009; Lankshear & Knobel, 2006). These perspectives emphasize that literacy is no longer confined to traditional text-based practices but extends to digital, visual, and interactive modalities. Language learners must now develop competencies in navigating hypertext environments, participating in digital discourse communities, and critically engaging with multimedia content (Jewitt, 2009; Kress, 2010). This shift underscores the importance of digital literacy as a foundational skill in contemporary language education, equipping learners with the tools necessary to engage in global communication and access diverse linguistic resources (Godhe & Ledesma, 2020).

Digital literacy in language learning encompasses cognitive, social, and technological dimensions. Cognitively, digital literacy fosters information

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processing, critical thinking, and problem-solving skills essential for interpreting and evaluating digital content (Ng, 2012). Socially, digital literacy enables learners to engage with authentic language communities, participate in collaborative learning experiences, and develop intercultural competence through digital interactions (Reinders & Hubbard, 2013). From a technological perspective, proficiency in digital tools—such as learning management systems, language learning applications, and artificial intelligence-driven platforms—enhances learners' ability to access, create, and share linguistic content (Alakrash & Razak, 2021). These dimensions collectively contribute to a comprehensive understanding of digital literacy's significance in language education.

In contemporary educational settings, digital literacy is increasingly recognized as a prerequisite for effective language learning. Research indicates that students with higher levels of digital literacy demonstrate greater autonomy in their learning processes, improved engagement with language input, and enhanced ability to communicate in target languages (Son, Park, & Park, 2017). Moreover, digital literacy facilitates access to authentic language materials, including online newspapers, podcasts, social media interactions, and multimedia content, all of which contribute to immersive and contextualized language learning experiences (Çelik & Babayiğit, 2023b; Hafner, Chik, & Jones, 2015). Additionally, studies have shown that learners who engage with digital tools develop greater linguistic flexibility, adapting their language use to different digital genres and communication styles (Dudeny, Hockly, & Pegrum, 2013).

The 21st-century digital landscape necessitates that language learners acquire digital literacy skills not only for academic success but also for professional and social communication. Globalization has amplified the need for digital literacy, as proficiency in multiple languages and digital communication tools is now a key requirement in various professional fields (Jisc, 2014). Consequently, educational institutions worldwide have begun integrating digital literacy training into language curricula, recognizing its role in preparing students for future academic and career opportunities (Hubbard, 2013; Meurant, 2009). Nevertheless, challenges remain in ensuring equitable access to digital resources, addressing disparities in digital competence among learners, and developing effective pedagogical strategies for digital literacy integration (Pangrazio et al, 2020).

The significance of digital literacy extends beyond language learning, influencing broader educational policies and instructional practices. Organizations such as UNESCO and the European Commission have highlighted digital literacy as a critical skill for lifelong learning, emphasizing its role in fostering information literacy, media literacy, and critical digital citizenship (UNESCO, 2018). These perspectives align with recent research advocating for a holistic approach to digital literacy that encompasses not only technical proficiency but also ethical and critical engagement with digital content (Livingstone & Helsper, 2007). As digital literacy continues to evolve, educators must adapt their teaching methodologies to incorporate digital tools and resources that support language learning in dynamic and interactive ways (Ng, 2012).

This chapter aims to explore the relationship between digital literacy and language learning, examining its theoretical foundations, pedagogical implications, and practical applications. By analyzing empirical research and case studies, this discussion will provide insights into how digital literacy enhances language acquisition, supports learner autonomy, and prepares students for global communication (Çelik & Babayiğit, 2023b). Additionally, the chapter will address the challenges associated with digital literacy integration and propose strategies for educators to effectively incorporate digital literacy into language instruction. Through this exploration, the chapter seeks to contribute to a comprehensive understanding of the role of digital literacy in shaping modern language learning experiences.

## **2. Theoretical Foundations of Digital Literacy in Language Learning**

The conceptualization of digital literacy in language learning is rooted in various theoretical perspectives that highlight its cognitive, social, and technological dimensions. Scholars have developed multiple frameworks to define and structure digital literacy, emphasizing its dynamic and evolving nature in response to technological advancements (Lankshear & Knobel, 2006; Jewitt, 2009). Theoretical perspectives such as the multiliteracies framework, new literacies theory, and digital literacy as a social practice provide essential insights into how learners engage with digital content in language learning contexts. Additionally, cognitive and metacognitive approaches to digital literacy offer a psychological perspective on how learners process and utilize digital information effectively (Ng, 2012). These frameworks serve as foundational pillars for integrating digital literacy into

contemporary language education, ensuring that learners develop both functional and critical skills necessary for navigating the digital world.

The multiliteracies framework, introduced by the New London Group (1996), responds to the increasing complexity of communication in a globalized and digitalized world. This framework emphasizes that literacy extends beyond traditional reading and writing to include multiple modes of meaning-making, such as linguistic, visual, audio, gestural, and spatial elements (Cope & Kalantzis, 2009). In language learning, this perspective suggests that students must be equipped with skills that enable them to interpret and produce texts across diverse digital platforms (Kress, 2010). Multiliteracies promote deeper engagement with language through multimodal communication, requiring learners to navigate hypertext, video, and interactive digital environments effectively (Lotherington & Jenson, 2011). Furthermore, this framework acknowledges learner diversity and inclusivity, recognizing that different linguistic backgrounds and learning preferences benefit from exposure to various modes of communication (Hafner, Chik, & Jones, 2015). By incorporating digital storytelling, interactive blogs, and video-based language exercises, the multiliteracies framework bridges linguistic gaps and fosters meaningful engagement with language (Jewitt, 2009).

New literacies theory expands upon traditional literacy studies by acknowledging that literacy practices have evolved alongside digital technologies (Lankshear & Knobel, 2006). This perspective highlights participatory, networked, and socially mediated learning experiences in digital environments (Leu et al., 2013). Unlike conventional literacy, which focuses on decoding static texts, new literacies involve dynamic engagement with digital media, requiring learners to critically analyze, produce, and interact with content in multiple formats (Pangrazio et al, 2020). A defining feature of new literacies is their interactive and collaborative nature, in contrast to print-based literacy, where information is typically consumed passively. Digital literacies encourage active participation in knowledge construction (Gee, 2010). Language learners engage with digital resources such as wikis, discussion forums, and collaborative writing platforms, which enable them to co-construct meaning with peers across global networks (Reinders & Hubbard, 2013). The ability to navigate, synthesize, and critically evaluate information from multiple online sources is fundamental to becoming proficient in new literacies (Son et al, 2017). Furthermore,

digital literacy within the framework of new literacies is closely tied to learner agency. Learners are not merely passive recipients of digital content but active contributors who engage with, remix, and produce new forms of digital communication (Hafner, 2013). The rise of user-generated content platforms such as YouTube, TikTok, and social media has transformed language learning by allowing learners to create and share language-rich content in authentic digital environments (Thorne, Black, & Sykes, 2009).

Viewing digital literacy as a social practice emphasizes that literacy is deeply embedded in social and cultural contexts rather than being a mere technical skill (Street, 1995). From this viewpoint, digital literacy involves the ability to participate meaningfully in digital discourse communities, where learners engage in collaborative knowledge-building and interaction (Gee, 2010). Language learning within digital environments extends beyond textual comprehension; it requires learners to navigate online forums, engage in cross-cultural exchanges, and co-construct meaning in diverse digital settings (Godhe & Ledesma, 2020). Research indicates that language learners who engage in digital social practices—such as blogging, online discussions, and social media interactions—develop stronger communicative competencies and intercultural awareness (Hafner, 2013). Digital platforms provide learners with authentic linguistic input, fostering real-world application of language skills in a socially situated manner (Thorne et al, 2009). Moreover, engaging in digital social practices helps learners develop a sense of digital citizenship, allowing them to critically evaluate the ethical implications of online communication and digital identity management (Reinders, 2018). Digital literacy as a social practice also emphasizes digital inclusion, ensuring that learners from diverse backgrounds have equitable access to digital learning opportunities (Pangrazio et al, 2020).

Cognitive and metacognitive approaches to digital literacy focus on how learners process, evaluate, and regulate their engagement with digital information (Ng, 2012). Cognitive strategies in digital literacy involve skills such as information retrieval, critical evaluation, and multimodal comprehension (Livingstone & Helsper, 2007). These skills are essential for language learners who must discern credible online sources, interpret digital texts, and synthesize linguistic information from multiple media formats (Dudeny et al, 2013). Beyond technological competence, digital literacy includes higher-order thinking skills that support effective learning and

adaptation in digital environments (Eshet-Alkalai, 2004). Metacognitive strategies, on the other hand, pertain to learners' ability to monitor and control their digital literacy development (Zimmerman, 2002). Research suggests that metacognitive awareness enhances language learning outcomes, as students who actively reflect on their digital learning processes demonstrate greater autonomy and adaptability in acquiring new language skills (Hafner et al., 2015). Educators can support metacognitive development by incorporating digital literacy self-assessment tools, promoting reflective learning practices, and encouraging strategic use of digital resources (Son et al., 2017).

Cognitive and metacognitive aspects of digital literacy also contribute to fostering digital resilience—the ability to navigate challenges and adapt to rapidly changing digital environments (Garrison & Akyol, 2013). Learners with strong metacognitive skills are better equipped to identify misleading information, evaluate biases in digital texts, and apply problem-solving strategies to overcome digital literacy-related challenges (Greenhow & Gleason, 2012). Recent studies suggest that students who engage in metacognitive reflection while using digital tools exhibit improved comprehension and retention of language concepts (Cizrelioğulları et al., 2021; Hafner & Miller, 2011). Additionally, research by Azevedo and Hadwin (2005) underscores the importance of self-regulated learning in digital environments, indicating that learners who consciously plan, monitor, and evaluate their online learning experiences achieve better academic outcomes.

### **3. Evolution of Digital Literacy in Language Education**

The evolution of digital literacy in language education has been shaped by technological advancements, pedagogical shifts, and the increasing need for global communication. From early perspectives that primarily focused on print-based literacy to contemporary models that emphasize multimodal and interactive learning, digital literacy has undergone a significant transformation (Lankshear & Knobel, 2006). As language learning environments have adapted to emerging technologies, educators have integrated digital tools to facilitate language acquisition, foster learner autonomy, and enhance engagement (Reinders, 2018). This historical progression highlights key moments in the evolution of digital literacy, including the transition from print to multimodal learning, the rise of Web



2.0 and social media, and the growing influence of artificial intelligence (AI) in language education.

The early conceptualization of literacy was primarily associated with print-based materials and traditional classroom instruction, where reading and writing were the dominant skills required for communication (Gee, 2010). In this context, literacy was viewed as a static ability, confined to text-based learning materials such as textbooks, dictionaries, and printed exercises (Street, 1995). However, with the advent of digital technologies, scholars and educators began to recognize the need to expand literacy beyond the printed word to include digital, visual, and interactive modalities. The shift from print-based to digital literacy marked a fundamental change in the ways learners engage with language, emphasizing the integration of digital resources such as hypertext, multimedia content, and interactive platforms (Cope & Kalantzis, 2009). This transition also underscored the importance of critical literacy skills, as learners were required to navigate vast digital environments, assess information credibility, and synthesize knowledge from multiple sources (Leu et al., 2013).

The emergence of Web 2.0 technologies further transformed digital literacy in language education, shifting from passive content consumption to active content creation and social interaction (Lamy & Hampel, 2007). Unlike earlier digital resources, which primarily focused on static materials, Web 2.0 introduced interactive and collaborative learning opportunities through social media, wikis, blogs, and discussion forums (Pangrazio et al, 2020). These tools facilitated language learning by allowing students to engage in authentic communication, collaborate with peers, and participate in digital discourse communities (Thorne et al, 2009). Studies suggest that the participatory nature of Web 2.0 tools enhances learner engagement and motivation, as students feel more invested in the learning process when they actively contribute to knowledge production (Hafner, 2013). Furthermore, social media platforms such as Facebook, Twitter, and TikTok have expanded the boundaries of digital literacy by providing learners with access to real-time language use, enabling them to interact with native speakers and cultural contexts in meaningful ways (Reinders, 2018).

The integration of mobile learning and cloud-based platforms has also played a critical role in the evolution of digital literacy in language education. Mobile-assisted language learning (MALL) has allowed students

to access language resources anytime and anywhere, promoting self-directed learning and flexibility (Kukulska-Hulme & Traxler, 2013). Research indicates that the use of mobile apps such as Duolingo, Babbel, and Memrise fosters language retention by incorporating gamification, adaptive learning, and spaced repetition techniques (Burston, 2014). Additionally, cloud-based platforms such as Google Drive, Padlet, and Trello support collaborative learning, enabling students to co-construct meaning and engage in peer review activities (Son et al, 2017). The accessibility and interactivity provided by mobile and cloud technologies have contributed to the expansion of digital literacy practices, making language learning more engaging and learner-centered (Reinders & White, 2016).

The rise of artificial intelligence (AI) and machine learning has introduced a new phase in the evolution of digital literacy, revolutionizing language education through personalized learning and intelligent feedback systems (Godwin-Jones, 2018). AI-powered applications such as ChatGPT, Grammarly, and LingQ analyze learner data to provide adaptive language instruction, offering real-time corrections and personalized recommendations based on user performance (Pérez-Paredes, 2023). Research suggests that AI-driven language learning tools enhance linguistic proficiency by delivering targeted feedback, identifying patterns in learner errors, and optimizing study plans to meet individual needs (Hubbard, 2013). Furthermore, virtual tutors and AI-powered chatbots simulate real-life conversations, providing learners with authentic language practice in a controlled environment (Lan, 2020). As AI technology continues to advance, its integration into digital literacy practices is expected to further transform language education by offering more efficient, personalized, and immersive learning experiences (Reinders, 2020).

While digital literacy has significantly evolved, challenges remain in ensuring equitable access to digital resources and addressing disparities in digital competence among learners (Livingstone & Helsper, 2007). Issues such as the digital divide, technological infrastructure limitations, and varying levels of digital literacy proficiency among educators and students continue to impact the effectiveness of technology-enhanced language learning (van Dijk, 2020). To address these challenges, policymakers and educational institutions must prioritize digital literacy training, provide resources for underserved communities, and develop strategies for

integrating emerging technologies into curricula in an inclusive manner (Pangrazio et al, 2020). Future research should also explore the long-term effects of AI-driven personalized learning, the role of digital literacy in multilingual societies, and the impact of virtual reality (VR) and augmented reality (AR) applications on language learning outcomes (Reinders, 2018).

To sum up, the evolution of digital literacy in language education reflects a shift from traditional print-based literacy to dynamic, multimodal, and technology-mediated learning experiences. The progression from early print-focused literacy to Web 2.0 interactivity, mobile learning, and AI-driven instruction highlights the continuous transformation of language education in response to technological advancements. As digital literacy becomes increasingly integral to language learning, educators must adapt their teaching methodologies to incorporate digital tools that support learner engagement, autonomy, and linguistic proficiency. By addressing challenges related to digital equity and fostering innovative pedagogical approaches, the future of digital literacy in language education will continue to evolve, shaping how learners acquire and interact with language in the digital age.

#### **4. Defining Digital Literacy in Language Learning**

Digital literacy in language learning encompasses a broad range of competencies, from technical proficiency in using digital tools to critical engagement with digital content. As digital technologies become more embedded in educational contexts, learners are required to develop skills that enable them to navigate, evaluate, and create digital content effectively (Pangrazio et al, 2020). The increasing digitization of language learning environments necessitates an understanding of how digital literacy supports linguistic competence, learner autonomy, and cross-cultural communication (Reinders, 2018). Unlike traditional literacy, which emphasizes reading and writing skills, digital literacy extends to multimodal engagement, including audiovisual comprehension, interactive communication, and the ethical use of digital resources (Ng, 2012).

A fundamental component of digital literacy is the ability to retrieve and critically evaluate information. With vast amounts of digital content available, learners must discern credible sources from unreliable ones, assess the relevance of materials, and synthesize information effectively (Hafner, 2013). Research suggests that students who develop strong information evaluation skills exhibit higher levels of comprehension and are

better equipped to engage in academic discourse (Livingstone & Helsper, 2007). Given the prevalence of misinformation and algorithm-driven content online, fostering critical digital literacy is essential in helping learners make informed decisions about the materials they engage with (Leu et al., 2013).

Online communication and collaboration form another crucial aspect of digital literacy. Digital platforms provide opportunities for synchronous and asynchronous communication, enabling learners to engage in authentic linguistic interactions with peers, instructors, and native speakers (Reinders & White, 2016). Forums, social media, and collaborative writing tools facilitate interactive learning experiences, encouraging learners to practice their language skills in real-world contexts (Hafner, Chik, & Jones, 2015). Studies indicate that participation in online discussions and collaborative writing tasks enhances grammatical accuracy, discourse coherence, and intercultural competence (Sun, 2024; Tũma, 2012). Moreover, digital communication fosters learner engagement, as students benefit from exposure to diverse language forms and feedback mechanisms that support their development (Thorne et al, 2009).

Digital content creation is an increasingly significant dimension of digital literacy, allowing learners to produce and share language-related materials such as blogs, videos, podcasts, and interactive presentations (Godwin-Jones, 2018). Engaging in digital content production fosters creativity, linguistic flexibility, and self-expression while enabling learners to experiment with different communication styles (Mills, 2011). Research indicates that video-based assignments enhance pronunciation and fluency, while blogging improves writing proficiency and reflective thinking (Jewitt, 2009). The integration of digital storytelling, multimedia composition, and interactive projects into language instruction expands learners' engagement with the target language and provides meaningful contexts for application (Lotherington & Jenson, 2011).

As digital literacy expands, ethical considerations and digital safety become increasingly relevant. Learners must develop an awareness of online security practices, data privacy, and responsible engagement in digital spaces (Richardson & Milovidov, 2019; Searson et al, 2015). Cybersecurity education is essential in equipping students with the skills to navigate digital environments safely while avoiding risks such as cyberbullying, identity theft, and online exploitation (Ng, 2012). Studies emphasize that

incorporating discussions on intellectual property, responsible social media use, and digital footprint management into language learning curricula helps cultivate responsible digital citizens (Livingstone & Helsper, 2007). Ensuring that learners are aware of ethical digital practices fosters both academic integrity and personal security (Reinders & White, 2016).

Finally, digital literacy is closely intertwined with linguistic competence. Digital platforms provide access to authentic linguistic input, opportunities for meaningful interaction, and personalized learning pathways that cater to individual needs (Godwin-Jones, 2018). AI-driven language learning tools, virtual exchange programs, and adaptive learning technologies facilitate greater exposure to target languages, allowing learners to practice and refine their skills in diverse digital environments (Pérez-Paredes, 2023). Studies suggest that learners who engage effectively with digital tools demonstrate greater language proficiency and autonomy, as they are able to tailor their learning experiences to their unique goals and preferences (Hafner, 2019).

### **5. Pedagogical Approaches to Integrating Digital Literacy in Language Learning**

The integration of digital literacy in language education requires pedagogical approaches that effectively leverage digital tools while promoting learner engagement, autonomy, and critical thinking. Given the increasing role of digital technologies in linguistic interaction and communication, educators must adopt instructional strategies that foster both digital and language competencies (Reinders, 2018). Pedagogical models such as blended learning, flipped classrooms, project-based learning, task-based learning, and gamification offer practical frameworks for embedding digital literacy into language instruction (Dudeney et al, 2013). These approaches not only support linguistic development but also enhance learners' digital competencies, preparing them for participation in digital communication environments (Ng, 2012).

Blended learning is a widely adopted model for integrating digital literacy into language education, combining face-to-face instruction with online learning experiences (Graham, 2006). This approach allows learners to engage with digital content at their own pace while benefiting from structured classroom activities that reinforce language acquisition (Hrastinski, 2019). Studies indicate that blended learning enhances student motivation and engagement by incorporating interactive elements such as discussion forums, multimedia resources, and adaptive language exercises

(Reinders & White, 2016). The flexibility afforded by blended learning also facilitates individualized instruction, enabling learners to access a variety of digital resources that cater to their specific linguistic needs (Picciano, 2017).

The flipped classroom model further promotes digital literacy by inverting traditional instructional structures, where learners engage with digital content outside the classroom before participating in interactive activities during in-person sessions (Bergmann & Sams, 2012). This approach encourages learner autonomy and self-regulation, as students must take responsibility for their pre-class learning using digital resources such as instructional videos, podcasts, and online readings (Hung, 2015). Research suggests that flipped classrooms improve students' critical thinking skills, increase engagement, and provide more opportunities for communicative practice in language learning (Mehring, 2018). Additionally, this model allows classroom time to be dedicated to active learning strategies, such as peer collaboration, problem-solving tasks, and language production activities, which reinforce both linguistic and digital competencies (Abeysekera & Dawson, 2015).

Project-based learning (PBL) is another effective strategy for fostering digital literacy in language education, as it emphasizes experiential learning through digital collaboration and content creation (Beckett & Slater, 2018). In this approach, learners engage in meaningful projects that require them to research topics, create digital artifacts, and present their findings using various digital platforms (Thomas, 2000). Studies indicate that PBL enhances critical thinking, learner autonomy, and digital fluency, as students develop multimodal communication skills while engaging in authentic language use (Hafner, 2019). By incorporating digital tools such as video editing software, blogging platforms, and collaborative wikis, educators can support students in developing digital literacy while enhancing their language proficiency (Guo, 2016).

Task-based language learning (TBLT) with digital tools provides another pedagogical framework for integrating digital literacy into language education. In this approach, learners complete communicative tasks that require them to utilize digital resources, such as search engines, multimedia applications, and collaborative writing platforms (Ellis, 2003). Research suggests that digital TBLT enhances language acquisition by facilitating exposure to authentic language input, encouraging problem-solving skills, and promoting online collaboration (González-Lloret & Ortega, 2014).

Moreover, the integration of digital tools into TBLT facilitates formative assessment, allowing educators to track learner progress and provide real-time feedback on language use (Chapelle, 2019). By leveraging digital resources in task-based learning, students develop both linguistic and digital competencies that are essential for 21st-century communication (Reinders, 2018).

Gamification and virtual learning environments have also gained prominence as innovative approaches to integrating digital literacy in language education (Deterding et al., 2011). Gamified learning incorporates game elements such as points, leaderboards, and interactive challenges to enhance motivation and engagement (Hamari et al., 2014). Language learning applications such as Duolingo and Memrise employ gamification principles to encourage consistent practice and provide immediate feedback, leading to improved vocabulary retention and grammar accuracy (Munday, 2016). Additionally, virtual learning environments, including virtual reality (VR) and augmented reality (AR) applications, provide immersive language experiences that support pronunciation, comprehension, and intercultural competence (Babayigit & Çelik, 2025; Lan, 2020). Studies indicate that VR and AR technologies create highly engaging and interactive learning experiences, allowing learners to apply their language skills in simulated real-world contexts (Schwienhorst, 2018).

While the integration of digital literacy in language education offers numerous advantages, educators must also consider challenges such as technological accessibility, digital divide issues, and the need for professional development (Pangrazio et al, 2020). Effective teacher training programs that focus on digital pedagogy are crucial for ensuring that instructors can confidently integrate technology into their teaching practices (Hampel & Stickler, 2015). Additionally, institutions must provide adequate technological infrastructure and support systems to facilitate the seamless implementation of digital literacy initiatives in language learning contexts (Ng, 2012).

In conclusion, the integration of digital literacy into language learning necessitates pedagogical approaches that leverage technology to enhance linguistic and cognitive development. Blended learning, flipped classrooms, project-based learning, task-based learning, and gamification each offer unique benefits in fostering digital literacy while supporting language acquisition. By adopting these approaches, educators can create interactive,

student-centered learning environments that prepare learners for effective communication in the digital age (Reinders, 2018). As digital technologies continue to evolve, language education must adapt to incorporate innovative methodologies that empower learners with the necessary skills to navigate digital communication landscapes and engage in lifelong learning (Ng, 2012).

## **6. Digital Tools and Technologies in Language Learning**

The integration of digital tools and technologies in language learning has revolutionized traditional pedagogical approaches, offering learners increased accessibility, interactivity, and personalization. As digital technologies continue to evolve, language educators and learners benefit from a wide array of digital platforms that facilitate communication, collaboration, and linguistic development (Reinders, 2018). The adoption of digital tools in language education enhances engagement, fosters autonomous learning, and provides real-world applications of language use (Godwin-Jones, 2018). Key digital tools include Learning Management Systems (LMS), social media platforms, online collaboration tools, AI-powered applications, and immersive technologies such as Virtual Reality (VR) and Augmented Reality (AR).

Learning Management Systems (LMS) such as Moodle, Blackboard, and Google Classroom have become foundational in digital language learning environments. These platforms allow educators to organize instructional materials, assess student progress, and facilitate discussions in both synchronous and asynchronous formats (Dudeney et al, 2013). LMS platforms support the integration of multimedia content, interactive quizzes, and discussion forums, enabling learners to engage with course materials beyond the traditional classroom setting (Picciano, 2017). Research suggests that the structured nature of LMS platforms enhances learner autonomy and promotes self-directed learning in digital language education (Reinders & White, 2016).

Social media platforms, including Facebook, Twitter, Instagram, and TikTok, have emerged as valuable tools for language learning by providing real-world contexts for communication (Blattner & Lomicka, 2012). These platforms enable learners to engage in authentic language interactions, participate in discussion groups, and share multimedia content in target languages (Mills, 2011). Twitter, for example, supports microblogging activities that encourage concise language production, while Instagram



facilitates visual storytelling that enhances narrative skills (Pérez-Sabater, 2019). Additionally, TikTok's short video format allows learners to practice pronunciation, intonation, and conversational fluency in engaging and creative ways (Sanchez, 2022). Social media fosters informal, self-directed learning experiences, bridging the gap between academic language learning and real-world communication (Godwin-Jones, 2018).

Online collaboration tools such as Google Docs, Padlet, Slack, and Trello support cooperative learning by enabling students to co-create content, provide peer feedback, and participate in group projects (Hafner, 2019). These tools enhance digital literacy and communicative competence by encouraging learners to write, edit, and discuss language content in real time (Lee, 2019). Research indicates that digital collaboration fosters learner engagement, social interaction, and critical thinking, all of which are essential for effective language acquisition (González-Lloret & Ortega, 2014). Additionally, cloud-based platforms provide students with continuous access to their work, allowing for seamless integration of digital literacy into the learning process (Reinders, 2020).

Artificial intelligence (AI)-powered applications such as ChatGPT, Grammarly, Duolingo, LingQ, and Babbel have transformed language learning by offering personalized instruction and instant feedback. ChatGPT, for instance, enables learners to practice conversational language through interactive AI-driven dialogue, enhancing fluency and comprehension (Pérez-Paredes, 2023). Grammarly provides real-time corrections and stylistic suggestions that improve written communication, making it a valuable tool for academic writing and language refinement (Burstein et al., 2018). Language learning apps like Duolingo and Babbel leverage AI-driven gamification techniques to support vocabulary acquisition and retention, creating engaging and adaptive learning environments (Hamari et al., 2014). The integration of AI in language learning has significantly increased the accessibility of personalized education, making language acquisition more efficient and learner-centered (Reinders & White, 2016).

Virtual and augmented reality (VR/AR) technologies offer immersive language learning experiences that replicate real-world interactions and cultural contexts (Lan, 2020). VR applications such as Mondly VR and ImmerseMe provide learners with simulated conversational scenarios, enhancing pronunciation accuracy, listening comprehension, and

intercultural competence (Schwienhorst, 2018). AR-based applications, including Google Lens and AR flashcards, support vocabulary acquisition by providing interactive, real-world references that reinforce language retention (Dunbar, 2021). Research suggests that immersive technologies create engaging learning environments that facilitate experiential learning, bridging the gap between theoretical instruction and practical language use (Godwin-Jones, 2020). As VR/AR tools become more accessible, their integration into language curricula is expected to expand, further enriching digital literacy in language education (Munday, 2016).

Despite the advantages of digital tools in language learning, challenges such as digital accessibility, ethical considerations, and educator training must be addressed to maximize their effectiveness (Pangrazio et al, 2020). Issues related to data privacy, algorithmic biases, and equitable access to technology require careful consideration to ensure that digital learning remains inclusive and fair (Livingstone & Helsper, 2007). Additionally, professional development programs should be implemented to equip educators with the skills necessary to integrate digital tools into their teaching practices effectively (Ng, 2012). Addressing these challenges will ensure that digital tools continue to enhance language education in meaningful and equitable ways (Reinders, 2020).

In conclusion, digital tools and technologies have transformed language learning by offering interactive, collaborative, and immersive experiences that support linguistic and digital literacy development. Learning Management Systems provide structured learning environments, social media fosters authentic language interactions, online collaboration tools enhance peer engagement, AI-powered applications offer personalized learning, and VR/AR technologies create immersive educational experiences. As technological advancements continue, the integration of digital tools in language education will play a crucial role in shaping pedagogical practices, equipping learners with the necessary skills for effective digital communication and lifelong learning (Reinders, 2018).

## **7. Challenges and Barriers in Implementing Digital Literacy for Language Learning**

The integration of digital literacy into language learning presents numerous opportunities, but it is not without its challenges. Issues such as digital divide and access inequality, teachers' digital competence, student motivation, privacy concerns, and resistance to change in traditional

educational settings continue to pose significant barriers to effective implementation (Reinders, 2018). Addressing these challenges requires a comprehensive approach that includes institutional support, professional development, and equitable access to digital resources (Pangrazio et al, 2020).

One of the most pressing challenges in implementing digital literacy for language learning is the **digital divide and access inequality**. Socioeconomic disparities significantly impact learners' ability to engage with digital resources, particularly in regions with limited technological infrastructure (van Dijk, 2020). Research indicates that students from lower-income backgrounds often lack access to high-speed internet, up-to-date devices, and digital learning platforms, placing them at a disadvantage compared to their more privileged peers (Livingstone & Helsper, 2007). These disparities create unequal learning opportunities and hinder the development of digital literacy skills necessary for academic and professional success (Hargittai, 2010). Bridging the digital divide requires targeted interventions, such as government and institutional investments in technology infrastructure, digital literacy training programs, and open-access learning materials (Reinders & White, 2016).

Another critical barrier is **teachers' digital competence and professional development**. Many educators lack the necessary skills to effectively integrate digital tools into language instruction, limiting the potential benefits of technology-enhanced learning (Koehler & Mishra, 2009). Studies show that while teachers may be proficient in general digital literacy skills, they often struggle with pedagogically sound applications of digital tools in language education (Hampel & Stickler, 2015). Professional development programs that focus on digital pedagogy, instructional design, and emerging technologies are essential for equipping educators with the necessary skills to incorporate digital literacy into their teaching practices effectively (Howard, 2013). Institutions must provide ongoing training, mentorship, and collaborative learning opportunities to ensure that teachers remain confident and competent in utilizing digital tools for language learning (Reinders, 2020).

**Student attitudes and motivation toward digital learning** also play a crucial role in the success of digital literacy integration. While some learners embrace digital tools and appreciate the flexibility they offer, others may struggle with self-regulation, engagement, and technological challenges

(Ng, 2012). Research suggests that students with lower levels of digital literacy often experience frustration in navigating online learning environments, leading to decreased motivation and reduced academic performance (Hafner, 2019). Additionally, learners who are accustomed to traditional face-to-face instruction may resist digital learning approaches, perceiving them as less effective or structured (Cortesi et al, 2020; Richardson & Milovidov, 2019). To address these concerns, educators should incorporate structured digital learning activities, provide scaffolding for students who need additional support, and highlight the practical benefits of digital literacy for language acquisition and real-world communication (Dudeney & Hockly, 2016).

**Privacy, security, and ethical considerations** present additional barriers to the implementation of digital literacy in language education. The increasing use of digital platforms raises concerns about data privacy, cybersecurity, and ethical content creation (Livingstone & Helsper, 2007). Many online learning tools collect user data, raising ethical questions about how personal information is stored and utilized (Pangrazio et al, 2020). Additionally, cybersecurity threats, such as phishing scams and data breaches, pose risks to students and educators alike (Hargittai, 2010). Furthermore, ethical concerns such as plagiarism, digital manipulation, and the responsible use of AI-powered language learning tools highlight the need for clear guidelines on digital ethics (Reinders, 2020). Institutions should implement robust data protection policies, educate students on digital safety practices, and foster a culture of responsible digital citizenship in language education (Howard, 2013).

Lastly, **resistance to change in traditional learning environments** remains a significant challenge. Some educators and institutions are hesitant to shift from conventional teaching methods to technology-enhanced learning due to concerns about pedagogical effectiveness, increased workload, and institutional constraints (Koehler & Mishra, 2009). Traditionalists argue that face-to-face instruction provides benefits that digital learning cannot fully replicate, such as direct teacher-student interaction, immediate feedback, and structured learning environments (Ng, 2012). Additionally, limited funding and institutional support for digital initiatives can make it difficult to implement large-scale technology integration (Scheerder et al., 2017). To overcome resistance, institutions should adopt a gradual approach to digital literacy implementation,

demonstrate the effectiveness of digital tools through research-based practices, and provide incentives for educators to adopt innovative teaching methodologies (Reinders, 2018).

In conclusion, while digital literacy has the potential to enhance language learning, significant challenges must be addressed to ensure its successful implementation. The digital divide, lack of teacher training, student motivation, privacy concerns, and resistance to change all contribute to the complexities of integrating digital literacy into language education. Addressing these barriers requires a multi-faceted approach, including investments in digital infrastructure, targeted professional development, structured student support, and ethical guidelines for digital learning. By overcoming these challenges, educators can create more inclusive, effective, and engaging digital learning environments that prepare students for success in an increasingly digital world (Pangrazio et al, 2020).

## **8. Future Directions and Innovations in Digital Literacy for Language Learning**

As digital literacy continues to evolve, language education must adapt to technological advancements and pedagogical innovations. The increasing role of artificial intelligence (AI), big data analytics, immersive learning technologies, and personalized digital learning environments has the potential to transform how language learners develop linguistic competencies (Reinders, 2020). These developments will reshape digital literacy practices, enhancing learner engagement, improving instructional design, and fostering global communication.

AI-driven personalized learning platforms are gaining prominence in language education due to their ability to tailor content and feedback to individual learner needs (Burstein et al., 2018). Tools such as ChatGPT, Grammarly, and Duolingo utilize machine learning algorithms to analyze learner performance and provide customized recommendations, enhancing self-paced learning and optimizing language acquisition (Pérez-Paredes, 2023). Virtual tutors and AI-powered chatbots simulate real-life conversations, enabling learners to develop fluency and comprehension in interactive digital environments (Lan, 2020). As these tools become more sophisticated, they offer increased accessibility and adaptability, making language learning more efficient and personalized (Godwin-Jones, 2018). However, ethical concerns regarding data privacy and algorithmic biases

must be addressed to ensure fair and responsible implementation in digital literacy education (Livingstone & Helsper, 2007).

Big data analytics is another transformative force in digital literacy development, providing educators with valuable insights into learner engagement, behavior, and progress (Dunbar, 2021). Institutions are leveraging data-driven decision-making to refine language curricula, identify learning gaps, and optimize instructional strategies (Picciano, 2017). Learning analytics tools allow educators to track student performance, detect patterns in language acquisition, and implement targeted interventions that support individualized learning pathways (González-Lloret & Ortega, 2014). Additionally, data visualization techniques enable learners to monitor their language proficiency, fostering autonomy and self-assessment (Reinders & White, 2016). However, as the use of big data expands, concerns regarding ethical data usage and student privacy must be carefully considered to maintain transparency and trust in digital education (Ng, 2012).

Immersive technologies, including Virtual Reality (VR) and Augmented Reality (AR), are revolutionizing digital literacy by creating engaging, context-rich language learning experiences (Schwienhorst, 2018). VR applications such as Mondly VR and ImmerseMe replicate real-world conversational settings, allowing learners to practice pronunciation, fluency, and listening comprehension in interactive environments (Lan, 2020). Similarly, AR tools like Google Lens and interactive flashcards enhance vocabulary acquisition by overlaying digital content onto physical objects, reinforcing contextual learning (Pangrazio et al, 2020). These immersive technologies bridge the gap between theoretical language instruction and real-world application, promoting experiential learning and cultural engagement (Godwin-Jones, 2020). As VR/AR tools become more accessible, they are expected to play a significant role in future language education models (Munday, 2016).

Beyond formal education, digital literacy is essential for lifelong language learning and participation in multilingual societies (Reinders, 2018). The increasing reliance on digital communication platforms requires individuals to develop digital competencies that enable them to navigate multilingual and multicultural digital landscapes (Ng, 2012). Inclusive access to digital resources, support for adult learners, and intergenerational learning initiatives are crucial for fostering digital literacy beyond

traditional classroom settings (Pérez-Paredes, 2023). Moreover, integrating digital literacy training into professional development programs equips individuals with the skills necessary to engage in global communication and multilingual digital interactions (Livingstone & Helsper, 2007). The role of digital literacy in multilingual education must also be explored further, particularly in regions where linguistic diversity necessitates innovative approaches to language acquisition (Godwin-Jones, 2018).

As digital literacy in language learning continues to advance, its future will be shaped by technological innovations, pedagogical refinements, and ethical considerations. AI-powered personalization will redefine adaptive learning, big data analytics will enhance curriculum design and assessment, and immersive technologies will offer engaging and interactive language experiences. Additionally, lifelong digital literacy initiatives will ensure that learners continue developing language skills beyond formal education. However, as these innovations progress, issues related to digital equity, data privacy, and algorithmic transparency must remain central to discussions on the future of digital literacy. By embracing these emerging trends, educators can create dynamic, inclusive, and effective language learning environments that prepare students for success in an increasingly digitalized world (Reinders, 2020).

## **9. Conclusion and Implications**

The integration of digital literacy into language learning has fundamentally transformed the ways in which learners acquire, process, and interact with linguistic content. As digital tools and technologies continue to evolve, the necessity for digital literacy skills in language education has become increasingly apparent. Throughout this discussion, various theoretical frameworks, pedagogical approaches, and technological advancements have been explored, highlighting their significance in fostering language acquisition, learner autonomy, and engagement in digital communication (Reinders, 2020). The shift from traditional literacy to multimodal and interactive digital literacy underscores the need for an adaptive and inclusive educational approach that meets the demands of the digital age (Pangrazio et al, 2020). Also, digital literacy may significantly support language learning in active aging by enhancing cognitive engagement, promoting social interaction through digital platforms, and facilitating access to diverse linguistic resources tailored to older adults' needs (Babayigit et al., 2024).

A key takeaway from this analysis is the growing importance of personalized learning environments facilitated by artificial intelligence, big data, and adaptive technologies. AI-driven platforms and intelligent feedback systems have revolutionized language instruction by providing tailored learning experiences, immediate feedback, and autonomous learning opportunities (Pérez-Paredes, 2023). Additionally, the role of immersive technologies such as virtual reality (VR) and augmented reality (AR) has been highlighted as a promising avenue for experiential and contextual language learning (Godwin-Jones, 2018). The integration of these technologies in digital literacy initiatives has the potential to enhance learner engagement, motivation, and overall language proficiency (Lan, 2020).

Despite these advancements, significant challenges remain in ensuring equitable access to digital literacy resources. The digital divide continues to affect learners from socioeconomically disadvantaged backgrounds, limiting their ability to engage with online language learning platforms and tools (van Dijk, 2020). Addressing these disparities requires targeted interventions, including policy initiatives that promote access to technology, institutional investments in digital infrastructure, and teacher training programs that equip educators with digital pedagogical skills (Livingstone & Helsper, 2007). Additionally, ethical considerations surrounding data privacy, digital citizenship, and responsible AI implementation must be carefully managed to create secure and inclusive digital learning environments (Ng, 2012).

The implications of digital literacy in language learning extend beyond formal education. In an increasingly globalized world, digital literacy is essential for professional communication, intercultural exchange, and lifelong learning (Reinders, 2018). Language learners who develop strong digital competencies are better prepared to navigate digital platforms, critically assess information, and engage in cross-cultural communication in both academic and professional contexts (Hafner, 2019). As such, digital literacy should be integrated into educational policies, curriculum design, and institutional strategies to ensure that learners are equipped with the necessary skills to succeed in digital communication landscapes (Pangrazio et al, 2020).

Future research should continue to explore the evolving role of digital literacy in language education, particularly in relation to emerging



technologies, pedagogical models, and learner engagement strategies. Investigating the long-term effects of AI-driven personalization, the impact of digital collaboration on language proficiency, and the role of gamification in motivation can provide valuable insights into optimizing digital literacy instruction (Reinders & White, 2016). Furthermore, studies should address how digital literacy can support multilingual and culturally diverse learners, ensuring that digital education remains accessible and inclusive for all language users (Godwin-Jones, 2020).

In conclusion, digital literacy is a fundamental component of modern language learning, shaping the ways in which learners acquire, process, and communicate in digital environments. While technological advancements offer immense potential for language education, challenges related to accessibility, ethical considerations, and pedagogical integration must be carefully addressed. By fostering digital literacy skills and adopting innovative teaching approaches, educators can create more inclusive, engaging, and effective language learning experiences that prepare students for success in the digital world. Moving forward, continued collaboration between educators, policymakers, and researchers will be essential in advancing digital literacy practices and ensuring that language learning remains responsive to technological and societal changes (Reinders, 2020).

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# **PSYCHOLOGICAL EFFECTS OF ARTIFICIAL INTELLIGENCE-BASED LANGUAGE LEARNING TOOLS; AN ANALYSIS IN TERMS OF ANXIETY AND MOTIVATION**

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## **Introduction**

The saying “One language, one person”, which is based on human and foreign language, is an explanation of the fact that the basis of communication between two people is based on language learning. In this context, a foreign language, regardless of its quality, strengthens the individual's communication process as well as his/her educational and career life. Therefore, it is inevitable that individuals who improve in foreign languages will have wider opportunities in their educational and career life. However, today, language learning is seen as quite challenging in the eyes of individuals. A child's language learning does not only develop through complex psychological mechanisms. In addition, the destruction of biological mechanisms, either genetically or subsequently for various reasons, leads to a wide range of problems in the areas of language and speech (Korkmaz, 2008; Erdem, 2013). When psychological language barriers are added to these, the task can become even more difficult. For this reason, individuals have to avoid many steps because they cannot overcome psychology-based language learning difficulties. However, just like every step in life, the language learning process also has a psychological basis. So, as long as we realize the psychological foundations, we can manage to put aside the anxieties in the foreign language learning phase.

Providing a learning environment in which the student can feel peaceful, increasing the student's desire to learn, eliminating the fear of making mistakes are some examples of psycholinguistics studies reflected in language teaching (Şahin, 2007). Especially for students with learning difficulties, it is of great importance to provide a learning environment where they can feel safe and peaceful. Such an environment can help students with learning difficulties develop a positive attitude towards learning and participate more willingly in the lesson. In addition, being able to express themselves without being afraid of making mistakes can enable these students to take a more active role in language learning. All these bring

along the problem of which methods are more effective in language teaching. In order to apply these methods effectively in the teaching process, it is necessary to know the basic features and shortcomings of these methods. Undoubtedly, many individuals nowadays attribute their failure in language learning to the inadequate training of courses and teachers. However, it is important to focus primarily on individual factors when investigating the basis for failure. Once we meet an intense desire in the individual sphere, we can remove many of the obstacles that stand in the way of learning a foreign language by doing what is necessary. On the other hand, while traditional language learning methods are teacher-oriented and based on classroom interactions, the development of technology in recent years and the integration of artificial intelligence into the field of education have radically changed the language learning process.

Artificial Intelligence developments may seem like a distant concept for many people, but in fact it constitutes an important reality in daily life. This has led to the development of artificial intelligence gaining a prominent place in the academic field and researchers have emphasized the continuous expansion in this field (Khosravi et al., 2023). This expansion has led to significant progress, especially in areas such as machine learning, programming and computer vision (de-Lima-Santos, 2021). The integration of artificial intelligence and digital technologies into foreign language learning processes has significant effects on individuals' learning psychology. In particular, affective variables such as motivation, anxiety and self-efficacy are at the forefront of these effects. AI-supported language learning tools increase learners' intrinsic motivation and encourage positive attitudes towards learning by providing personalized content and instant feedback (Satar & Akcan, 2021). For students with learning disabilities, AI-supported language learning tools can provide a learning process that suits individual needs by offering personalized content. From this perspective, these tools can make learning more accessible and comprehensible by providing activities tailored to the level and learning speed of individuals with learning disabilities and instant feedback. This can increase their self-confidence, reduce their anxiety about making mistakes and support them to develop a more positive attitude towards learning. In addition, improving individuals' capacity to manage their own learning processes strengthens their self-efficacy beliefs and motivation (Uzunboylu & Altay, 2020). However, the intensive use of technology can create technology anxiety in

some individuals and create emotional barriers in the learning process (Yaman & Kılıç, 2023). Therefore, the emotional supportive role of teachers is as important as the effective use of technological tools in AI-supported language learning processes. Adopting a learner-oriented, technology-compatible, yet pedagogically balanced approach can provide positive support for affective factors. However, the role of AI and technology in language learning may reduce social interactions in the classroom. Relationships with human teachers and classmates develop the learner's emotional intelligence and social skills as well as language skills. Technology may limit these interactions, leading to some challenges in the emotional context. Therefore, in this study, the effects of artificial intelligence and technology on the psychology of foreign language learning, how they reflect on individuals' learning processes in terms of anxiety and motivation, and the psychological dimensions of these changes are discussed below.

### **Positive Impacts of Artificial Intelligence-Based Language Learning Tools**

In order to understand the impact of artificial intelligence and technology on the psychology of foreign language learning, it is first necessary to examine how these tools work and how they affect learning processes. In this context, we know that artificial intelligence and rapidly developing technology have made foreign language learning processes more interactive and efficient. In this context, no matter how strong the steps we take for personal development in life, unless we are psychologically prepared, we may have difficulty in achieving the success we aim for. This is also the case in language learning. Uncertainty, question marks, disbelief and reluctance in the mind while learning a foreign language affect all development processes. At this point, there are psychological steps that can be taken to make the individual language learning stage achievable. From this perspective, the positive effects of AI and technological language learning tools on learners' language learning courage, motivation and anxiety are outlined below.

#### **1. Courageous Thinking**

Technological tools can make language learning processes more interactive. For example, AI-based applications provide learners with interactive scenarios in which they can use their language skills. Such interactions give the learner a practical experience of how to use language



skills in everyday life. Especially for students with learning difficulties, technological tools can make the language learning process more understandable and engaging. This is because AI-based applications provide these students with simplified and guided interactive scenarios in which they can easily use their language skills. Furthermore, gamification options make language learning more fun. Learners are motivated by game-based rewards and levels, turning the language learning process into an entertainment. From this perspective, AI increases students' courage and motivation by gamifying the learning process. For example, it allows students to improve their language skills in a fun way through daily exercises and scenario-based dialogues. In addition to all this, many of the steps we take in life are based on a strong attempt at courage. Lack of courage in the process of learning a foreign language, based on your individual abilities and beliefs, may cause you to give up as you climb the steps. First of all, we need to accept that language learning is a marathon. As long as we accept the challenge and have the courage to overcome the obstacles, we can achieve success in the language learning process.

## **2. Reduced Anxiety of Making Mistakes**

In Turkey, the anxiety of making mistakes drives individuals away from foreign language learning. They especially avoid learning a foreign language because of pronunciation mistakes and the worry that they will make mistakes (Tutaş 2000). Especially in students with learning difficulties, the anxiety of making mistakes during foreign language learning can be more pronounced. Concerns such as “I will mispronounce” or “I will be ostracized if I give the wrong answer”, which are generally seen in individuals in Turkey, are experienced more intensely in this group of students and may cause them to avoid foreign language learning. When educators encounter this situation in the classroom, they should take the mistakes made as normal, should not draw attention to the student's mistakes, should show patience while the students are speaking a foreign language, and should apply ways to reduce the anxiety of the student due to making mistakes (Ekmekçi, 1983). At this point, artificial intelligence enables language learners to quickly realize their mistakes by providing instant feedback in learning processes. In particular, errors in pronunciation, grammar or word choice are conveyed to the learner in an instructive way. This kind of feedback accelerates the learning process and helps learners gain the ability to correct their own mistakes. On top of all this, the provision of instant feedback continuously monitors the learner's progress and

provides them with a more accurate learning journey. Therefore, AI-based applications can reduce students' fear of making mistakes. In traditional classroom settings, students may not actively participate for fear of making mistakes. However, AI and digital platforms offer students a safer learning environment, allowing them to make mistakes and learn from them. This helps students overcome their psychological barriers and increase their self-confidence.

### **3. High Motivation**

As with every step towards success, high motivation is crucial in language learning. Therefore, when learning a language, we need to maintain the root causes of our desire, our closeness to our goals and our belief in success. Because clearing our question marks on this path we are walking helps us to maintain motivation to a great extent. At this point, technological tools and AI-supported learning platforms allow learners to progress at their own pace. This leads to greater engagement in the language learning process and hence a higher motivation to learn. Moreover, personalized learning materials allow learners to work on topics that interest them, making the learning process more enjoyable and meaningful.

Motivation and self-confidence are two important factors affecting the individual in language learning. Individuals move away from learning a foreign language because of pronunciation mistakes and worries about making mistakes (Tutaş 2000). For students with learning difficulties, motivation and self-confidence are two critical factors in foreign language learning. Since these students tend to make more mistakes in the language learning process, they may hold themselves back, especially due to pronunciation mistakes and the anxiety of giving the wrong answer. Negative thoughts such as “I will be ridiculed if I get it wrong” or “I will fail” can demotivate them and cause them to withdraw from language learning. However, all truths and beauties can be reached by making mistakes. Individuals who learn a foreign language should tackle the issue without fear, hesitation or even ridicule, without losing their excitement. It is inevitable that individuals who overcome their mistakes over time will enjoy this work as they begin to speak the foreign language they have learned.

One of the important issues in language teaching is to make the education process enjoyable and to ensure the permanence of teaching. Because no matter how old an individual is, he/she can easily learn only what he/she

enjoys. In this respect, care should be taken to ensure the motivation of the target audience and to make the teaching process fun without distracting them (Barin, 2004). In this context, one of the most important elements in language teaching for students with learning difficulties is to make the educational process fun and interesting. These students may be reluctant to learn because they usually have short attention spans and negative experiences of academic success. However, they become more open to learning when they participate in activities they enjoy. Undoubtedly, every person first builds a psychological wall for himself/herself when learning a foreign language and sometimes thinks that he/she cannot learn this new language. Therefore, all kinds of difficulties should be avoided when teaching a foreign language (Artuç, 2014). On the other hand, AI-supported applications adopt a learner-centered approach, offering a personalized learning experience based on each individual's learning style, speed and skills. This allows them to identify students' strengths and weaknesses and provide content and exercises based on their specific needs. Personalized learning increases student motivation, while at the same time providing a more efficient learning process.

Furthermore, artificial intelligence analyzes student performance and determines which subjects need to be studied more. In this way, learning materials are tailored to the needs of learners. However, the effects of AI and technology on the psychology of language learning are controversial. In conclusion, the impact of AI and technology on the psychology of language learning increases students' motivation by making learning processes more personalized and interactive. However, the role of teachers and the importance of emotional context should not be overlooked. Some research expresses concerns that AI could replace teachers and create a learning experience devoid of emotional context (British Institute, 2023). Therefore, the negative effects of AI on language learning should be scrutinized.

### **Negative Impacts of Artificial Intelligence-Based Language Learning Tools**

AI-based language learning tools offer many advantages such as increased motivation, reduced anxiety, encouragement, self-efficacy, individualized content delivery and instant feedback. However, it should be kept in mind that unlimited and unconscious use of these technologies may have some negative consequences. In this context, we can list the possible

negative effects of AI-based language learning tools and related literature findings as follows;

### **1. Reduced Human Interaction**

The intensive use of technology can make social interactions and bonding in the classroom difficult. In fact, the emotional substitution of AI for teachers can create a cold and ineffective learning experience for some students. This is because AI-based learning systems are unable to provide the emotional support, interest and motivation that teachers provide. This deficiency can lead to a reduced sense of progress and loss of motivation in students' learning processes (Yenidüzen, 2023). From this perspective, not only cognitive but also emotional support plays a critical role in learning.

### **2. Access Problems**

Especially students living in regions with poor internet connection or limited device usage slow down their language development because they cannot access personalized content, interactive applications and instant feedback opportunities (van Dijk, 2020; Warschauer & Matuchniak, 2010). Therefore, students with limited access to technological tools may be disadvantaged in their learning processes by not being able to benefit from the opportunities offered by digital language learning platforms.

### **3. Weakness in Critical Thinking**

AI-based tools and systems focused on finding the right answer quickly negatively affect in-depth learning and the development of cognitive skills (Smodin, 2024; Digital Ted, 2023). Therefore, over-reliance on these tools can weaken students' critical thinking, analysis and problem-solving skills.

### **4. Privacy Issues**

The protection of users' personal information such as voice recordings, written data and learning processes has become an important issue in language learning platforms (Tekhnologos Blog, 2024). This, predictably, carries the risk of privacy violations, especially as it collects and processes users' personal data.

### **5. Technology Addiction**

Over-reliance on AI-based learning tools can blunt students' ability to plan and manage their own learning processes. This can lead to reduced individual responsibility for learning and technology dependency (British Institute, 2023).

In conclusion, while AI-based language learning tools offer important opportunities in the field of educational technologies, the negativities they bring with them need to be carefully addressed. It is of great importance that AI tools are used in balance with human-centered learning processes so that students can both use technology effectively and develop human skills such as critical thinking, emotional support and cultural awareness.

### **Conclusion and Discussion**

This study examines the effects of artificial intelligence and digital technologies on the psychology of foreign language learning in terms of motivation and anxiety. The findings suggest that AI-based language learning tools, with interactive scenarios, instant feedback, interactive and gamified elements, increase learners' motivation and learning speed, while at the same time reinforcing their self-confidence. Similarly, the literature shows that personalized content presentation, instant feedback and gamified learning environments increase learners' intrinsic motivation and contribute to the development of self-confidence (Satar & Akcan, 2021; Uzunboylu & Altay, 2020). These language-based tools also help learners take a more active role in the language learning process and reduce the fear of making mistakes, providing a positive learning environment in terms of learning psychology (Tutaş, 2000; Artuç, 2014). However, in addition to these positive effects, some limitations should not be ignored. Excessive use of artificial intelligence-based systems cannot fully replace face-to-face interaction and may cause a lack of human factors such as emotional support provided by teachers (British Institute, 2023; Yenidüzen, 2023). This situation leads to inadequacies especially in emotional learning processes and may trigger technology-induced anxiety in some individuals (Yaman & Kılıç, 2023). This situation indicates that language learning has not only a cognitive but also an affective dimension.

An important aspect of the research is that AI-supported applications increase the individual's self-efficacy perception and make the learning process more autonomous. However, it is also emphasized that this may result in individuals becoming dependent on technological systems without developing the ability to plan and manage their own learning processes (Digital Ted, 2023; Smodin, 2024). For students with learning difficulties, AI-supported applications offer important opportunities to increase their sense of self-efficacy and individualize the learning process. Such technologies can enable students to feel more independent by allowing them

to progress at their own pace. However, another aspect of this situation should also be taken into account: Students may become too dependent on technology without developing their own learning strategies and learning to manage the process. This can predictably weaken critical thinking, problem solving and where technology is not used properly.

In Turkey, the use of artificial intelligence is a developing field. In the existing literature, the focus has generally been on technical aspects, and high-level cognitive processes such as natural language processing and concept teaching have not been sufficiently investigated (Adıgüzel et al., 2023). However, in Turkey, lack of motivation, methodological problems, and fear of pronunciation errors are still prevalent, making it difficult to effectively integrate technological tools pedagogically (Şahin, 2007; Tutaş, 2000). At this point, the error-correcting feedback mechanisms offered by artificial intelligence can contribute to overcoming these obstacles by increasing students' self-confidence. This situation shows that artificial intelligence should be considered not only as a technical tool but also as an environment provider that supports cognitive and affective learning. From this perspective, AI-based language learning tools offer many advantages such as increased motivation, reduced anxiety, encouragement, self-efficacy, individualized content delivery, and instant feedback. However, it should be kept in mind that the unlimited and unconscious use of these technologies may have some negative consequences. Some studies have raised concerns that AI could replace teachers and create a learning experience devoid of emotional context (British Institute, 2023). For this reason, the negative effects of AI on language learning should be scrutinized. This is because AI-based learning systems do not provide the emotional support, interest and motivation that teachers provide. This deficiency can lead to a reduced sense of progress and loss of motivation in students' learning processes (Yenidüzen, 2023). From this perspective, not only cognitive but also emotional support plays a critical role in learning. From this point of view, while AI-based language learning tools offer important opportunities in the field of educational technologies, the negativities they bring with them need to be carefully addressed. It is of great importance that AI tools are used in balance with human-centered learning processes so that students can both use technology effectively and develop human skills such as critical thinking, emotional support and cultural awareness.

In conclusion, the integration of artificial intelligence and digital technologies into foreign language learning processes can provide sustainable success in both cognitive and affective learning dimensions when they are used in a holistic approach with teachers' guidance and emotional support in line with strong conscious and pedagogical principles that increase learners' motivation, are sensitive to individual differences and potentially offer more effective ways of learning, and are considered as a complementary element of human beings. In this context, future research could investigate how AI-based learning environments can be balanced with social interaction and affective learning processes.

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# THE INTERSECTION OF LANGUAGE, TRANSLATION, AND ARTIFICIAL INTELLIGENCE: OPPORTUNITIES AND CHALLENGES

Nazim Işık

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## INTRODUCTION

The rapid proliferation of information in our interconnected world has undeniably elevated the significance of language and translation. Effective communication, whether through daily interactions or high-stakes diplomatic exchanges, is paramount. In this context, the convergence of language, translation, and cutting-edge technologies, particularly artificial intelligence (AI), presents both opportunities and challenges. As traditional linguistic tools grapple with the complexities of modern communication, the role of translation, enhanced by AI, is becoming increasingly critical. In align with the researches realized in the field (Ali, 2020; Chhetri,2024; [Alhusaiyan, 2025](#); Zue&Wang, 2025), this abstract delves into the intricate relationship between language, translation, and artificial intelligence, exploring how AI transforms language learning and ultimately, how it reshapes the landscape of language and translation education. Despite raising some ethical reflections, “such as the role of human expertise in translation, the accuracy and cultural appropriateness of translations , The integration of AI in translation practices has the potential to enhance translation efficiency, overcome language barriers, and expand access to information (Soysal,2023)” as well as access to language acquisition.

In today's world, where information is gaining rapid and dynamic power, language, translation and the field of artificial intelligence, where these two fields are facilitated and become fluent, have become important. We talk constantly, being in the process of learning a foreign language, we usually need to text, email and video chat, we try to stay in touch with each other. Moreover, there is a constant diplomacy movement taking place in the international arena enabled through the language and translation. Language and translation enhanced with artificial technology, especially artificial intelligence (AI) can change many things depending on how we communicate. Clashes are breaking out; but in the meantime, diplomacy, through translation, is used as a means to prevent larger conflicts. Language,

which is the means of establishing relationships, is no longer a sufficient tool to overcome certain things on its own considering culture based nuances. Translation is now a fascinating subject that becomes increasingly important as we combine artificial intelligence with technology, fulfilling the more pragmatic level of communication of language in a semantic context. Therefore, in order to draw a general framework regarding the research, previous studies constitute an important stage of the study in shedding light on the subject. In the study, a multidisciplinary approach is adopted that takes into account different perspectives in the fields of linguistics, translation and artificial intelligence, and a literature review method is applied to access information and findings. This study focuses on the connection between language, translation and artificial intelligence, which constitute an important pillar of communication, and reveals that artificial intelligence has a dialectical relationship between language and translation, emphasizes that translation facilitates language learning with the help of artificial intelligence, and ultimately reveals that artificial intelligence plays an important role in the language and translation process.

### **The Subject and Scope of The Topic**

The study explores the fundamental interdependence of language and translation, emphasizing how translation acts as a bridge between different languages, facilitating communication and understanding. It also outlines the various challenges faced by learners of foreign languages, including grammatical complexities, pronunciation difficulties, vocabulary acquisition, cultural understanding, and motivational issues.

The study investigates the transformative role of AI in language learning, analyzing how AI-powered tools (e.g., language learning applications, real-time translation services) are revolutionizing pedagogical approaches and expanding access to linguistic resources. It addresses the ethical concerns associated with the integration of AI in language learning, such as data privacy, algorithmic bias, and the potential displacement of human educators. The study also covers how AI is changing the landscape of language education at the institutional level, through things such as automated grading and virtual reality. The research also touches on how AI enables the creation of global learning communities, and how it fosters cross-cultural exchange.

## **Problem Statement**

The increasing volume and complexity of information in our interconnected world necessitate a motivational language learning as well as efficient and accurate translation. While AI offers significant potential for enhancing translation and language learning, challenges remain regarding accuracy, cultural sensitivity, and the preservation of human expertise. This research investigates the impact of AI on language and translation education, exploring both its benefits and the ethical considerations it raises.

## **The Importance of The Study**

This study underscores the critical importance of understanding the evolving relationship between language, translation, and artificial intelligence, particularly in the context of language learning. It highlights how AI is transforming traditional language education, offering both opportunities and challenges, and emphasizes the need for ethical considerations and a balanced integration of technology to ensure equitable and effective language acquisition in an increasingly interconnected world. Given the multifaceted challenges in foreign language learning, the critical role of translation in our interconnected world, and the transformative yet potentially disruptive impact of artificial intelligence on both, a comprehensive study of their intersection is of paramount importance. Understanding how AI tools are reshaping language acquisition and translation practices, while simultaneously considering the potential negative consequences on human interaction, cultural understanding, and the future of language education and the translation profession, is crucial for navigating this evolving landscape effectively. This study would contribute valuable insights for educators, learners, technology developers, and policymakers alike, enabling the development of balanced and ethical approaches that harness the benefits of AI while preserving the essential human elements of language and cross-cultural communication.

## **CONCEPTUAL FRAMEWORK**

Building upon the intricate relationship between language, translation, and artificial intelligence highlighted in the introduction, the conceptual framework of this study posits a dialectical interplay where AI not only enhances translation processes but also significantly facilitates language learning. Translation, acting as a crucial intermediary between languages,

inherently exposes learners to diverse linguistic structures, vocabulary, and cultural nuances. The integration of AI-powered tools amplifies this exposure, offering personalized learning experiences, immediate feedback on pronunciation and grammar, and access to vast linguistic resources that transcend traditional pedagogical limitations. Consequently, AI serves as a catalyst in reshaping language and translation education by fostering efficiency, accessibility, and the development of global learning communities. This framework acknowledges the ethical considerations surrounding AI integration, such as the indispensable role of human expertise and the imperative for culturally sensitive and accurate translations, while emphasizing the transformative potential of AI in overcoming language barriers and enriching cross-cultural exchange. Ultimately, this study's conceptual framework underscores the pivotal role of AI in forging a more interconnected and linguistically fluid world.

### **The Challenges in Learning Foreign Language**

Foreign languages often have grammatical rules and sentence structures that differ significantly from one's native language. This can lead to confusion and frustration (James, 2013). Verb conjugations, noun genders, and word order can be particularly challenging given that achieving accurate pronunciation and a natural-sounding accent can be difficult, especially for languages with sounds that don't exist in one's native tongue (Lado, 1957; James, 2013). Due to the complex grammatical usage, Memorizing a vast vocabulary and understanding idiomatic expressions can be a daunting task (Babayiğit & Çelik; 2023; Doughty, & Long, 2003) ). Many languages have unique words and phrases that don't have direct translations, making them difficult to grasp (Babayiğit, 2020). Intonation and rhythm also play a crucial role in pronunciation and can be challenging to master.

some researches especially focus on the works extensively covering the complexities of maintaining motivation over time, and providing many strategies for teachers and learners alike. It is claimed that maintaining motivation over the long term of foreign language learning process can be challenging, especially when progress seems slow (Dörnyei, 2001; Gardner, 2007). It's easy to become discouraged when faced with setbacks or when feeling overwhelmed by the amount of material to learn. Many learners are afraid of making mistakes when speaking, which can hinder their progress. This fear can lead to hesitation and reluctance to practice speaking, which is essential for fluency. It can be difficult to immerse oneself in a foreign

language if one doesn't live in a country where it's spoken. Lack of exposure to native speakers and real-world language use can slow down the learning process. Finding the time to dedicate to language learning can be challenging, especially for those with busy schedules. Language is very closely tied to culture. So understanding the culture of the language you are trying to learn is very important and can be challenging in motivation (Lăpădat, 2023) and also cause misunderstandings if not handled correctly:

Foreign language learning can be a challenging and daunting task for many students, especially those who lack motivation. Motivation represents a central element in foreign language learning, as it can significantly influence students' engagement, perseverance, and overall achievement in the language. Motivation is a complex construct that can be influenced by various factors, such as personality, cultural background, social environment, and personal experiences (p.142).

Learning a foreign language presents numerous challenges, stemming from significant differences in grammar, sentence structure, verb conjugations, noun genders, and word order compared to one's native tongue. Achieving accurate pronunciation and a natural accent is difficult, particularly with unfamiliar sounds, while memorizing extensive vocabulary and idiomatic expressions can be daunting. Maintaining motivation over the long term is also a key hurdle, often compounded by the fear of making mistakes, limited opportunities for immersion, and time constraints. Furthermore, understanding the cultural context intertwined with the language is crucial yet can also present difficulties. Ultimately, motivation plays a central role in overcoming these obstacles and achieving success in foreign language acquisition.

### **Language and Translation Relationship**

Translation acts as a bridge between different languages, enabling communication and understanding across linguistic barriers. It facilitates the transfer of meaning from a source language to a target language. Language is the very foundation upon which translation is built. Without languages, there would be no need for translation. A deep understanding of both the source and target languages is essential for effective translation. Translation goes beyond simply converting words; it involves conveying the meaning, context, and nuances of the original message (Keskin, 2024). Because each language has unique grammatical structures, vocabulary, and cultural contexts, translation is a complex linguistic process. Translators must

navigate these complexities to ensure accurate and effective communication. This requires a keen awareness of cultural differences and idiomatic expressions. The need for translators to navigate linguistic and cultural nuances for effective communication is a fundamental principle in translation studies (e.g., Bassnett, 2002; Venuti, 1995;2008). This includes a critical awareness of cultural differences and idiomatic expressions, which can significantly impact the accuracy and reception of a translated text. Translation is fundamentally a language activity, and since it is impossible to translate without language, they are inherently interdependent, meaning translation could not exist without language. In essence, language provides the raw material, and translation is the process that transforms that material into a form understandable to a different linguistic audience.

In today's interconnected world, the relationship between language and translation is more dynamic and crucial than ever. Globalization and the rapid advancement of technology have amplified the need for seamless communication across linguistic barriers, positioning translation as a vital facilitator of international business, cultural exchange, and information dissemination (Bassnett, 2019). Focusing on the various perspectives on the evolving relationship between human and machine translation, the researches (Kenny,2017; Lommel, Fiederer, & O'Brien, 2016) stress that while the fundamental principles remain rooted in a deep understanding of source and target languages and their cultural nuances, the landscape of translation is being reshaped by machine translation tools and artificial intelligence. These technologies offer speed and scalability but still necessitate human expertise for nuanced understanding, cultural sensitivity, and ensuring accuracy, particularly in complex or creative content (Bowker,2002). Consequently, the current sense emphasizes a collaborative approach, where technology assists human translators, allowing them to focus on the higher-level cognitive tasks of interpretation, adaptation, and maintaining the intended impact of the original message in a new linguistic and cultural context. The demand for skilled human translators who can navigate this evolving technological environment and bridge linguistic and cultural gaps effectively continues to grow, highlighting the enduring and adapting significance of their role in our increasingly multilingual global society.

Translation serves as a crucial bridge between languages, enabling cross-linguistic communication by transferring meaning while navigating the

unique grammatical structures, vocabulary, and cultural contexts of each language. This complex linguistic process demands a deep understanding of both source and target languages, extending beyond mere word conversion to encompass the conveyance of meaning and nuances. The interdependence of language and translation is fundamental, with language providing the raw material for the transformative process of translation. In our increasingly interconnected world, globalization and technological advancements have amplified the vital role of translation in facilitating international business, cultural exchange, and information dissemination. While machine translation tools are reshaping the landscape, a collaborative approach that leverages technology alongside human expertise is emphasized, particularly for nuanced understanding and cultural sensitivity. Consequently, the demand for skilled human translators who can effectively bridge linguistic and cultural gaps in this evolving technological environment continues to grow.

### **Artificial Intelligence Impact On Language Learning**

The advent of artificial intelligence (AI) has ushered in a transformative era for language learning, fundamentally altering traditional pedagogical approaches and expanding access to linguistic resources. AI-powered tools, such as intelligent tutoring systems, language learning applications, and real-time translation services, offer personalized learning experiences tailored to individual needs and learning styles. These technologies provide interactive exercises, adaptive feedback, and immersive environments that foster engagement and accelerate language acquisition. This is further supported by recent findings emphasizing how AI writing tools assist EFL students in content development and writing organization, enhancing creativity and coherence when used appropriately (Gültekin & Babayigit, 2023). Furthermore, AI's ability to analyze vast datasets of language corpora enables the creation of sophisticated algorithms that can identify patterns, predict errors, and provide targeted instruction, thereby optimizing the learning process.

Artificial intelligence is significantly reshaping language learning, offering both learners and educators novel tools and approaches. For individual learners, AI-powered language learning applications provide personalized learning pathways, adaptive feedback, and opportunities for interactive practice mimicking real-world conversations (Hwang et al., 2020). Beyond individual learning, AI is reshaping the landscape of

language education at institutional levels. Automated grading systems, for example, streamline the assessment process, freeing up educators to focus on personalized instruction and student interaction (Luckin, et al, 2016; Popenici&Kerr, 2017;Hwang, et al, 2020). AI-driven content generation tools can create diverse and engaging learning materials, while virtual reality and augmented reality technologies offer immersive simulations that enhance cultural understanding and facilitate authentic communication experiences. Moreover, the integration of AI into language learning platforms enables the creation of global learning communities, connecting learners from diverse linguistic backgrounds and fostering cross-cultural exchange.

However, the integration of AI into language learning is not without its challenges. Ethical considerations surrounding data privacy, algorithmic bias, and the potential displacement of human educators remain crucial areas of concern. Ensuring equitable access to AI-powered language learning tools and addressing the digital divide are essential for maximizing the benefits of these technologies. Furthermore, the role of human interaction and cultural sensitivity in language acquisition necessitates a balanced approach that integrates AI with traditional pedagogical methods. While AI offers immense potential for enhancing language learning, it is crucial to prioritize human-centered design and ethical considerations to ensure that these technologies serve the needs of all learners and contribute to a more inclusive and interconnected world.

Artificial Intelligence is currently making a significant impact on language learning, offering personalized and adaptive learning experiences through AI-powered apps and platforms (Yang, 2020). These tools provide instant feedback on pronunciation and grammar, facilitating more efficient skill development (Pearson, 2023). AI chatbots act as virtual conversation partners, offering accessible practice anytime, anywhere (LanguaTalk, 2025). While AI enhances accessibility and personalization, it also presents challenges, including the potential lack of nuanced human interaction and the difficulty in replicating cultural and contextual understanding. The future of language learning likely involves a blended approach, where AI tools augment human instruction, allowing educators to focus on fostering deeper communicative competence and cultural awareness (LearnCube, 2025).



## **The Intersection of Language, Translation, and Artificial Intelligence**

In today's globalized world, language is both a bridge and a barrier. As cultures continue to intertwine, the need for seamless communication across different languages has never been greater. The studies on the the increasing interconnectedness of societies and cultures on a global scale highlight the importance of the issue. The increasing interconnectedness of cultures in the era of globalization has amplified the need for effective communication across linguistic barriers (Robertson, 1992). In this context, artificial intelligence (AI) is revolutionizing the way we approach translation and language processing. From translating complex documents to real-time conversations, AI is shaping the future of communication, breaking down linguistic barriers, and making the world more connected. Language is not merely a tool for communication but a reflection of culture, history, and identity (Hutchins,& Somers, 1992; O'Hagan, 2019). This development is particularly significant because language is not merely a tool for communication but deeply intertwined with culture, history, and identity (Sapir, 1921; Whorf, 1956). It carries nuances, idioms, and expressions that often make direct translation difficult. Every language offers a unique lens through which its speakers perceive the world. This makes translation an art, not just a science. A good translator must not only be fluent in both languages but also deeply understand the cultural context, tone, and intent behind the words. However, the demand for efficient translation in a fast-paced world is increasing. Businesses, governments, and individuals need to communicate across borders, often in real time. This is where AI steps in, offering solutions that were previously unimaginable.

Artificial intelligence, especially machine learning (ML) and natural language processing (NLP), has revolutionized the way we handle language. NLP is a subfield of AI that focuses on the interaction between computers and human languages, enabling machines to understand, interpret, and generate human language. This technology is behind the most well-known translation tools, such as Google Translate, as well as virtual assistants like Siri and Alexa. At its core, AI-powered translation works by analyzing vast amounts of bilingual or multilingual text to learn patterns in grammar, syntax, and vocabulary. Over time, these systems improve their ability to translate, understand context, and even generate language that sounds more natural. This is possible thanks to techniques like neural machine translation

(NMT), a deep learning approach that uses neural networks to model language relationships.

The theoretical connections between linguistics, translation studies, and artificial intelligence (AI) are deeply rooted in the fundamental understanding of language and its processing. Linguistics provides the foundational framework by analyzing language structure (phonology, morphology, syntax, semantics, pragmatics), variation, and historical development. This theoretical knowledge is crucial for translation studies, which investigates the complex processes involved in transferring meaning and function across linguistic and cultural boundaries. Translation theories, such as equivalence, skopos theory, and relevance theory, draw heavily on linguistic principles to explain and guide translation practices. AI, particularly in the field of Natural Language Processing (NLP), leverages linguistic insights to develop computational models capable of understanding, interpreting, and generating human language. For instance, the linguistic concept of syntactic parsing, which analyzes the grammatical structure of sentences, is fundamental to the development of machine translation systems. Similarly, semantic analysis, the study of meaning, informs AI algorithms designed for tasks like sentiment analysis and information retrieval, which are increasingly integrated into translation workflows for quality assessment and terminology management.

The practical applications of this interconnectedness are evident in numerous contemporary technologies and research areas. Machine translation (MT) systems, a prime example of AI in action, directly apply linguistic rules and statistical models derived from the analysis of parallel corpora (aligned source and target texts, a key resource in translation studies). Neural Machine Translation (NMT), a state-of-the-art AI approach, learns complex linguistic patterns and contextual dependencies, leading to more fluent and accurate translations. Furthermore, AI-powered tools are transforming the translation industry by assisting human translators with tasks such as terminology extraction (identifying key terms using linguistic analysis), translation memory management (leveraging previously translated segments), and automated quality assurance (detecting linguistic errors and inconsistencies). In language learning, AI-driven translation features embedded in educational platforms provide learners with immediate access to translations and explanations, facilitating vocabulary acquisition and comprehension, directly bridging the practicalities of

translation with pedagogical linguistics. These examples underscore the synergistic relationship where linguistic theory informs AI development, which in turn provides practical tools and insights that advance both translation studies and language-related technologies.

### **The Negative Impacts of AI On Learning, Teaching Foreign Language and Translation**

Artificial intelligence and technological developments need to be discussed in the context of economics and the workforce to better understand how they will impact language teaching in the future. Today, the increasingly globalized dominant economic structure has a tendency to center on capitalism, whose fundamental principle is profit. What this education has done with capital-based paradigms, focused on technology and especially Artificial Intelligence, is to make the drive to make profit much more attractive and easier. While technology and AI provide a better learning experience in the short term, it has also allowed those with capital to dominate the market first and eventually kill off smaller players. It would then allow the institutions that control capital to get rid of language teachers altogether (labor is often the biggest cost of capital). When we look to the future, perhaps 10-15 years from now, the capital that has artificial intelligence in its hands will completely devour the language teaching industry with such advanced technology and Artificial Intelligence that perhaps there will no longer be a need for language education beyond being a hobby.

According to some studies, no one will actually need to learn a language as Universal AI-powered translators will do different jobs, including teaching foreign languages (Frey&Paredes, 2025):

Using variation in the use of machine translation across local labour markets in the US after the launch of the Google Translate mobile app, the authors find that areas with higher adoption of Google Translate experienced a decline in translator employment. The authors also show that improvements in machine translation have reduced the demand for foreign language skills in general (epr.org, Mar 22).

On the other hand, over-reliance on AI-powered language learning platforms may reduce opportunities for face-to-face interaction (Vieriu&Petra, 2025), which is vital for developing communicative competence and cultural understanding. Language learning isn't just about

grammar and vocabulary; it's also about nuances, nonverbal cues, and cultural context, and these are best learned through human interaction. Language carries traces of local cultures, and in the process of learning a foreign language focused on artificial intelligence, students may have difficulty in real-world communication and lack the ability to adapt to different speaking styles and social situations.

Students may be exposed to and internalize biased language patterns, which can hinder their ability to communicate effectively across contexts. The AI tools used for assessment may also be biased, unfairly disadvantaging certain groups of students. Students can become overly reliant on AI tools for translation and grammar correction, which can hinder their ability to think critically and develop independent language skills. Easy access to AI-generated content may deter students from engaging in effortful learning. Students may lack the ability to independently analyse and evaluate language, making them vulnerable to misinformation and misinterpretation. They may also lack the ability to produce original thought in the target language.

Although automatic translation cannot compete with the 21st century in today's digital age, Laird (2019) underlines that it has made astronomical progress in the last decade:

Universal translators make everything possible in the *Star Trek* series: First Contacts, interspecies relationships, human characters crying to Guinan over their synthale. In fact, they work so seamlessly that the viewer tends not to notice they exist until they encounter the occasional problem, as they do in DS9's "Sanctuary" or *Voyager*'s "Nothing Human. By comparison, machine translation as we know it in the early 21st century is messy and incomplete. Everyone who's used Google Translate or seen automatically translated text on social media knows that it's not yet at Starfleet's level (StarTrek.com, 2019).

However, AI-supported machine translation is insufficient to fully convey cultural nuances in our culturally diverse world. AI often fails to grasp idiomatic expressions, which are deeply rooted in specific cultures. Literal translations as mostly peculiar to MT can lead to nonsensical or even offensive results. The limitations of machine translation, particularly its tendency towards literal rendering of idioms and culturally specific expressions, can often result in nonsensical or even offensive outputs (Fiveable, 2024; Translata, 2024). Machine translation (MT) has come a

long way since its early days of word-for-word translation. In the past, systems like Google Translate relied on statistical machine translation (SMT), which analyzed large corpora of texts to infer the likelihood of words and phrases translating in a specific way. While this method improved over time, it still struggled with idiomatic expressions, slang, complex sentences, and cultural nuances.

It is important to recognize that AI has the potential to significantly improve language teaching. However, it is equally important to proactively address these potential negative impacts, ensuring that technology is used to support, rather than replace, effective human-centred language teaching. In summary, while the article acknowledges the opportunities AI presents, it also highlights significant drawbacks related to job displacement, reduced human interaction and cultural understanding, the risk of bias, hindered independent learning, and the inability of AI to fully capture the complexities of language and culture in translation.

## CONCLUSION

Located at the meeting point of language, translation and artificial intelligence, this study emphasizes that the impact of artificial intelligence on the language and translation process is undeniable in our digitalizing world. AI tools provide a starting point for human translators, allowing them to focus on refining the text, ensuring accuracy, and capturing nuances that AI might miss. It is concluded from the study that the hybrid approach (Human translator-AI) leverages the speed of AI with the expertise of human linguists.

Without any fear, we can say that AI-supported translation has a supportive role in language learning. Rather than replacing human translators, in allign with studies realized (Sebo&Lucia, 2024; Rodríguez, 2025) AI augments their work. Tools like Google Translate or DeepL can handle the initial rough translation, allowing human translators to focus on refining the text and ensuring it resonates with the intended audience. This collaboration between human expertise and AI efficiency is opening up new possibilities in global communication. The study points out thta AI translation tools are making educational resources and online courses regarding learning a foreign language accessible to learners worldwide. Content creators are using AI to translate their material into multiple languages, making it available to a global audience and expanding their

reach. While the research emphasizes that the increased use of artificial intelligence in translation and language learning will cause job loss for translators and language instructors, some studies (Läubli & Orrego-Carmona, 2017) challenge the traditional thinking by stating that translators will have more responsibilities in the post-editing department, especially after machine translation (Guerberof, 2013: 92-93; Gaspari et al., 2015). The study gives the future usage of AI on personalizing language learning experiences as well as the need to coordinate with AI focused multifaceted methods for effective learning process. The study, in essence, gives a framework that AI serves as a powerful tool that is revolutionizing both language understanding and translation and that Artificial intelligence is the technology that is increasingly being used to understand and facilitate both language and translation.

The study mentions AI as a starting point. Future research could quantitatively analyze how AI tools impact the time spent on different stages of the translation process (pre-translation, initial translation by AI, post-editing, quality assurance). This could involve tracking time spent with and without AI assistance. The study highlights the hybrid approach. Research could delve into different models of human-AI collaboration. For instance, comparing workflows where the human edits AI output versus scenarios where the human provides more upfront guidance or integrates AI at specific stages. The effectiveness of AI translation can vary significantly. Future research could evaluate the quality of AI-assisted translations across diverse language pairs (including low-resource languages) and specialized domains (e.g., legal, medical, technical). As AI takes on initial translation tasks, the skills required of human translators will likely evolve. Research could investigate the new competencies and training needs for translators in an AI-driven environment, such as advanced post-editing skills, prompt engineering for better AI output, and subject matter expertise. While the study notes increased accessibility, research could explore learners' perceptions of AI-powered language learning tools, their effectiveness compared to traditional methods, and factors influencing their adoption. The study also touches on accessibility. Further research could examine how AI can be integrated into language teaching methodologies, the role of instructors in this evolving landscape, and the potential for personalized learning pathways facilitated by AI. Research could explore potential biases embedded in AI models and their impact on translation accuracy, cultural sensitivity, and equitable access to language learning resources. The study

presents conflicting views on job loss. Long-term studies tracking employment trends for translators and language instructors in parallel with the increasing adoption of AI would provide valuable insights. Future research could focus on creating AI models that go beyond literal translation to understand and accurately convey cultural nuances, idioms, humor, and intent. This would involve advancements in natural language understanding and generation. The research gives insights and can go beyond simple text translation and involves adapting content for specific cultural and regional contexts, including visual elements, user interfaces, and cultural references. Research could focus on creating platforms that seamlessly integrate AI suggestions with human input, facilitating real-time collaboration and improving the efficiency and quality of team-based translation projects. By pursuing these avenues of research, we can gain a deeper understanding of the transformative impact of AI on language and translation and unlock new possibilities for communication, education, and global collaboration.

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# THE EVOLUTION OF LANGUAGE EDUCATION IN THE DIGITAL AGE

Mehmet Aslan<sup>1</sup>

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## ABSTRACT

This study examines the evolution of language education in the digital age, highlighting the shift from traditional methods to technology-integrated approaches. Initially dominated by teacher-centered models like the Grammar-Translation and Audio-Lingual methods, language teaching has undergone substantial alteration with the incorporation of audio-visual tools like computers, tablets, smartphones, smartboards, and so on. The paper reviews key technological developments, including e-learning platforms, blended and flipped learning models, gamification, and Artificial Intelligence (AI), emphasizing their role in enhancing learner engagement, autonomy, and accessibility. Digital technologies have enabled learners to access authentic input, receive personalized feedback, and participate in real-time communication across global contexts. Social media and interactive online platforms are also shown to contribute to informal learning and motivation through user-generated content and peer interaction. While the benefits of these technologies are clear, the study also addresses challenges such as reduced face-to-face interaction, digital inequality, and the evolving role of educators. It stresses the importance of balancing technological affordances with pedagogical intentionality to maintain the human and social dimensions of language learning. The study concludes that the future of language education lies in the thoughtful integration of emerging technologies such as AI, VR, and AR, combined with communicative and culturally responsive teaching practices that foster meaningful, interactive, and inclusive learning experiences.

## INTRODUCTION AND BACKGROUND

Language teaching has significantly altered over time, and in the technological era, these changes have been highlighted more than ever. Technology integration in classrooms has enormously revolutionized language learning and teaching, and this shift has opened new doors for

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teachers and learners by extending the boundaries of traditional practices and introducing new and creative language-learning methods. The integration of technology into education can be traced back to the 17th century with the introduction of modern libraries and pencils. The 19th century, marked by significant technological advancements, saw the emergence of chalk and blackboards. The 20th century witnessed further developments, including the introduction of projectors, radios, videotapes, photocopiers, and computers which made a huge contribution to language teaching. Toward the end of the 20th century, the Internet and interactive whiteboards were incorporated into educational settings. In the 21st century, the rapid evolution of technology has brought forth social networks, smartphones, and 3D technologies, further transforming the landscape of education. In this study, we present the most significant language learning trends in the digital era, the impact of the most recent technology breakthroughs, and how educators can utilize these resources to enhance learning.

Language teaching traditionally was largely dependent on face-to-face interaction in the classroom setting. The pedagogies were primarily direct instruction, practice, and memorization through minimal use of resources other than textbooks. The teacher occupied the main position for content delivery, so the education method was mainly teacher-led, and the students were required to absorb information in a structured environment, mostly through the instructors' lectures. A generally accepted or popularized language teaching method did not exist, and the instructors applied a unique teaching style taking the state of the region, classroom, or the learners into consideration. The earliest written accounts of foreign language instruction date back to the fifth century, though they do not provide details on overarching teaching methods (Musumeci, 2009). With the rise of universities across Europe during the late Middle Ages and the increasing influence of the study of humanities, the study of languages acquired greater importance. The Grammar-Translation Method (GTM) arose as the leading approach to foreign language instruction, rooted in the traditional focus on classical Latin and Greek texts. GTM is mainly concerned with linguistic forms and their accurate teaching, and the translation of literary texts (Hilgendorf, 2019) has been criticized for not emphasizing the use of language in real-life contexts; however, it is still actively employed in some educational settings across different regions, including Türkiye. The grammar-translation method remained dominant in modern language

instruction but did not incorporate technological support. In the early period of language instruction, language learning was confined to the classroom setting, a blackboard, and an instructor; however, with the advent of the Audio-Lingual Method (ALM) and with the usage of portable tapes, language learning evolved to a step further, and students were exposed little of the real language beyond their immediate context (Omaggio, 1986). During the first half of the 20th century, technological advancements primarily facilitated the delivery of audio and visual materials to complement written texts. Later, thanks to increased studies on *how to teach language* and with the sustenance of advanced technology, new methods like the Direct Method, Communicative Language Teaching, and Natural Approach that remark the importance of real life communication and emphasize oral proficiency and extensive spoken practice while minimizing the focus on grammar instruction (Purin, 1916; Skidmore, 1917), laid the ground for context-based language education. Although some small technological advancements have been partially integrated into these methods contributing to language learning in the past, recent developments in the digital world have had an unprecedented impact on language education. Audio formats in language classrooms evolved from cylinder recordings to phonograph records, which were used for pronunciation, intonation, and listening comprehension exercises (Clarke, 1918). Additionally, radio became a medium for distance language learning, providing opportunities for students and the general public (Koon, 1933). Meanwhile, visual media such as photographs and slides, which were already widely used in language instruction, were later supplemented with films to bring cultural and linguistic elements to life in the classroom (Bernard, 1937).

From the 1950s to the 1970s, most schools and universities incorporated audiotape language laboratories into their classrooms, enabling students to engage with native-speaker recordings and structured drills aimed at internalizing sentence patterns and enhancing automaticity (Otto, 1989). During the late 1950s, mainframe computers, which were primarily operated using paper punch cards, became increasingly prevalent on university campuses. However, it was not until the late 1960s and early 1970s that computers advanced sufficiently to support multiple terminals, enabling user interaction via keyboards and paving the way for Computer-Assisted Language Learning (CALL). Early CALL developers recognized several advantages of integrating computers into language learning, particularly for

grammar and vocabulary practice. These benefits included self-paced and self-selected exercises, immediate feedback on performance, mastery assessment based on cumulative progress, reducing the teacher's workload in correcting workbook assignments, and allowing more class time for communicative activities (Ahmad et al., 1985). However, though actively employed for educational purposes through and outside of the classrooms, the advantages and disadvantages of technological devices have been constantly discussed, as educators have not been able to be sure about their usage for educational purposes. This uncertainty started with the usage of basic media and continued with the utilization of computers in formal educational settings and still exists with the usage of mobile devices for language learning in the classroom, though the number of studies that assert the benefits of technological device usage for educational purposes are not few.

Technological advancements have brought about profound transformations in the field of education as Puendetura (2013) stated, technology has substituted, enhanced, modified, and, in some cases, entirely replaced traditional instructional materials, pedagogical approaches, and learning activities. Many advanced technological and digital tools have been incorporated into language instruction to support foreign language learners' emotional, cognitive, and social development (Lee & Park, 2020). These include mobile devices (e.g., smartphones and tablets), smartboards, computer-assisted language learning (CALL) software, virtual and augmented reality, game-based learning, social media platforms, online communities, massive open online courses (MOOCs), and artificial intelligence (AI) (Zhang & Zou, 2020). Nevertheless, for language development and acquisition of the target language, the existence of these wonders of technology is not enough in isolation. The success of these technological innovations in enhancing learning outcomes and academic performance is predominantly contingent upon educators' readiness and competence in effectively integrating them into their teaching practices (Koehler & Mishra, 2009). Several studies have demonstrated that educators' perceptions, attitudes, and underlying beliefs regarding technology play a crucial role in shaping both the degree to which technological tools are adopted and the effectiveness of their implementation in language instruction (Li et al., 2019; Tseng, 2018, Aslan, 2023).

Research on the integration and utilization of technology in English Language Teaching (ELT) has gained significant attention in recent years due to its pedagogical benefits in teaching English (Ulla et al., 2020). It is known that language education integrated with technological advancements involves many facilities and benefits. According to educators, policymakers, and scholars, incorporating technology enhances both instructional practices and student learning outcomes. Technology facilitates engaging and motivating language learning experiences (Andrade, 2014) by providing diverse instructional materials that teachers can adapt. Additionally, it promotes active learning (Parvin & Salam, 2015), accommodates students' needs and interests, fosters greater engagement in language acquisition (Gilakjani, 2017), and encourages collaborative learning among peers (Costley, 2014). Consequently, the integration of technology into ELT classrooms has become a prominent trend in language education. The following sections discuss the transformation of language teaching through the use of innovative technological tools and software, such as computers, mobile devices, artificial intelligence, digital games, and social media platforms.

## **THE EARLY STAGES OF DIGITAL LEARNING**

### **CALL and Language Learning**

Computer-Assisted Language Learning (CALL) originated in the United States through several high-profile projects that utilized mainframe computers for language learning during the 1960s and early 1970s. During the mainframe era, faculty members were responsible for programming and developing computer-based language lessons. The majority of CALL exercises during this period consisted of vocabulary flashcards, text-based grammar drills focused on decontextualized forms and sentences, and translation activities (Davies et al., 2013). Initially, CALL largely reverted to Grammar-Translation and Audiolingual Method (ALM) approaches, as these instructional formats aligned with the technological capabilities and development tools available at the time and mirrored the structure of traditional paper-based workbooks (Babayiğit & Çoşkun, 2023). However, by the 1970s, Communicative Language Learning, rooted in the principles of the Direct Method, which emphasized speaking and reading proficiency while minimizing explicit grammar instruction, gained widespread acceptance among language educators. Additionally, between the 1960s and early 1980s, numerous emerging methods and Second Language

Acquisition (SLA) theories that emphasized communication through interaction became popular among language educators. These included Curran's Community Language Learning, Terrell and Krashen's Natural Approach, Asher's Total Physical Response, Long's Interaction Hypothesis, and Omaggio's Proficiency-Based Instruction (Richards & Rodgers, 2001). Despite this shift towards communicative approaches, CALL largely retained its traditional role as a tool for drills and tutoring, and many language teachers remained skeptical about the value of CALL, making its adoption a challenging process. This persistence was driven not only by the enduring belief in the effectiveness of individualized practice for vocabulary, grammar, and reading skills but also by the technological limitations of computers, which were not yet advanced enough to support complex communicative interactions (Otto, 2017).

By the late 1980s and early 1990s, a variety of free or low-cost instructional computer software authoring tools became widely available, enabling language educators to develop materials without requiring programming expertise. These tools allowed language software developers to incorporate interactive audio and video into controlled listening comprehension exercises that make language education more meaningful and entertaining. Although these technologies were eventually replaced by more advanced innovations, they provided language teachers with the opportunity to experiment with new computer-based strategies for enhancing listening comprehension. Given the growing pedagogical focus on communication skills, there was a significant increase in the interest in utilizing authentic media. Compared to traditional and form-focused methods, new teaching styles with advanced technological tools were quite impressive; even so, students who had been exposed only to teacher-directed speech and instructional adaptations of text, audio, and video materials often found themselves unable to understand or respond effectively when faced with authentic language. In response to the demand for authentic video materials, publishers and non-profit distributors of language media programming acted swiftly to meet this need (Otto, 2017).

In the 1980s, the term Technology-Enhanced Language Learning (TELL) emerged as an alternative to Computer-Assisted Language Learning (CALL), as it was considered to more accurately reflect various tools and the scope of activities encompassed by the field (Bush & Terry, 1997). The academic community's decision to reconsider the original terminology

highlights the early recognition by both theorists and practitioners of the potential for technology not merely to support but to significantly enhance language learning and classroom practices through innovative tools and applications (Davies et al., 2013). Computers have undergone various stages of evolution but never lost their prominence in educational settings, and they still hold a significant place in today's educational landscape. Moreover, CALL continues to shape education by representing the digital technological tools used in instructional settings (Stockwell, 2022). Alongside the development of CALL programs in the 1980s, there was also a rise in the use of general-purpose software applications that can be utilised with computers, including word processors, databases, desktop publishing tools, spreadsheets, and communication platforms such as email. **To briefly summarize the development processes of CALL, the outline proposed by Warschauer and Healey (1998) can be examined. They identified three distinct stages of CALL, each reflecting the dominant pedagogical and methodological approaches of its period**

**Behaviourist CALL** emerged in the 1950s and was implemented during the 1960s and 1970s. In this phase, computers functioned primarily as tutors, delivering instructional content to learners through drill-and-practice programs.

**Communicative CALL**, which gained prominence in the 1970s and 1980s, shifted away from repetitive drills. Instead, it emphasized meaningful language use, offering learners more autonomy, interaction, and control in practicing language skills.

**Integrative CALL** appeared in the mid-1990s with the rise of multimedia and the Internet. These technological advancements allowed for a more holistic integration of language skills and authentic communication in digital environments.

### **MALL and Language Learning**

The widespread adoption of mobile devices has significantly transformed modern communication and daily life and brought a new perspective to language education. By 2012, the number of mobile device subscriptions had already surpassed desktop computers, highlighting a shift towards increased mobility in digital interactions (Pegrum, 2014). Mobile devices, like smartphones and tablets, have become an integral part of daily life, playing a crucial role in communication, information access, and various personal and professional activities; therefore, many individuals,



especially teenagers, now consider these devices indispensable (Burnell & Kuther, 2016). This growing reliance on mobile technology has influenced various domains including education, where mobile-assisted learning continues to expand in scope and accessibility. This leads us to question the true nature of mobile-assisted language learning (MALL), how it is perceived, and the specific expectations associated with it. As a definition, Mobile-assisted language learning involves acquiring a second or foreign language through the use of various mobile devices, including but not limited to mobile phones, tablets, personal digital assistants (PDAs), MP3/MP4 players, electronic dictionaries, and gaming consoles (Stockwell, 2022). Stockwell (2022) added that MALL may also refer to the integration of these devices within the classroom setting, where learners utilize mobile technology to engage in specific learning tasks or activities. While defining MALL, Pegrum (2019) emphasized that in MALL, the term *mobile* encompasses more than just the devices themselves; it also refers to the flexibility of learning, allowing learners to engage with content anytime and anywhere, whether on a bus, on route, or at home. When mobile technology became more advanced, tablets and smartphones further transformed language learning. MALL became a more significant trend, which gave students the liberty to learn on the go. One of the primary objectives of MALL activities is to extend learning beyond the classroom and into real-world contexts, enabling learners to utilize available gaps in time and space while actively engaging with their surroundings. Additionally, MALL aims to personalize learning based on individual needs (Kukulka-Hulme, 2016) and facilitate interaction with the environment through wireless, GPS, or QR code functionalities (Chen et al., 2015).

MALL is often perceived primarily as a tool for self-study through applications, overlooking the vast potential of mobile devices due to the wide range of technical capabilities they offer. With the rapid advancement of technology, a single mobile device can now integrate multiple features to support learning. Consequently, learners no longer need to own multiple devices; instead, one mobile device can fulfill various educational needs, and modern mobile phones are equipped with diverse functionalities that, when utilized effectively, can facilitate the learning process. Its applications vary significantly, from using mobile phones for information retrieval via search engines or as electronic dictionaries to employing dedicated vocabulary apps like Quizlet. Additionally, MALL can facilitate classroom interaction through QR codes or support skill development by recording

videos to enhance presentation abilities. Apps like Duolingo, Babbel, Memrise, and HelloTalk introduced innovations that leveraged the mobility and accessibility of mobile phones. These applications permitted daily short training sessions to learn a language, frequently with tools such as flashcards, quizzes, and language games, thus enabling users to practice vocabulary, grammar, and pronunciation in short intervals of available time. MALL also supported students to integrate language learning into their daily lives; for example, language exchange apps like Tandem and Speaky matched users with native speakers of other nations, offering the opportunity for authentic, live conversation. This kind of immersion, once only possible for those living in a host country, was made accessible to anyone who had a smartphone and internet access. This limited selection of examples highlights the complexity of mobile learning and the challenges in defining it as a uniform or homogeneous learning approach.

Some features of mobile devices that influence the path of language learning are outlined by Joe et al. (2002) as follows:

**Portability and Mobility:** Due to their compact size and lightweight design, mobile devices are convenient for students to carry and use.

**Flexibility:** Both students and teachers can access the server from virtually any location.

**Convenience:** Remote access allows students to contact teachers or retrieve information from the internet whenever needed, particularly through WAP (Wireless Application Protocol).

**Remote Accessibility:** Students can update or add information from a distance.

**Ease of Use:** Devices like iPhones offer larger screens than standard mobile phones, making input more convenient for learners.

**Utility:** Most smartphones possess nearly all the functionalities of a standard computer, including data processing and storage capabilities.

Jo et al. (2002) identified these features when mobile devices were still in their infancy. Today, many additional functions, like generativity, face and speech recognition, and so on, can be incorporated, as with the advent

of generative AI, language learning has evolved into a new paradigm, which is further discussed in the following sections.

### **The Emergence of E-Learning Platforms and Mobile Apps**

The early 2000s witnessed the emergence of e-learning sites that enhanced the scope of language learning. These sites offer a systematic platform where students can learn lessons, practice exercises, and take quizzes online. Forester (2000) stated that as colleges and universities become increasingly immersed in the digital revolution, faculty members face growing pressure to integrate technology into their teaching. Given the substantial investments in information technology, it is unsurprising that administrators seek its effective implementation. Moreover, since faculty hold primary responsibility for teaching and learning, it appears logical that they should lead this transformative process. Educators considered the necessity of integrating technology into education, even at a time when modern technology was not as advanced, so today it is essential to recognize and accept this as an inevitable outcome.

Rod Ellis (2005) remarks, ‘language learning, whether it occurs in a naturalistic or an instructed context, is a slow and labor-intensive process. If learners do not receive exposure to the target language, they cannot acquire it. In general, the more exposure they receive, the more and the faster they will learn’ (p. 45). It is not difficult to grasp that accessing digital media has enormously expanded opportunities for exposure to the English language; for instance, as part of their daily practices, learners can engage with English by reading blogs, news apps, or e-books to get information and opinions on travelling, watching YouTube tutorials to learn about baking or fashion, or following their favourite celebrities on platforms such as Instagram or TikTok. These digital resources empower individuals to learn at their own pace and convenience, significantly enhancing the accessibility and flexibility of language education.

Digital technology allows learners to interact with the world, and rather than relying on one source, generally a coursebook or an instructor, a learner may benefit from many digital tools thanks to innovative technology, and learners may have real conversations and interactions compared to in-class structured and planned role play activities. Interaction between learners and educators can be actualized related to all skills, but as a single example, the interaction between readers and the authors will be focused on here. A book

typically enables a single author to communicate with numerous readers or just the opposite, and this interaction generally occurs in isolation, or independently. On the other hand, if learners discuss the content with others who have read or are currently reading the same book through applications or digital platforms such as Facebook, Telegram, or WhatsApp, this single activity can significantly contribute to the development of their target language skills. Moreover, although direct communication with the author is uncommon in conventional educational contexts, readers may presently write to a living author to share their thoughts. Puentedura (2013) describes this process as *redefinition* in the SAMR model. Additionally, blogs, online forums, and social media platforms facilitate mutual interaction and correspondence. These digital mediums enable readers to engage directly with authors by asking for clarification, challenging viewpoints, or contributing their perspectives. Authors can revise and update their content in response to reader feedback. Furthermore, readers can interact with one another in real time, discussing both the original content and each other's comments as they engage with the text. The internet, through its chat rooms, forums, social networking sites, and various interactive features, has revolutionized social participation by enabling new forms of engagement. This detailed example, clearly displaying the benefits of digital tools and media on language education through real-life conversations and interactions, plainly illustrates the difference between educational processes in the digital era compared to conventional education.

### **Blended Learning and the Flipped Classroom**

As digital technological tools can be utilized independently in self-directed language education, they can also be blended into formal education to facilitate and promote high-quality language education. For many years, innovative educators have been developing new educational delivery methods by blending in-person teaching with technology-driven learning, thereby facilitating virtual connections among learners (Cleveland-Innes & Wilton, 2018). Although the term *blended learning* is commonly used, there remains ambiguity regarding its precise definition. As the technology developed, what blended learning means has evolved and differed. While Garrison and Kanuka (2004) define blended learning as "the thoughtful integration of classroom face-to-face learning experiences with online learning experiences" (p. 96), Graham (2006) describes it as "systems that combine face-to-face instruction with computer-mediated instruction" (p.

5). These two definitions are the most cited; this can be a sign that these are the generally accepted and anticipated meanings of blended learning. Additionally, Dziuban et al. (2004) define blended learning as "a pedagogical approach that combines the effectiveness and socialization opportunities of the classroom with the technologically enhanced active learning possibilities of the online environment, rather than a ratio of delivery modalities" (p. 3). To simplify the term and remove confusion, Oliver and Trigwell (2005) concluded that blended learning merely necessitates the combination of two or more different elements. They argued that the broad range of interpretations associated with the term allows nearly any instructional approach to be classified as blended learning. Currently, hybrid learning is often used interchangeably with the term *blended learning* (Watson, 2008). As with the various definitions of blended learning, a hybrid learning environment is described as integrating face-to-face instruction with online learning tools (Hall & Davison, 2007). Olapiriyakul and Scher (2006) affirm that these two terms are used alternatively, but they refer to the same concept.

From the perspective of language education, blended learning appears to be highly beneficial, as interaction and collaboration are crucial components in language learning. Language learning has become more accessible and autonomous through the integration of technological tools, especially computers and mobile devices, into formal education. YouTube, the world's most popular video-sharing platform, hosts millions of language-teaching videos, while app marketplaces like the App Store and Google Play offer thousands of language-learning applications. While these tools or apps can be used individually for informal language learning, they can also be integrated into formal educational settings to create a blended learning environment. Blended learning has demonstrated its effectiveness in higher education by integrating face-to-face education with emerging innovative technologies (Lanham, 2007).

By combining elements of face-to-face learning with online learning, blended learning allows more flexibility and inclusivity. Through this model, teachers can use online content, videos, and interactive exercises to supplement in-class learning. Also, in an institutional aspect, in an emergent situation, some courses can be conducted through online learning while others can be delivered face-to-face. There are different models of blended learning (Garrison and Vaughan, 2008; Watson, 2008; Staker and Horn,

2012); however, among these models, flipped learning takes a lot of attention. Flipped learning (FL) originated as a localized trial approach at a U.S. high school in 2012 and rapidly gained widespread popularity within a decade. Since then, it has been broadly acknowledged and implemented by educators and researchers at various educational levels globally (Lee, 2023). Bergmann and Sams (2012) describe flipped learning as an educational strategy “where work that was traditionally done in the class is now done at home, and what was traditionally homework is now completed in class” (p. 13).

The flipped classroom model, in which students study instructional and educational materials at home and engage in interactive activities during class time, has gained significant popularity. Tasks such as homework, lesson review, and online language practice can be completed at home in advance, allowing class time to be devoted to discussion, group work, and deeper exploration of subject content (Gültekin & Babayiğit, 2023). This model enables students to control the pace of their learning and stay actively engaged during classroom sessions, which can lead to increased motivation and improved learning outcomes. Language instruction is delivered at home through platforms such as YouTube and Massive Open Online Courses (MOOCs), allowing more in-class time to be allocated to communicative and collaborative activities. When class time is used for speaking tasks, flipped classrooms can significantly enhance learners’ language development.

## **DIGITAL TOOLS AND SOCIAL INTERACTION IN LANGUAGE EDUCATION**

### **The Integration of Social Media in Language Education**

The integration of social media in the field of language learning and teaching has drastically enhanced the learning process as a whole. Social media is defined as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that enable the creation and exchange of user-generated content” (Kaplan & Haenlein, 2010, p. 61). Although its application in education remains limited, social media is gaining popularity in research, and emerging studies and literature have begun to demonstrate its usefulness in facilitating language learning (Mitchell, 2012; Sun & Yang, 2015). Social media platforms like Twitter, Instagram, and YouTube are seminal tools for language learners to practice their skills in informal everyday contexts, and these platforms include many

well-prepared educational resources and educative courses. Educators and learners leverage these applications to share content, participate in language challenges, and join discussions, thus making the language learning process more social and fun.

The literature has identified many educational benefits of mobile social media; for instance, social media can serve as a channel for accessing and sharing various learning resources (Manca & Ranieri, 2016; Price et al., 2018). It also supports collaborative learning by enabling learners to interact, collaborate, and negotiate through the connections it facilitates (Menzies et al., 2017). Additionally, mobile social media can be utilized to enable blended learning by connecting formal and informal learning environments (Manca & Ranieri, 2016). Also, its notification feature aids teachers in organizing instructional activities and managing teaching and learning processes (Tang & Hew, 2017). Moreover, the group creation functionality of some mobile social media applications allows for the formation of learning communities, promoting communication, strengthening the teacher-student relationship, and extending instruction (Kasap et al., 2022; Nicolai et al., 2017). Furthermore, ongoing academic communication via mobile social media has been found to enhance engagement among both teachers and students (Chawinga, 2017).

Besides many advantages, social media platforms may be distracting and contain harmful content as well; therefore, they should be used with self-regulation and meticulously. When used carefully and with the purpose of language learning, these platforms offer numerous benefits for both learners and educators, as demonstrated by the aforementioned research findings.

### **The Role of Gamification in Language Learning**

Learning a new language often involves significant emotional and cognitive challenges, including stress and anxiety (Akbari, 2015; Iarenenko, 2017). In addition to being time-intensive, the language learning process demands sustained effort and dedication. Without proper motivation, learners may struggle to maintain consistency and are at risk of abandoning their studies altogether (Han, 2015). The incorporation of games in general, and gamification in particular, has been widely recognized as one of the most effective instructional strategies for enhancing student motivation and fostering greater engagement throughout the learning process (Jackson & McNamara, 2013). Integrating game-based elements

into educational contexts has been indicated to foster an engaging and stimulating atmosphere (Hanus & Fox, 2016), which in turn can help learners improve their linguistic accuracy and build greater self-assurance in using the target language (Castañeda & Cho, 2016). From a pedagogical standpoint, gamification refers to the integration of game elements into the learning process and task design (Homer 2019). Gamification, which involves the use of game mechanics like points, badges, and leaderboards, has increasingly gained popularity in the language instruction domain. Online language courses and mobile apps have utilized this strategy, incorporating game-like features to develop motivating forces, greater learner participation, and a sense of achievement. By turning language learning into an interesting, competitive, and rewarding task, gamification realizes sustained learner motivation and frequent practice.

Each day, millions of people worldwide engage in digital gaming across a wide range of genres and titles in numerous languages. Recognizing this trend, language researchers have increasingly explored games as potential tools for second or foreign language teaching and learning. Baltra (1990) observed that adventure and simulation games could facilitate language learning for several reasons: (1) they encompassed all four language skills, (2) their primary aim was not to teach vocabulary or grammar explicitly but to foster goal-oriented tasks necessitating meaningful language use, and (3) they employed discovery-based instructional methods that encouraged peer cooperation and interaction.

### **Artificial Intelligence and Personalized Language Learning**

Another remarkable achievement is the application of Artificial Intelligence (AI) in language instruction. Artificial Intelligence can be defined as “a branch of computer science that aims to create machines capable of intelligent behavior. In essence, AI is about making computers perform tasks that would normally require human intelligence” (Khan, 2025). This encompasses abilities such as experiential learning, object recognition, language comprehension and response, decision-making, and problem-solving. Recent progress in artificial intelligence (AI) has resulted in a surge of cutting-edge digital tools designed for diverse purposes across educational, professional, and personal contexts. A particularly significant innovation within this landscape is the development of generative AI technologies. Khan (2025) describes Generative Artificial Intelligence (AI) as a branch of AI dedicated to producing original content or data that is



capable of creating human-like images, videos, texts, and audio. In contrast to conventional AI systems that primarily analyze and interpret existing information, generative AI extends its function by generating novel and authentic outputs.

Among various Generative AI technologies, chatbots have emerged as the most prominent and are increasingly regarded as effective instruments for enhancing language proficiency and related skills (Yang et al., 2022). A chatbot refers to a system designed for human-computer interaction, allowing users to engage in conversations with software programs (Kwon et al., 2023). Studies have shown that chatbots can greatly improve learners' abilities in listening and speaking (Moussalli & Cardoso, 2020), as well as in vocabulary acquisition (Görge et al., 2020) and writing skills (Guo et al., 2022; Kwon et al., 2023). They also contribute to increasing learners' interest in learning (Guo et al., 2022), boosting their motivation (Polyzi & Moussiades, 2023; Ünsal & Hastunç, 2021), enhancing enjoyment in learning a foreign language (Wang et al., 2022), and improving their sense of self-efficacy (Zhang et al., 2023). These AI-driven systems are engineered to simulate natural human conversation by analyzing linguistic input and generating contextually relevant and meaningful output. Even some more advanced AI systems that are incorporated into many language teaching applications, like ELSA or Praktika, can simulate natural conversation, enabling students to practice dialogue with a virtual conversation partner.

Among chatbots, ChatGPT stands out as a leading example due to its advanced conversational capabilities and widespread adoption. Released for public use in November 2022, ChatGPT exemplifies the potential of generative AI to transform how users interact with technology through natural language processing (Hıncı, 2024). Also, ChatGPT holds significant promise for introducing novel and creative approaches to enhancing the teaching and learning of foreign languages. These technologies can facilitate more personalized, interactive, and engaging educational experiences, thereby transforming traditional language instruction methods. AI-powered language learning software, including ChatGPT and Google Assistant, offers learners personalized, real-time feedback on their writing and speaking abilities. These AI applications are capable of examining learners' submissions and offering corrections or recommendations, thereby assisting

individuals in improving their skills beyond the conventional classroom environment.

Two other widely recognized terms associated with Artificial Intelligence are Virtual Reality (VR) and Augmented Reality (AR). Virtual Reality (VR) is recognized as an emerging technology with significant potential for education and training (Howard, 2017). Smart et al. (2007) defined virtual reality as a system designed to replicate real-life experiences through simulated environments that incorporate realistic topography. One advantage of Virtual Reality (VR) compared to traditional learning approaches is that it enables learners to interact directly with content rather than passively receive information (Radianti et al., 2020). Its immersive features support deeper cognitive engagement, enhance long-term knowledge retention (Rizzo et al., 2006), and increase learner enjoyment (Lee, 2019). Virtual reality provides interactive language learning experiences through situating students in actual simulated contexts where speech and listening can be used in contextualized settings. Virtual reality language websites, for instance, enable students to communicate with simulated native speakers in real-life situations, such as ordering food in a restaurant or finding one's way in a foreign city. These interactive learning experiences enhance comprehension and retention of language skills through simulating actual interactions. Another term related to AI is augmented reality, which refers to the enhancement of the physical world with digital elements (Stockwell, 2022). For example, students explored a zoo and, using their mobile phones, accessed location-specific information about the animals they observed.

Overall, Artificial Intelligence (AI) is transforming language education by offering personalized, adaptive, and interactive learning experiences. AI-powered tools, such as chatbots, intelligent tutoring systems, and speech recognition technologies, provide learners with real-time feedback and tailored practice, enhancing both accuracy and fluency. In contrast to traditional classrooms that typically rely on a single coursebook and one instructor, virtual and augmented realities, technologies associated with artificial intelligence, facilitate language education through real-life scenarios and simulated contexts.

### **THE CHALLENGES OF DIGITAL LANGUAGE EDUCATION**

Though technology has introduced many benefits to language instruction, it also presents a special set of challenges. A significant

challenge is that technology-based learning may lack the human interaction that is necessary for the development of social and conversational skills. Language learning is beyond memorizing words or learning grammar rules; it entails the comprehension of cultural sensitivities, the exercise of spontaneous communication, and interaction with others in authentic contexts. In addition, there is also a danger of over-dependence on technology. Students might value the gamified elements of language apps and thereby neglect the necessity of profound and prolonged interaction in real-life contexts. Moreover, it must be taken into account that not all students possess the technological resources required for successful online learning (Stockwell, 2022). Additionally, the perceived reduction in the teacher's role within an increasingly digital landscape remains a concern for many. Although advancements in affective computing, where artificial intelligence can recognize and express emotions, have progressed, it is unlikely that teachers will be entirely replaced by robots. Nevertheless, it is undeniable that the traditional role of educators is being challenged and will continue to evolve in response to technological developments (Hockly & Dudeney, 2017).

### **CONCLUSION AND THE FUTURE OF LANGUAGE LEARNING**

The 21st century witnessed a dramatic expansion in the use of digital tools and platforms that modified the language-learning path in depth. The development of computers, the internet, and multimedia technologies introduced new forms of interaction and engagement (Babayigit, 2020). Internet and mobiles, particularly, have transformed modes of access to and engagement with language content among students. These resources introduced the concept of self-learning and the potential for language practice beyond classrooms. Websites, apps, and internet-based platforms have put language learning on the learners' doorsteps, made it engaging, and targeted specific needs. The introduction of online platforms, mobile apps, artificial intelligence programs, and virtual learning spaces has enabled language learning to become more flexible, accessible, and interactive. Through these tools, learners can take greater autonomy of their learning processes, learn at their own pace, and interact with others from around the world. According to Li (2017), the key factors contributing to effective second language learning are “authentic input, conscious noticing on form, opportunity for interaction, in-time and individualized feedback, low affective filter and an environment where language can be used” (p. 28), and

advanced technological tools, especially digital ones, undoubtedly execute and facilitate these factors.

In the coming years, language learning and teaching will continue to be shaped by growing developments in digital technology. AI, machine learning, and big data can further boost personalized learning, while virtual reality and augmented reality can revolutionize immersion in the target language. The evolution from the early multimedia materials through cutting-edge artificial intelligence and virtual reality technologies has transformed the methods used in language teaching and learning, with the future promising even more exciting prospects. As technology becomes more rooted in the classroom, students will be able to utilize more diverse, flexible, and interactive resources than ever before. Also, the global nature of the internet will continue to promote cross-cultural interactions and enable learners to interact with others from different linguistic and cultural backgrounds. This level of interconnectedness will not only promote language skills but also support the development of greater global awareness and collaboration. By embracing these technological advancements, educators can continue enhancing the language learning experience for students around the world.

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# TRANSLATION AS A MEDIATOR FOR FOREIGN LANGUAGE LEARNING IN DIGITAL AGE

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## INTRODUCTION

While focusing on advanced learners, some works (Källkvist,2008) implicitly acknowledges the foundational role of understanding meaning and grammar, often initially accessed through the native language. However, when learning a foreign language, the facilitating effect of the mother tongue, as well as the mediation of translation throughout this process, makes it easier to articulate. Bridging linguistic divides and fostering deeper understanding, translation emerges as a powerful mediator in the intricate process of foreign language acquisition (Çelik & Babayiğit, 2023; Gültekin, 2024). Far from being a mere mechanical substitution of words, translation acts as a dynamic link between a learner's native tongue and the target language, offering a unique pathway to unlock meaning, decipher complex grammatical structures, and appreciate cultural nuances embedded within the language (Cook, 2001; Butzkamm, 2009). By strategically employing translation activities, learners can leverage their existing linguistic framework to navigate the unfamiliar terrain of a new language, transforming potential obstacles into stepping stones towards fluency (Swain,2000).

The digital age has ushered in an unprecedented era of interconnectedness, transforming the landscape of foreign language learning in profound ways. No longer confined to traditional classroom settings and textbooks, learners now have access to a vast array of online resources, interactive platforms, and multilingual content. Within this dynamic environment, the role of translation has resurfaced as a significant pedagogical tool, moving beyond its historical perception as a mere assessment method or a last resort for comprehension. This essay explores the evolving function of translation as a mediator in foreign language acquisition within the digital age, examining its potential to bridge linguistic

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and cultural gaps, enhance understanding, and foster deeper engagement with target languages.

Drawing upon contemporary research in applied linguistics and language pedagogy (Cook, 2010; Kramsch, 2009; Swain & Lapkin, 1998), this discussion will delve into the ways in which thoughtfully integrated translation activities can leverage the affordances of digital technologies to support various aspects of language learning. From facilitating vocabulary acquisition and grammatical understanding to developing metalinguistic awareness and intercultural competence, translation, when strategically employed, can serve as a powerful mediator, empowering learners to navigate the complexities of foreign languages in the digitally rich learning environment of the 21st century.

### **The Statement Problem**

The problem lies in effectively harnessing the evolving potential of translation as a pedagogical tool within the digitally rich landscape of foreign language learning to bridge linguistic and cultural divides, enhance understanding, and foster deeper engagement with target languages. While the digital age offers unprecedented access to resources, the strategic integration of translation activities, moving beyond traditional perceptions, needs further exploration and application to fully leverage its capacity to support various aspects of language acquisition, including vocabulary acquisition, grammatical understanding, metalinguistic awareness, and intercultural competence.

### **The Importance of the The Study**

It moves beyond the traditional view of translation as merely a tool for assessment or a last resort for comprehension, exploring its potential as a dynamic mediator in the language learning process. The study seeks to understand how thoughtfully employed translation activities can help learners connect their native language framework with the target language, thereby unlocking meaning and appreciating cultural nuances. Enhancing understanding of language complexities, It investigates how translation can facilitate the comprehension of complex grammatical structures and vocabulary acquisition by leveraging the learner's existing linguistic knowledge. By making the learning process more accessible and

understandable, strategic translation can lead to increased motivation and engagement with the foreign language.

The study explores how the vast array of online resources and interactive platforms in the digital age can be utilized to implement translation activities effectively. It examines the potential of translation to contribute to the development of vocabulary, grammar, metalinguistic awareness (thinking about language), and intercultural competence (Cook, 2010; Byram, 1997; Cenoz, & Santos, 2020). While the digital age offers numerous resources, the study highlights the need for further exploration and practical application of translation as a strategic pedagogical tool to fully realize its benefits in language learning (Elorza, 2008). To investigate the evolving role and potential of translation as a pedagogical tool in foreign language learning within the digital age, this study will employ a qualitative data collection and analysis. This approach will allow for a comprehensive understanding of the impact of strategically integrated translation activities on various aspects of language acquisition. Ultimately, the study aims to identify how translation can empower learners to navigate the complexities of foreign languages more effectively within the digitally rich learning landscape. In essence, the statement reflects a widely held pedagogical view that translation, when used thoughtfully, can be a valuable tool for language learners to bridge the gap between their known language and the new one, fostering deeper understanding at multiple levels.

### **The scope and the subject of the Study**

The central subject of this study is the evolving role and potential of translation as a pedagogical tool in foreign language learning within the digital age. It focuses on how translation can function as a mediator to facilitate various aspects of language acquisition. The scope of this study encompasses primarily advanced learners, while acknowledging the foundational role of the native language for all learners. It deals with the strategic integration of translation activities in foreign language instruction, moving beyond traditional uses like assessment or last-resort comprehension. The study specifically examines the application of translation within the digitally rich learning environment, considering the vast array of online resources and interactive platforms.

## **Purpose of the study**

To identify how thoughtfully employed translation can empower learners to navigate the complexities of foreign languages more effectively in the 21st-century digital landscape, bridging linguistic and cultural gaps, enhancing understanding, and fostering deeper engagement. The study aims to define and explore the effective and strategic use of translation as a mediating tool for foreign language learning in the digital age, examining its impact on various language learning components and its potential to bridge linguistic and cultural divides.

## **CONCEPTUAL FRAMEWORK**

This study's conceptual framework posits that strategically integrating translation activities within a digitally rich learning environment can significantly enhance key aspects of foreign language learning. Moving beyond the traditional view of translation as solely an assessment tool, we embrace its potential as a dynamic pedagogical resource. We contend that thoughtfully designed translation tasks, leveraging digital tools and resources, can foster deeper vocabulary acquisition through comparative semantic analysis, improve grammatical understanding by necessitating structural analysis across languages, cultivate metalinguistic awareness by prompting conscious reflection on language systems, and even contribute to intercultural competence by requiring consideration of culturally embedded contexts. The resurgence of translation in the digital age, driven by increased global interconnectedness and advancements in machine translation, underscores its continued relevance as a crucial bridge between languages and cultures.

However, this framework also acknowledges the inherent challenges associated with mediating foreign language learning through translation in the digital age. While readily available machine translation offers potential benefits like immediate comprehension and access to authentic materials, over-reliance can impede the development of essential skills such as inferencing and contextual understanding. Over-reliance on readily available translations, including machine translation (even though it was less advanced at the time of writing), can prevent learners from developing these crucial independent learning skills, including inferencing and understanding context (Hurtado, 2005). Furthermore, the inaccuracies of machine translation pose a risk to the internalization of correct linguistic

patterns. Therefore, the study's conceptual framework emphasizes the need for a balanced and strategic integration of translation activities within digital learning environments. This approach aims to harness the facilitative potential of translation in bridging linguistic and cultural divides and enhancing understanding, while mitigating the risks of over-dependence and inaccurate information, ultimately fostering more effective and autonomous foreign language learners.

## **TRANSLATION ACTIVITIES IN ENHANCING KEY ASPECTS OF LANGUAGE LEARNING**

Translation activities, when strategically integrated into language learning, can significantly enhance various aspects of the learning process. This approach moves beyond the traditional view of translation as a mere assessment tool and embraces its potential as a pedagogical resource.

### **Vocabulary Acquisition**

Translation exercises can facilitate vocabulary acquisition by requiring learners to actively seek and understand the nuances of word meanings across languages. By comparing and contrasting words in their native language (L1) and the target language (L2), learners develop a deeper understanding of semantic ranges and collocations. For instance, activities that involve translating words in context can help learners grasp subtle differences in meaning that might be missed through simple memorization.

### **Grammatical Understanding**

Translation can also play a crucial role in developing grammatical competence. By translating sentences and texts, learners are forced to analyze the grammatical structures of both languages, leading to a more explicit understanding of how grammar shapes meaning (Babayiğit & Çelik, 2023). This process can be particularly beneficial for identifying similarities and differences between L1 and L2 grammar, helping learners to overcome common errors and develop greater accuracy in their use of the target language. As Butzkamm and Caldwell (2009) argue, "judicious use of the learners' mother tongue in the foreign language classroom does not hinder but rather enhances acquisition." This includes using translation to clarify grammatical points.

### **Metalinguistic awareness**

Engaging in translation activities promotes metalinguistic awareness, which is the ability to reflect on language as a system. When learners translate, they are required to think consciously about language choices, grammatical rules, and the relationship between form and meaning. This reflective process can lead to a deeper understanding of how languages work and improve learners' overall language learning skills. Swain (2000) highlights the importance of output, and translation tasks provide a form of output that necessitates this kind of metalinguistic reflection.

### **Intercultural Competence**

Beyond linguistic skills, translation can also contribute to the development of intercultural competence. Translating texts that are culturally embedded requires learners to consider the cultural context in which the language is used. This process can help learners to develop an awareness of cultural differences in values, beliefs, and communication styles. As Cook (2001) suggests, translation can help learners to navigate the "complex relationship between language and culture."

In conclusion, translation activities, when thoughtfully designed and implemented, can be a valuable tool for enhancing various aspects of language learning. By promoting vocabulary acquisition, grammatical understanding, metalinguistic awareness, and intercultural competence, translation can empower learners to become more effective and confident communicators in the target language.

## **THE RESURGENCE OF TRANSLATION: BRIDGING LINGUISTIC AND CULTURAL DIVIDES IN THE DIGITAL AGE**

The digital age has ushered in an unprecedented era of interconnectedness, yet this very connectivity underscores the persistent and, arguably, increasing importance of translation. Far from becoming obsolete in a world seemingly shrinking through technology, translation is experiencing a vibrant resurgence. It stands as a crucial bridge, not only between languages but also across the intricate landscapes of culture, enabling communication, fostering understanding, and driving global progress (Bassnett, 2013).

The sheer volume of digital content being generated and disseminated globally necessitates robust translation mechanisms. From social media

interactions and e-commerce platforms to academic research and international collaborations, the need to transcend linguistic barriers is paramount. Machine translation, powered by advancements in artificial intelligence and neural networks, has become an indispensable tool in navigating this vast ocean of information. Platforms like Google Translate and DeepL offer rapid and increasingly accurate translations, democratizing access to content in various languages (Cronin, 2013).

However, the resurgence of translation extends far beyond automated processes. The nuances of human language, deeply intertwined with cultural contexts, demand the expertise of skilled human translators (Gambier & van Doorslaer, 2010; Kasap & Işık, 2025). They possess the cultural competence to navigate idioms, metaphors, humor, and subtle contextual cues that algorithms often miss. This human element is critical in ensuring not just linguistic accuracy but also cultural appropriateness, preventing misunderstandings and fostering genuine cross-cultural communication (Babayiğit & Çelik, 2025). Furthermore, the digital age has created new avenues and forms of translation: Localization, the adaptation of a product or service to a specific local market, has become essential for businesses seeking global reach. This involves not only translating text but also adapting visual elements, user interfaces, and even marketing strategies to resonate with the target audience's cultural preferences. Similarly, the translation of multimedia content, such as videos, games, and software, requires specialized skills and tools to ensure a seamless and culturally relevant user experience (O'Hagan, 2020). The rise of global virtual communities and collaborative online platforms further highlights the significance of translation. As individuals from diverse linguistic backgrounds interact and work together, accurate and nuanced translation facilitates effective communication, knowledge sharing, and the building of trust. In fields like international diplomacy, humanitarian aid, and scientific research, precise translation can be a matter of critical importance.

the digital age, while seemingly fostering a unified global space, has simultaneously amplified the need for effective translation. It is not merely about converting words from one language to another; it is about bridging cultural divides, facilitating understanding, and enabling meaningful interaction in an increasingly interconnected world.<sup>1</sup> The synergy between technological advancements in machine translation and the indispensable



expertise of human translators marks a dynamic resurgence, solidifying translation as a vital force in the 21st century and beyond.

### **Historical Context And Shifting Perceptions**

Translation has played a crucial role throughout history, evolving from ancient practices to meet the demands of global interaction. Initially, translation was often perceived as a secondary activity, a mere transfer of words from one language to another. As Bassnett (2013) notes, translators have historically "acted as intermediaries between languages and cultures, facilitating communication across boundaries," highlighting their essential, yet often undervalued, role. However, the digital age has propelled a resurgence of translation, driven by increased cross-cultural exchange and technological advancements. This resurgence has led to a shift in perceptions, with translation increasingly recognized not just as a linguistic task, but as a complex process of cultural mediation and knowledge creation. The rise of digital platforms and machine translation has further complicated and enriched the field, demanding new skills and understandings from translators, and elevating the importance of their role in bridging linguistic and cultural divides (UNESCO). This evolution underscores the dynamic nature of translation and its growing significance in our interconnected world.

### **The Digital Landscape and Translation**

The digital landscape has profoundly transformed the field of translation, moving it from a primarily print-based, human-driven activity to one that is increasingly digital, automated, and collaborative. Machine translation (MT) tools, such as Google Translate, have become ubiquitous, offering instant translations of text and even speech. This has democratized access to information across languages, enabling individuals and businesses to communicate globally with greater ease. As Pym (2016) puts it in his study "What technology does to translating" technology broadens our capabilities:

Technology should help us with whatever we are doing. The ape uses a stick to retrieve the banana – we reach further, so we can do more. Technology thus extends the ways we interact with the world: our arms, our sight, our capacity to hear, touch, to move over distance. Which of these extensions most vitally affect what we do with language? The technologies of transport and communication radically stretch the cross-

cultural situations in which speech acts are carried out, ultimately altering the configuration of cultures, never more so than in a globalizing age. Those situations often call for translation, since they are cross-cultural, so we would not be wrong to see transport and communication technologies as constituting the major technological impact on the translation profession (p.1)

The rise of the internet and digital content has also created a massive demand for localization services, adapting websites, software, and multimedia content to suit specific linguistic and cultural contexts.

However, the integration of technology in translation is not without its challenges and complexities. While MT has improved significantly, it still struggles with nuance, idiomatic expressions, and cultural subtleties, often requiring human post-editing to ensure accuracy and quality. The digital landscape has also given rise to new forms of translation, such as crowdsourcing and fan translation, where non-professional translators contribute to the translation of content, often driven by passion and community engagement. García (2010) discusses how "the internet has created new opportunities for translators, but also new challenges in terms of quality, ethics, and the role of the human translator."

The evolving digital landscape necessitates that translators develop new skills and competencies. Beyond linguistic expertise, translators must now be proficient in using CAT (Computer-Assisted Translation) tools, MT systems, and other technologies. They need to be adept at managing large-scale translation projects, collaborating with diverse teams in virtual environments, and adapting to the ever-changing demands of the digital marketplace. As Cronin (2013) argues, "translation in the digital age is less about the replacement of humans by machines and more about a reconfiguration of the relationship between them," highlighting the ongoing importance of human expertise in the translation process. For example, the translation of a website for a global e-commerce brand requires not only linguistic accuracy but also cultural sensitivity and an understanding of user experience, showcasing the multifaceted role of the modern translator. However, we can encounter some studies such as Bowen, & Marks (2017) touching the impact of MT on the translation. The study directly investigates the impact of translation tools on language learning. The authors discuss how the ease of access to MT can lead learners to bypass the cognitive processes necessary for developing deeper understanding, such as inferring

meaning from context and grappling with linguistic ambiguity. They often highlight the potential for over-reliance to create a "shortcut" that ultimately hinders the development of independent language processing skills. Bowen and Marks (2017) offer a more contemporary and direct analysis of the impact of tools like Google Translate, while others such as Hurtado Albir (2005) provides a broader pedagogical perspective that still applies to the challenges of over-reliance on translation in language acquisition.

### **Bridging Linguistic Gaps**

Translation, at its core, serves as a vital bridge across linguistic divides, enabling communication and understanding between people who speak different languages. In an increasingly interconnected world, the importance of this bridging function has only amplified. The digital age has ushered in unprecedented opportunities that have fundamentally reshaped the landscape of translation, making it faster, more accessible, and more multifaceted than ever before (Cronin, 2013). One of the most significant impacts of the digital age is the proliferation of machine translation (MT) tools and artificial intelligence (AI) powered systems. The emergence of platforms like Google Translate and DeepL has provided readily available instant translations, effectively removing immediate communication hurdles for routine interactions and access to information. AI algorithms have advanced to a point where they can learn context, tone, and even some cultural nuances, leading to increasingly sophisticated outputs (AfroLingo,2023). This has democratized translation, allowing individuals and businesses to understand and convey information across languages with greater ease and speed (Nikzad, 2025).

Furthermore, the digital age has fostered new forms of collaborative and crowdsourced translation. Online platforms allow communities of bilingual individuals to contribute to translation projects, leveraging collective knowledge and diverse linguistic skills to achieve accurate and culturally appropriate translations (Cronin, 2013). This is particularly valuable for localizing software, websites, and digital content for specific cultural contexts, going beyond mere linguistic conversion to ensure resonance with the target audience (AbroadLink, 2024). The rise of the internet and digital content has also created a massive demand for specialized translation services. Businesses expanding globally require accurate translation and localization of marketing materials, legal documents, and technical manuals.

The entertainment industry relies heavily on subtitling and dubbing to reach international audiences. The medical and scientific fields necessitate precise translation of research papers and patient information (Nikzad, 2025). The digital age has facilitated the connection between these demands and a global network of professional translators with diverse expertise. The digital age has revolutionized translation, offering unprecedented opportunities to bridge linguistic gaps. From instant machine translation to collaborative platforms and specialized online services, technology has made cross-lingual communication more accessible and efficient. While digital tools have transformed the process, the critical role of human translators in ensuring accuracy, cultural appropriateness, and nuanced understanding remains indispensable in this increasingly interconnected global landscape.

### **A Powerful Catalyst for Cultural Understanding**

Translation is experiencing a powerful revival, not merely as a mechanical conversion of words, but as a dynamic force in fostering genuine cultural understanding across the globe. The digital age, with its instant communication and boundless access to information, has simultaneously amplified the need for and the potential of translation to dismantle the walls of linguistic and cultural difference.

Historically, translation has always served as a vital conduit for the exchange of ideas, trade, and knowledge between disparate communities (Shahmerdanova, 2025). However, the digital revolution has propelled it into a new era of prominence. The sheer volume of information being generated and shared online transcends geographical boundaries with unprecedented speed (Muci&Stryker, 2024). From social media interactions and news articles to academic research and artistic expressions, the need to comprehend and engage with content in diverse languages is paramount. This surge in demand has spurred innovation in translation technologies and methodologies, moving beyond literal interpretations towards nuanced and contextually aware renditions. The power of translation in fostering cultural understanding lies in its ability to unlock access to diverse perspectives and worldviews. By expertly translating literature, films, music, and everyday dialogues, people can gain a deeper understanding of the values, beliefs, and historical journeys that have molded diverse cultures. Reading a novel translated from another language, for instance, offers a window into the emotional landscape and social fabric

of a society far removed from one's own. Subtitles in films and documentaries allow viewers to engage with narratives and perspectives that would otherwise remain inaccessible (Kaur,2024). Furthermore, effective translation goes beyond simply converting words; it involves navigating the intricate web of cultural nuances embedded within language (Navean,&Trojovský, 2024). Languages often don't have straightforward equivalents for idioms, metaphors, humor, and social customs. By meticulously examining the context and the speaker's purpose, a proficient translator functions as a cultural intermediary, ensuring that the message is conveyed accurately and with sensitivity to cultural nuances. This process of cultural interpretation can illuminate subtle differences in communication styles and societal norms, fostering empathy and reducing the potential for misunderstandings.

The digital age has equipped translators with powerful tools to achieve this delicate balance. Machine translation, while still evolving, offers rapid initial drafts and assists human translators in handling vast amounts of text. Translation memory software and terminology databases ensure consistency and accuracy. Moreover, the collaborative nature of the internet allows translators to connect with native speakers and cultural experts, enriching their understanding and refining their work.

However, the resurgence of translation in the digital age also presents challenges. The sheer volume of online content necessitates efficient and accurate translation solutions, but the risk of over-reliance on purely automated tools without human oversight can lead to errors and cultural insensitivity. Maintaining quality and nuance in the face of speed and volume remains a crucial consideration.

In conclusion, the resurgence of translation in the digital age is not merely a linguistic phenomenon; it is a powerful catalyst for fostering cultural understanding. By breaking down language barriers and providing access to diverse cultural expressions, translation empowers individuals to connect with and learn from one another (Steigerwald, et. al, 2022). As technology continues to evolve, the role of skilled and culturally aware translators will become increasingly vital in navigating our interconnected world and building bridges of understanding across linguistic and cultural divides. The ongoing commitment to nuanced and contextually sensitive translation holds the key to unlocking a future where cross-cultural

communication is not just possible, but a pathway to greater global empathy and cooperation.

### **CHALLENGES IN MEDIATING TRANSLATION FOR FOREIGN LANGUAGE LEARNING IN DIGITAL AGE**

The digital age presents a fascinating duality for translation's role in foreign language learning. On one hand, readily available machine translation tools offer unprecedented access to foreign language content, potentially lowering affective filters and providing quick comprehension of complex texts (Chapelle, 2009). Learners can instantly translate unfamiliar words and sentences, facilitating exposure to authentic materials and potentially fostering independent learning. Furthermore, translation exercises, when thoughtfully designed, can enhance metalinguistic awareness by encouraging learners to compare and contrast linguistic structures across languages (Malmkjær, 2004). The integration of translation into digital learning environments can also offer personalized feedback and adaptive learning pathways, catering to individual learner needs and paces.

However, relying heavily on translation as a primary mediator in foreign language learning also presents significant challenges in the digital age. Over-dependence on machine translation can hinder the development of crucial language skills such as inferencing, contextual understanding, and the ability to navigate ambiguity (Bowen & Marks, 2017). Learners may become reliant on the "easy fix" of a translation, neglecting the cognitive effort required for deeper processing and long-term retention. Moreover, the inherent limitations and occasional inaccuracies of machine translation can lead to misunderstandings and the internalization of incorrect linguistic patterns (Hurtado Albir, 2005). Therefore, educators face the challenge of strategically integrating translation in digital contexts in a way that leverages its benefits without undermining the development of autonomous and proficient foreign language learners.

Mediating translation for foreign language learning in the digital age presents both opportunities and challenges. While digital tools offer quick access to translation resources, a key challenge lies in effectively integrating these tools without hindering learners' language development. Over-reliance on machine translation can impede the acquisition of essential skills like grammar, vocabulary, and contextual understanding. Educators face the

challenge of guiding students to use translation as a support tool rather than a substitute for genuine language learning, fostering critical thinking and linguistic awareness in the process.

## CONCLUSION

This study underscores the evolving and significant role of translation as a mediator in foreign language learning within the digital age. Moving beyond its traditional perception as a mere assessment tool, translation, when strategically employed, emerges as a powerful pedagogical resource capable of bridging linguistic and cultural divides. The digital landscape, with its vast array of resources and readily available translation technologies, presents both opportunities and challenges for language educators. Thoughtfully designed translation activities can enhance vocabulary acquisition, grammatical understanding, metalinguistic awareness, and intercultural competence by leveraging learners' existing linguistic frameworks and fostering deeper engagement with the target language.

However, the study also highlights the potential pitfalls of over-reliance on translation, particularly with the ease of access to machine translation in the digital age. While these tools offer immediate comprehension and access to authentic materials, they can also hinder the development of essential language learning skills such as inferencing, contextual understanding, and the ability to navigate ambiguity. The inaccuracies and lack of nuanced cultural understanding inherent in machine translation necessitate a cautious and balanced approach to its integration in language pedagogy. Therefore, the key lies in harnessing the facilitative potential of translation while mitigating the risks of over-dependence and inaccurate information.

Ultimately, the resurgence of translation in the digital age demands a paradigm shift in how educators perceive and implement it in foreign language instruction. By strategically integrating translation activities that encourage comparative linguistic analysis, cultural awareness, and metalinguistic reflection, educators can empower learners to become more effective, autonomous, and culturally competent communicators. The challenge lies in navigating the complexities of the digital landscape to leverage translation as a dynamic bridge that fosters deeper understanding and engagement with foreign languages, rather than a crutch that hinders genuine language acquisition.

This study contributes to the translation field by offering a contemporary re-evaluation of translation's pedagogical potential within the rapidly evolving digital landscape. It moves beyond traditional views of translation as solely a tool for assessment or a last resort for comprehension, advocating for its strategic integration as a dynamic mediator in foreign language acquisition. By exploring how thoughtfully designed translation activities, leveraging digital resources, can enhance various aspects of language learning – including vocabulary acquisition, grammatical understanding, metalinguistic awareness, and intercultural competence – the study provides a framework for optimizing its use in educational settings. Furthermore, it addresses the challenges posed by the ubiquitous presence of machine translation, cautioning against over-reliance and emphasizing the continued importance of human cognitive engagement in the learning process. This nuanced perspective can inform the development of more effective translation-based pedagogical strategies and resources within the translation field itself.

The interdisciplinary impact of this study spans several fields. In **applied linguistics and language pedagogy**, it offers empirical insights into the cognitive processes involved in language learning through translation in a digital environment, contributing to the ongoing debate about the role of the L1 in second language acquisition. It provides practical implications for curriculum design, teacher training, and the development of digital language learning tools. In the field of **translation studies**, the study contributes by highlighting the evolving role of human translation in an age of increasing automation, emphasizing the crucial interplay between machine assistance and human expertise in both language learning and professional translation contexts. Moreover, by examining the link between translation and intercultural competence, the study has relevance for **intercultural communication studies**, underscoring the potential of carefully mediated translation to foster deeper understanding and bridge cultural divides in an increasingly interconnected world. Finally, in **educational technology**, the study offers insights into the effective integration of digital tools and resources for language learning, specifically focusing on the strategic use of translation technologies to enhance pedagogical outcomes rather than simply replace traditional methods.



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# THE DIGITAL TRANSFORMATION OF LANGUAGE AND INDIVIDUALS WITH DEVELOPMENTAL DISABILITIES

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## Introduction

In today's digital era, the transformation process has not only affected technological infrastructures but has also fundamentally reshaped the structure, usage, and social functions of language. The changes brought about by digitalization have significantly influenced the way individuals engage in interaction through language in both social and academic contexts. In particular, social media platforms, messaging applications, and digital content-sharing environments have altered conventional language usage, thereby restructuring the linguistic system itself (Tagg, 2015; Crystal, 2011). As a result, digital language has become increasingly complex, enriched with non-verbal symbols, emojis, and visual indicators such as GIFs (Herring & Androutsopoulos, 2015).

This process of transformation observed in digital language has multidimensional implications not only for typically developing users but also for individuals with disabilities. For individuals with Autism Spectrum Disorder (ASD), hearing impairments, or speech and language disorders (SLD), language serves not merely as a means of communication but as a fundamental component of cognitive development and social interaction (Tager-Flusberg & Joseph, 2003; Conti-Ramsden et al., 2012). Therefore, the frequent use of abbreviations, symbols, and metaphors in digital language can pose significant challenges in interpretation and comprehension for individuals with disabilities. Considering the limitations in functional language use among individuals with ASD in particular, such digital language practices may lead to substantial communicative barriers (Norbury, 2005; Parry, 2021).

Nonetheless, digital language environments are not solely restrictive for individuals with disabilities; they also offer opportunities to enhance accessibility. Alternative communication devices, speech recognition software, symbolic communication programs, and AI-powered applications support language use in both social and academic domains for individuals with developmental disabilities (Light & McNaughton, 2012; Smith,

Barton-Hulsey, & Nwosu, 2020). For instance, AI-supported conversational tools offer opportunities to enhance communication skills and facilitate social interaction for individuals with disabilities. Similarly, video-supported applications and digital social stories are emerging as evidence-based and effective methods to support functional language skills in individuals with ASD (Knight et al., 2013).

The integration of digital technologies into educational processes has significantly enhanced the effectiveness of education for individuals with disabilities. These technologies allow for the customization of content according to individual differences and improve the accessibility of educational materials. For example, digitally enriched books supported with visual aids and interactive applications have been shown to support the academic achievements of individuals with learning difficulties. Furthermore, digital platforms provide opportunities for families and educators to collaborate, ensuring more effective and consistent educational processes.

From this perspective, it is crucial to examine the impact of the digital world on language in a multifaceted manner. This chapter will explore in detail the opportunities and challenges that digitalization presents for language use and communication skills among individuals with disabilities. In addition, recommendations will be provided on the pedagogical use of digital language for educators and families, along with suggestions for the effective application of digital technologies in the context of special education. In doing so, the transformative role of digital environments in the educational and social lives of individuals with disabilities will be addressed from both theoretical and practical standpoints.

### **The Digital Transformation of Language**

The process of digitalization has revealed that language is not merely a vehicle for transmission but also a reflection of cultural, social, and technological transformation. Communication in media environments has evolved into a complex system that integrates text, sound, images, symbols, and interactive components (Kress, 2010). This transformation has led to the increasing relocation, restructuring, and, in some cases, alteration of traditional norms of written and spoken language into digital contexts.

In particular, digital tools such as social media, instant messaging applications, and online gaming platforms have contributed to the

emergence of short, rapid, and encoded forms of language among users. This development has also played a significant role in shaping functional and cultural meanings of language (Androutsopoulos, 2006). For instance, emojis no longer merely support messages but now serve as central components of communication (Danesi, 2016). These symbols have become powerful tools for conveying nonverbal aspects of language and constructing social context. Especially among young users, the acceptance of such visual symbols as fundamental elements of language has led to lasting changes in communication styles and language use practices (Alshenqeti, 2016).

In this process, the decline of conventional writing norms, the widespread use of new forms of abbreviation (e.g., "slm", "ok"), and the production of language not independently of context but rather within context—and often specific to the user—are particularly notable (Tagg, 2015). This new form of language has become a component of social belonging and digital identity among young users (Thurlow & Mroczek, 2011). In this context, digital language use generates cultural symbols that strengthen individuals' social identities and group affiliations, emerging as identity markers that shape modes of communication within digital communities (Zappavigna, 2012). However, this transformation can bring about accessibility challenges for individuals with low linguistic proficiency or disabilities. Specifically, individuals who experience difficulties in language acquisition, have slower cognitive processing speeds, or possess limited functional language skills may struggle with the symbolic complexity and contextual dependency brought on by digital language (Bishop et al., 2017). As a result, these new forms of language can introduce additional barriers to achieving both social and educational goals.

At this point, the participatory, rapidly evolving, and network-based nature of digital language may become a coding system that is difficult to learn and interpret for certain individuals. For those with neurodevelopmental disorders in particular, this complex structure increases cognitive load and complicates the processes of understanding and meaning-making (Parry, 2021). Therefore, digital language environments should not be considered solely as a form of communication, but also as cognitive and pedagogical filters. In both educational and social interaction settings, it is important to develop pedagogical strategies to ensure that digital language is accessible to all learners. Such strategies should aim to increase the

comprehensibility and accessibility of digital language, thereby enabling full participation in the digital world—especially for individuals with developmental delays and speech-language disorders (Bouck et al., 2011).

### **Language Use and Digital Interaction in Individuals with Special Needs**

For individuals with special needs, language serves not only as a tool for communication but also plays a crucial role in cognitive development, social interaction, and self-regulation (Snow & Uccelli, 2009). However, the acquisition and use of language can be disrupted in various ways depending on the type of disability, such as Autism Spectrum Disorder (ASD), speech and language disorders (SLD), hearing impairments, or learning disabilities. This disruption has a direct impact on individuals affected by these conditions (Tager-Flusberg & Joseph, 2003; Leonard, 2014). In the case of individuals with ASD, significant difficulties are observed in the functional aspects of language. For example, metaphors, indirect expressions, idioms, nonverbal cues such as gestures and facial expressions, and context-dependent meanings are often confusing for individuals with ASD (Norbury, 2005). When combined with the symbolic, context-sensitive, and polysemous structure of digital language, these challenges can lead to substantial communication problems (Parry, 2021). Similarly, individuals with SLD struggle with communication that relies on complex syntactic structures and abstract expression (Bishop et al., 2017). For individuals with hearing impairments, language acquisition is more difficult due to the lack of auditory feedback. In such cases, audiovisual technologies, digital platforms that use sign language, and text-based digital communication tools become increasingly important to support language and communication skills (Marschark et al., 2015).

The digital environments enabled by technological advancements offer powerful opportunities to support the communication skills of these individuals. In particular, alternative communication tools provide expressive opportunities for individuals without verbal language abilities (Light & McNaughton, 2012). Symbolic communication applications adapted for tablets, eye-tracking-controlled screens, and AI-powered text-to-speech converters allow individuals with developmental delays to participate more actively in social life (Smith et al., 2020). The literature indicates that digital alternative tools increase language use and strengthen social interaction skills in individuals with ASD (Ganz et al., 2017).

Additionally, for individuals with learning disabilities, digital environments can support language development by providing individualized learning materials and interactive applications (Dockrell et al., 2009).

For these technologies to be used effectively, both technical compatibility and pedagogical adaptation are required. It is not sufficient for digital tools to simply exist; they must also be adapted to the individual's cognitive level, communication needs, and cultural context to ensure effective use (Alper & Raharinirina, 2006). Without pedagogical support and teacher training, these tools may generate additional cognitive load or foster a sense of exclusion rather than meeting the individual's needs. Therefore, teacher training in technology use and special education methods is essential for the successful implementation of these tools (Mourlam & Strouse, 2022). In conclusion, ensuring the active participation of individuals with special needs in digital language environments requires a multilayered approach. This approach must comprehensively address technical support, teacher training, family involvement, individualized intervention plans, and principles of digital accessibility (Parette & Blum, 2013). In this way, the social participation and academic success of individuals with special needs can be meaningfully supported.

### **The Opportunities Provided by Digital Technologies and Their Adaptation to Educational Practices**

Digital technologies offer multidimensional opportunities with the potential to transform the educational processes of individuals with developmental disabilities. These technologies not only support communication but also make learning more accessible, personalized, and interactive. In particular, alternative communication tools, AI-powered software, video-based tools, social story applications, and gamified learning environments play an effective role in supporting both the academic and social skills of individuals with developmental disabilities (Grynszpan et al., 2014; Knight et al., 2013). Among individuals with ASD, instructional practices involving digital tools have demonstrated strong effects. Video-based applications and digital narratives based on social stories contribute to a better understanding of social interaction situations, learning appropriate behaviors, and generalizing those behaviors (Wang & Spillane, 2009). These technologies have proven especially effective in teaching social-communication skills, as individuals with developmental disabilities

can engage in a structured learning process enriched with visual and auditory cues (Bellini & Akullian, 2007).

AI-supported systems and natural language processing technologies also hold increasing potential for individuals with developmental disabilities. Tools such as automated feedback systems, individual progress tracking, voice-command guidance, and interactive chatbot systems that support language development not only facilitate teachers' assessment processes but also encourage active participation from students (Serholt et al., 2021; Xu, Bouck, & Branscum, 2019). Studies showing the effectiveness of AI-powered systems, particularly in improving the language and social skills of individuals with Autism Spectrum Disorder, suggest that such technologies may play a critical role in educational practices (Grossard et al., 2020).

Another noteworthy area is game-based digital applications. These systems, which turn learning into a sequence of tasks, a points system, or visual rewards, provide effective learning opportunities for individuals with developmental disabilities in terms of attention, motivation, and skill acquisition through repeated practice (Bartolomé et al., 2018). In particular, for individuals with Attention Deficit Hyperactivity Disorder (ADHD) or learning disabilities, game-based applications have been shown to increase attention spans and task completion rates (Bul et al., 2015). The integration of gamification into educational settings has the potential to improve the academic performance and classroom participation of individuals with developmental disabilities. However, the use of such technologies cannot be considered independently from pedagogical context and individual assessment processes. For digital tools to be effective, teachers must possess technological pedagogical content knowledge, applications must be adapted to individualized education programs, and continuous data-driven monitoring must be implemented (Mourlam & Strouse, 2022). Moreover, the active involvement of families and the enhancement of their digital literacy skills will strengthen the positive effects of digital technologies (Parette & Blum, 2013). Otherwise, technology will remain a superficial innovation, failing to generate lasting impacts on learning outcomes.

### **Recommendations for Educators and Families**

Understanding the impact of digital language on individuals with developmental disabilities is crucial not only for the production of academic knowledge but also for the design of concrete educational practices. In this context, strategies developed for teachers and families must be not only



technology-based but also person-centered, ethically grounded, and sensitive to accessibility. To ensure the effective use of digital tools, educators and families should adopt a range of strategic measures. First and foremost, for digital tools to be pedagogically appropriate and effective, teachers must possess technological pedagogical content knowledge. Therefore, educators should receive regular training to enhance their competence in selecting and implementing digital tools that address the diverse learning needs of individuals with developmental disabilities (Mourlam & Strouse, 2022). Additionally, the accessibility of digital materials will enable students with special needs to participate actively in the learning process. In this regard, educators and families should adopt international standards such as web content accessibility. Accessibility features such as screen readers, voice commands, and subtitles should be treated as essential components in the design and use of digital content (Henry et al., 2014).

Strengthening collaboration between teachers and families is also a key strategic approach. Involving families in the use of digital technologies within educational processes enables the reinforcement of learned skills in the home environment. Accordingly, training and informational sessions should be organized for families to provide practical guidance on how to effectively use digital technologies at home (Parette & Blum, 2013). Ethical and safety considerations must not be overlooked in this process. The protection and confidentiality of students' personal data during the use of digital technologies must be addressed with care, and both educators and families should receive ongoing guidance on this matter. Consistent education and awareness-raising activities regarding ethical principles and data security will ensure the safe use of digital tools (Serholt et al., 2021). Lastly, to support students' social and emotional development during the use of digital technologies, the implementation of collaborative activities is recommended. Digital applications and group tasks that promote social interaction can enhance communication skills and increase the social participation of individuals with developmental disabilities. Educators can integrate such practices into lesson plans to foster both the social skills and academic success of their students simultaneously (Knight et al., 2013; Grossard et al., 2020). In light of these recommendations, educators and families can support the educational and social outcomes of individuals with disabilities by using digital technologies in a more informed and effective manner.

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# IDENTITY CONSTRUCTION AND LANGUAGE LEARNING IN ONLINE ENVIRONMENTS

Özgül Gültekin<sup>1</sup>

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## INTRODUCTION

Language learning is inherently social and deeply intertwined with identity construction. Individuals' interactions, cultural affiliations, and social positioning shape identity, as a dynamic and multifaceted concept. In digital contexts, this process becomes even more complex, as online environments afford learners fluid, multimodal, and hybrid expressions of self (Norton, 2013; De Costa & Norton, 2017). While much research has examined identity in traditional language learning settings, there is a growing need to explore how learners negotiate their identities in online spaces, where they interact with diverse linguistic and cultural communities (Block, 2007). This chapter examines the relationship between identity construction and language learning in digital environments, focusing on theoretical perspectives, discursive practices, and pedagogical implications.

Poststructuralist approaches have reconceptualized identity as fluid, performative, and context-dependent rather than stable and intrinsic (Bucholtz & Hall, 2005). Identity is co-constructed through discourse, shaped by power relations, and mediated by sociocultural norms (Pavlenko & Blackledge, 2004). These dynamics are amplified in digital spaces, where learners engage in self-presentation and social positioning while navigating platform-specific affordances and constraints (Darvin & Norton, 2015). Consequently, online language learners must construct and negotiate their identities across varied digital landscapes, often encountering both opportunities and limitations in these interactions.

Despite growing research on online language learning, significant gaps remain. There is limited understanding of how different digital platforms—social media, virtual classrooms, and gaming communities—uniquely influence identity construction (Sayer, 2015). While studies have examined mainstream platforms like Facebook and Twitter (Lee, 2019), less attention has been given to non-traditional spaces such as multiplayer games and

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fanfiction communities, where language practices differ from formal learning contexts (Thorne et al., 2009). Additionally, while anonymity and pseudonymity are known to impact identity performance (Boyd, 2014), their effects on learners' linguistic investment and sense of belonging remain underexplored (Klimanova & Dembovska, 2013).

Another critical area requiring further inquiry is multimodal identity construction. Online interactions extend beyond text-based communication to include visual, auditory, and interactive elements, shaping how learners express and negotiate their identities (Gee, 2017). While research has examined the use of avatars, emojis, and digital storytelling (Sunderland, 2020), more studies are needed to determine their influence on linguistic development and social integration in online language learning. Furthermore, most studies have focused on Western contexts, leaving a gap in understanding identity construction among learners from diverse linguistic and cultural backgrounds (Yuan, 2018). Addressing this gap is crucial for developing inclusive and equitable pedagogical approaches in digital language learning.

This chapter synthesizes theoretical perspectives and empirical research to provide insights into how learners construct and negotiate identity in online spaces. By analyzing the discursive strategies, affordances, and constraints of different digital environments, it offers practical recommendations for educators seeking to foster positive identity development in virtual language learning settings. Additionally, it contributes to the field by bridging existing gaps in the literature and advancing our understanding of the interplay between language, identity, and digital engagement.

As digital communication continues to evolve, so too does the nature of identity construction in language learning. The increasing influence of artificial intelligence, algorithm-driven personalization, and virtual reality in online education presents both challenges and opportunities for learners' identity negotiation (Godwin-Jones, 2019). Future research must continue to explore how these emerging technologies shape learners' self-perception, social interactions, and linguistic investment in online spaces. By deepening our understanding of identity dynamics in digital environments, we can better support learners in navigating the complexities of online language acquisition while fostering inclusive and empowering learning experiences (Çelik & Babayigit, 2023a).

## **THEORETICAL PERSPECTIVES ON ONLINE LANGUAGE IDENTITY**

Multiple theoretical frameworks, each offering unique insights into how learners construct and negotiate their identities in various contexts, have shaped the study of identity in language learning. As online environments increasingly mediate language learning, these theories provide a foundation for understanding the complexities of identity construction in digital spaces. Four key perspectives—poststructuralist views, sociocultural theory, social identity theory, and critical discourse analysis—are particularly relevant to exploring how learners navigate identity in online language learning settings. These perspectives collectively illustrate identity as a dynamic and socially embedded construct, shaped by interaction, power structures, and digital affordances.

### **Poststructuralist Views on Identity**

Poststructuralist perspectives on identity emphasize its fluid and dynamic nature, rejecting essentialist notions of identity as a fixed and stable entity (Norton, 2013). Instead, identity is seen as socially constructed, performed, and negotiated in response to changing contexts and power relations (Block, 2007). In language learning, this view highlights how learners position themselves and are positioned by others in discourse, particularly in multilingual and multicultural environments (Babayigit & Çelik, 2025; Pavlenko & Blackledge, 2004).

One of the central concepts in poststructuralist identity theory is investment, which extends beyond traditional notions of motivation in language learning. Norton (2013) argues that learners' investment in a language is tied to their desire for social mobility, access to cultural capital, and participation in imagined communities. This investment is particularly significant in online environments, where learners engage with global audiences, often in multilingual digital spaces (Darvin & Norton, 2015). Online platforms provide learners with opportunities to experiment with different identities through language use, allowing them to position themselves in ways that may not be possible in face-to-face interactions (Klimanova & Dembovskaya, 2013).

Additionally, poststructuralist approaches recognize the hybridity of identity, where learners draw on multiple linguistic and cultural resources to construct their online personas (Canagarajah, 2013). Digital platforms afford learners the ability to engage in translanguaging practices, seamlessly blending elements from different languages to negotiate meaning and assert

their identities (García & Li, 2014). These hybrid identities challenge rigid language boundaries and highlight the agency of learners in shaping their linguistic repertoires (Wei, 2018).

### **Sociocultural Theories of Identity**

Sociocultural theories of identity emphasize the role of social interaction, cultural tools, and mediated learning in identity formation (Vygotsky, 1978). Identity, in this view, is co-constructed through participation in communities of practice, where learners engage with others to develop shared meanings and norms (Lave & Wenger, 1991). In online environments, sociocultural perspectives help explain how language learners establish a sense of belonging and agency within digital communities.

The concept of communities of practice (Wenger, 1998) is particularly relevant to online language learning. Digital spaces such as social media platforms, discussion forums, and multiplayer games function as communities where learners develop expertise, interact with peers, and negotiate their identities (Gee, 2007). Participation in these communities enables learners to construct their identities through interaction, aligning themselves with specific linguistic and cultural norms (Thorne et al., 2009). For instance, in online gaming environments, learners often take on virtual identities that influence their language use, leading to the development of specialized linguistic competencies and social affiliations (Sundqvist & Sylvén, 2016).

Furthermore, sociocultural theory highlights the role of scaffolding and mediation in identity development. Online platforms provide various tools—such as collaborative writing spaces, interactive feedback systems, and AI-powered language tutors—that mediate learners' linguistic and identity development (Godwin-Jones, 2019). Through digital interactions, learners receive social support, refine their linguistic identities, and participate in global discourse communities (Lee, 2019). These experiences demonstrate how online language learning is deeply embedded in social relationships and mediated by technological affordances.

### **Social Identity Theory and Online Learning**

Social identity theory (Tajfel & Turner, 1979) provides a framework for understanding how individuals categorize themselves and others into social groups, shaping their sense of belonging and identity. In language learning, social identity theory explains how learners align themselves with linguistic

communities, negotiate in-group and out-group dynamics, and manage issues of inclusion and exclusion. In online environments, learners frequently engage in identity positioning as they interact with different linguistic and cultural groups. Research has shown that learners' participation in digital language communities influences their self-perceptions and attitudes toward language use (Harrison & Thomas, 2009). For example, learners who engage with native speakers in online discussion forums often perceive themselves as legitimate members of the target language community, reinforcing their linguistic confidence and investment (Kern, 2014). Conversely, experiences of marginalization—such as being excluded from online conversations due to perceived linguistic deficiencies—can negatively influence learners' identities and motivation (Kramsch & Zhu, 2020).

Social identity theory also accounts for the impact of anonymity and pseudonymity on identity construction in online spaces. Research indicates that learners often adopt alternative identities in digital interactions, allowing them to experiment with linguistic styles and personas without fear of judgment (Boyd, 2014). This flexibility can be empowering, enabling learners to engage more actively in language learning without the constraints of social expectations (De Costa & Norton, 2017). However, it also raises questions about authenticity and identity coherence, as learners navigate the tension between their online and offline selves (Sayer, 2015).

### **Critical Discourse Analysis and Identity Formation in Online Spaces**

Critical discourse analysis (CDA) examines how language is used to construct identity within power structures, ideologies, and sociopolitical contexts (Fairclough, 1995). In online language learning, CDA provides a lens for analyzing how digital discourse practices shape learners' identities and access to linguistic capital. One of the key contributions of CDA is its emphasis on language ideologies and power relations in digital spaces. Online language learning platforms are not neutral; they reflect broader societal attitudes toward language, accent, and linguistic authority (Blommaert, 2010). Studies have shown that learners often encounter linguistic hierarchies in online interactions, where certain language varieties are privileged over others, reinforcing existing social inequalities (Pennycook, 2012). For example, English learners on global platforms may face pressure to conform to native speaker norms, affecting their sense of linguistic legitimacy (Kachru, 2005).



Additionally, CDA highlights the role of digital discourse in identity construction. Online spaces such as social media, blogs, and discussion forums serve as sites where learners negotiate their linguistic identities through interaction (Gee, 2017). The ways in which learners frame their contributions—through linguistic choices, tone, and rhetorical strategies—shape how they are perceived within digital communities (Klitmøller & Lauring, 2013). This underscores the importance of critical literacy in online language learning, empowering learners to engage with digital discourse in ways that affirm their identities and challenge dominant narratives (Darvin & Norton, 2021).

Each of these theoretical perspectives—poststructuralist, sociocultural, social identity, and critical discourse analysis—offers valuable insights into identity construction in online language learning environments. Poststructuralist approaches highlight identity fluidity and investment, sociocultural theories emphasize mediated learning and communities of practice, social identity theory explains group affiliations and positioning, and critical discourse analysis uncovers the power dynamics shaping digital interactions. Together, these frameworks provide a comprehensive understanding of how learners construct, negotiate, and transform their identities in digital spaces, informing both research and pedagogical practice in online language education.

### **DIGITAL CONTEXTS FOR IDENTITY CONSTRUCTION IN LANGUAGE LEARNING**

The rise of digital technologies has significantly altered the landscape of language learning, providing learners with new platforms to construct, negotiate, and express their identities (Babayiğit, 2021; Çelik & Babayiğit, 2023b). Online spaces allow for dynamic, multimodal, and transnational interactions that shape linguistic self-concept and cultural affiliations. Various digital contexts—including social media, online learning platforms, multiplayer gaming environments, and user-generated content spaces—serve as arenas where learners engage in identity work. These environments afford unique opportunities for identity performance while also presenting challenges related to visibility, authenticity, and power dynamics. Understanding how language learners construct identity within these digital contexts is crucial for developing effective pedagogical approaches that acknowledge the complexities of online interaction.

### **Social Media and Language Learning**

Social media platforms such as Facebook, Twitter, WeChat, and Instagram have transformed how language learners engage with linguistic communities. Unlike traditional classroom settings, social media provides informal, participatory, and networked spaces where users can interact across geographical and cultural boundaries (Thorne, 2010). These interactions facilitate identity negotiation by enabling learners to align themselves with linguistic norms, perform cultural affiliations, and engage in self-presentation strategies that reflect their desired personas (Lee, 2019).

One key aspect of identity construction on social media is multilingual identity negotiation. Research has shown that language learners frequently engage in code-switching and translanguaging practices to navigate different linguistic and cultural contexts (García & Wei, 2014). For example, a study on WeChat interactions among Chinese-English bilinguals revealed that users strategically switch between languages to convey social belonging, assert authority, and manage in-group and out-group dynamics (Yuan, 2018). Similarly, English language learners on Facebook often adopt hybrid linguistic practices, blending vernacular expressions with academic discourse to align themselves with different social and professional groups (Darvin & Norton, 2015). These practices illustrate how social media allows for flexible and agentive identity construction in ways that are less constrained than traditional language learning environments.

Moreover, social media platforms afford visibility and audience control, which influence how learners present their linguistic identities (Boyd, 2014). The ability to curate content, edit posts, and selectively engage with different audiences enables learners to construct multiple, context-dependent identities (De Costa & Norton, 2017). However, this also introduces challenges related to authenticity and surveillance, as learners may feel pressure to conform to dominant linguistic norms or experience self-censorship in highly regulated online spaces (Kramsch & Zhu, 2020). Thus, while social media expands the possibilities for identity performance, it also reinforces existing social hierarchies and ideological constraints on language use.

### **Online Learning Platforms and Virtual Classrooms**

In addition to social media, formal online learning platforms such as Moodle, Coursera, and Zoom have become central to language education. These platforms facilitate structured learning experiences, often replicating traditional classroom dynamics in digital form. However, they also

introduce new dimensions of identity construction, particularly in relation to participation, engagement, and learner autonomy (Hampel & Stickler, 2015).

A significant aspect of identity construction in virtual classrooms is the shift from passive learners to active digital participants. In contrast to face-to-face instruction, online learning environments require students to engage in asynchronous discussions, collaborative projects, and multimodal interactions that shape their identities as language users (Kern, 2014). Studies have shown that learners who actively participate in online forums develop stronger linguistic confidence and a more robust sense of belonging within the language learning community (Harrison & Thomas, 2009). Conversely, those who remain passive or engage minimally in discussions may struggle with identity affirmation, often feeling isolated or disconnected from the learning experience (Lee, 2019).

Another key consideration in virtual classrooms is the role of anonymity and pseudonymity in identity performance. Many online learning platforms allow users to create digital profiles, enabling them to present themselves in ways that may differ from their offline identities (Sayer, 2015). This anonymity can be empowering, as it reduces the fear of judgment and encourages greater linguistic experimentation (Klitmøller & Lauring, 2013). However, it also raises questions about identity coherence and authenticity, as learners may adopt different personas in different digital contexts, leading to fragmented identity experiences (Kramsch & Zhu, 2020).

Furthermore, online learning platforms mediate institutional and pedagogical authority, which influences learners' identity positioning. The structured nature of these platforms often reinforces teacher-centered interactions, limiting the extent to which learners can exercise agency in identity construction (Darvin & Norton, 2021). Nonetheless, some platforms integrate peer-to-peer learning and collaborative knowledge production, offering opportunities for learners to assert their identities through discourse and engagement (Godwin-Jones, 2019). These interactions highlight the dual nature of virtual classrooms as both restrictive and enabling spaces for identity construction in language learning.

### **Multiplayer Gaming and Language Learning Communities**

Multiplayer gaming environments, including platforms such as World of Warcraft and Second Life, represent another significant digital context for identity construction in language learning. Unlike traditional learning settings, gaming spaces are immersive, interactive, and identity-driven,

allowing players to engage in real-time linguistic interactions while adopting virtual personas (Thorne et al., 2009).

A defining feature of identity construction in gaming communities is role-playing and avatar-based interaction. Studies have shown that language learners in multiplayer games often develop linguistic proficiency by embodying characters who require them to engage in meaningful communication (Sundqvist & Sylvén, 2016). This role-playing aspect enables learners to experiment with different identities, assume leadership roles, and practice language in authentic, goal-oriented contexts (Gee, 2007). Research on *Second Life*, for example, found that English language learners who participated in virtual exchanges developed greater confidence in using English due to the reduced social pressure of face-to-face interactions (Henderson et al., 2012).

Moreover, gaming environments facilitate situated learning, where identity and linguistic competence develop through engagement in community practices (Lave & Wenger, 1991). Players learn through participation, negotiation, and collaboration with others, reinforcing their identities as competent language users (Thorne, 2010). However, gaming spaces also introduce gendered and cultural biases, as certain identities may be privileged or marginalized within game narratives and player interactions (Sundqvist & Sylvén, 2016). These dynamics highlight the importance of critically examining power relations in digital identity construction.

#### Blogs, Wikis, and Fanfiction Spaces as Identity-Building Arenas

User-generated content platforms such as blogs, wikis, and fanfiction communities offer additional spaces for identity construction through writing and creative expression. These platforms enable learners to engage in authentic language production, allowing them to assert their linguistic identities beyond the constraints of formal education (Black, 2009). One of the most significant aspects of identity construction in these spaces is narrative self-presentation. Writing in digital spaces allows learners to create personal stories, engage in collaborative storytelling, and experiment with different voices and genres (Sunderland, 2020). Fanfiction communities, for example, have been found to foster linguistic creativity and multilingual engagement, as writers blend languages and cultural references to construct hybrid identities (Thorne et al., 2009). Furthermore, blogs and wikis promote peer interaction and feedback, reinforcing identity through social validation and community recognition (Lee, 2019). However, these platforms also pose challenges related to linguistic gatekeeping, as

contributors may face criticism or exclusion based on perceived language proficiency (Pennycook, 2012).

Each of these digital contexts—social media, virtual classrooms, gaming environments, and user-generated content platforms—plays a crucial role in shaping language learners' identities. While these spaces offer unique affordances for identity construction, they also introduce challenges related to power, authenticity, and inclusion. A nuanced understanding of these digital environments is essential for supporting learners in their linguistic and identity development, ensuring that online language learning remains an empowering and inclusive experience.

### **ARTIFICIAL INTELLIGENCE AND DIGITAL IDENTITY CONSTRUCTION**

Artificial Intelligence (AI) has become an increasingly prevalent mediator in digital language learning, influencing not only learners' linguistic development but also their identity construction in online environments. AI-driven language learning applications, such as ChatGPT, Duolingo, Grammarly, and speech recognition tools, facilitate interaction, provide feedback, and shape linguistic self-perception (Godwin-Jones, 2021). However, these tools often reinforce predefined linguistic norms, privileging standard language varieties while disregarding the fluid, hybrid, and context-dependent nature of language use (Blommaert, 2010; Pennycook, 2012).

For instance, AI-powered writing assistants like Grammarly evaluate user input based on rigid grammatical frameworks, often flagging non-standard English, dialectical variations, or creative translanguaging as "errors" (Lee, 2019). This prescriptive approach to language evaluation may result in linguistic insecurity, particularly for non-native speakers, bilinguals, or users of non-standard varieties such as African American Vernacular English (AAVE) or Spanglish (Darvin & Norton, 2021). By implicitly reinforcing a native-speakerist ideology, these AI tools construct and sustain linguistic hierarchies, shaping learners' perceptions of linguistic legitimacy and self-worth in digital learning environments (Kachru, 2005).

#### **Algorithmic Personalization and Digital Self-Presentation**

AI-based language learning tools often operate through adaptive learning algorithms, adjusting content and difficulty based on user performance. While personalization offers benefits, such as tailored vocabulary selection and grammar reinforcement, it also constructs and categorizes learner

identities based on predefined success metrics (Bender et al., 2021). AI-driven platforms segment users into skill levels, fluency bands, and error types, thereby influencing how learners perceive their progress and linguistic identity in comparison to standardized expectations (Kramsch & Zhu, 2020).

Moreover, AI-mediated feedback loops shape digital identity through repeated reinforcement. If a learner consistently receives corrective feedback on a particular syntactic structure, they may internalize a restrictive view of linguistic acceptability, leading to self-censorship and reduced experimentation with language (De Costa & Norton, 2017). This phenomenon is particularly relevant in AI-powered voice recognition software, which may struggle to process accents, dialects, or non-native intonation patterns, further marginalizing diverse linguistic identities (Blodgett et al., 2020). For example, studies show that speech recognition systems perform significantly worse for speakers with non-standard accents, leading to exclusionary experiences in AI-mediated communication (Xu, 2022).

### **AI, Digital Surveillance, and Linguistic Autonomy**

AI-driven language learning applications often collect extensive user data, tracking language patterns, interaction history, and engagement levels (Godwin-Jones, 2019). This datafication of language learning raises concerns regarding learner autonomy, privacy, and the commodification of linguistic identity (Pennycook, 2012). Platforms such as Duolingo and Busuu store user-generated responses, shaping the learner's digital linguistic footprint while also using this data to optimize AI-driven analytics (Lee, 2019).

Such practices raise questions about how AI-driven assessment and automated grading influence learner agency. If AI dictates which linguistic forms are "correct" or "acceptable," it limits students' ability to challenge dominant linguistic norms or assert alternative language identities (Darvin & Norton, 2021). Additionally, algorithmic bias in AI-generated translations (e.g., Google Translate's gendered language assignments) reflects deep-seated linguistic inequalities encoded into AI training data (Blodgett et al., 2020).

Furthermore, AI's predictive analytics and recommendation systems categorize learners based on engagement, influencing which linguistic materials are presented to them (Bender et al., 2021). In this sense, AI-driven filtering mechanisms create an invisible "linguistic curriculum," reinforcing

certain grammatical and lexical norms while suppressing others (Kramsch & Zhu, 2020). This subtle but powerful form of algorithmic governance dictates which linguistic identities are made visible and which are marginalized in digital learning spaces (Darvin & Norton, 2021).

### **Resisting AI Hegemony: Digital Agency and Counter-Narratives**

While AI has the potential to reinforce linguistic inequalities and identity constraints, it also offers opportunities for resistance and agency in digital language learning. AI-powered chatbots, interactive storytelling, and multimodal language applications allow learners to engage in creative, agentive identity performances beyond traditional classroom constraints (Sayer, 2015). For instance, studies on virtual exchange programs using AI-driven translation tools highlight how learners negotiate meaning and assert hybrid linguistic identities in cross-cultural interactions (O'Dowd, 2018).

Furthermore, AI-enhanced user-generated content platforms (e.g., YouTube captions, TikTok's speech-to-text) enable language learners to produce and disseminate digital narratives that reflect their linguistic and cultural identities (Gee, 2017). In these spaces, learners actively challenge dominant AI-driven language norms by incorporating translanguaging practices, multimodal storytelling, and non-standard varieties into their digital content (Pennycook, 2012).

Moreover, the emergence of AI ethics debates and bias-awareness movements in digital education has led to increased scrutiny of AI-driven language learning systems, pushing for more inclusive and culturally responsive AI models (Blodgett et al., 2020). By advocating for critical digital literacy and human-in-the-loop AI designs, educators and researchers can reclaim agency over how linguistic identities are shaped in AI-mediated environments (Godwin-Jones, 2021).

### **LANGUAGE IDENTITY IN BILINGUAL AND MULTILINGUAL ONLINE CONTEXTS**

In an increasingly interconnected digital world, online platforms serve as crucial spaces where bilingual and multilingual individuals negotiate and perform their linguistic identities. Unlike traditional language learning environments, where linguistic norms and expectations are often rigidly defined, digital spaces provide a more fluid and dynamic setting in which users can engage in code-switching, translanguaging, and hybrid language practices. These processes allow learners to assert agency over their linguistic repertoires, construct multimodal identities, and challenge

dominant language ideologies. This section explores the role of code-switching and hybrid language use in bilingual identity construction, as well as the ways in which learners navigate and perform linguistic identities through digital affordances.

### **Code-Switching and Hybrid Language Use**

One of the most prominent features of bilingual and multilingual communication in digital contexts is code-switching, the alternating use of two or more languages within a single discourse (Gumperz, 1982). Online environments, particularly social media and messaging platforms, facilitate code-switching as a means of self-expression, identity performance, and social alignment (Lee, 2019). Studies have shown that bilinguals strategically employ code-switching to align with different audiences, create social distance or intimacy, and construct hybrid identities that reflect their cultural and linguistic affiliations (Rafi, 2017).

In digital spaces, code-switching serves multiple identity functions. First, it allows users to mark ingroup and outgroup membership, signaling belonging to specific linguistic or cultural communities (Androutsopoulos, 2015). For instance, bilingual users on social media may switch between languages depending on their interlocutors, using one language for formal or professional interactions and another for personal or cultural expression (De Costa & Norton, 2017). Research on WhatsApp and WeChat interactions has revealed that bilingual speakers frequently engage in conversational code-switching to negotiate their social positioning and reinforce their linguistic identities (Yuan, 2018).

Additionally, digital platforms enable translanguaging, a process in which bilinguals fluidly draw on all their linguistic resources to communicate effectively (García & Li, 2014). Unlike traditional code-switching, which is often studied in terms of discrete language boundaries, translanguaging conceptualizes language use as a dynamic and integrated system. Online, translanguaging is particularly visible in user-generated content, where multilingual individuals seamlessly blend languages in tweets, status updates, and digital storytelling (Pasfield-Neofitou, 2011). This practice not only reflects the natural linguistic fluidity of bilingual speakers but also challenges the dominance of monolingual ideologies that are often reinforced in formal education settings (Wei, 2018).

The affordances of online platforms further shape how code-switching and translanguaging are used for identity construction. Features such as hashtags, emojis, and visual-text combinations allow users to layer multiple



languages and semiotic resources in their digital self-presentation (Lee, 2019). For example, studies of multilingual YouTube influencers have shown that their identity performances rely on a mix of linguistic and visual elements, strategically incorporating multiple languages to engage diverse audiences (Sunderland, 2020). These multimodal identity constructions highlight the agentic role of bilingual speakers in navigating and redefining linguistic norms in digital spaces (Darvin & Norton, 2021).

### **Identity Performance and Linguistic Repertoires in Online Contexts**

Beyond code-switching, online platforms offer bilingual and multilingual individuals new ways to construct and perform their identities through linguistic repertoires and digital affordances. Identity is not merely a reflection of language choice; rather, it is actively shaped by how users leverage the tools and modalities available in online spaces (Gee, 2017). Digital platforms provide interactive, multimodal, and customizable environments in which users engage in performative acts of identity, creating personas that align with different social contexts and linguistic affiliations (Kramsch & Zhu, 2020).

A key aspect of online identity performance is the ability to engage in multimodal discourse, where text, image, video, and audio are combined to create a cohesive self-presentation (Darvin & Norton, 2015). Research on digital literacy practices among bilingual youth has shown that online platforms enable learners to curate linguistic identities through personal blogs, vlogs, and collaborative writing communities (Black, 2009). In these spaces, language learners draw upon their full linguistic repertoires, integrating multiple languages into their content to signal cultural hybridity and transnational belonging (Thorne et al., 2009).

Digital affordances also play a crucial role in shaping learners' agency in navigating linguistic hybridity. Unlike face-to-face interactions, where language use is often constrained by social expectations, online platforms allow users to experiment with different linguistic identities without immediate judgment (Klitmøller & Lauring, 2013). For example, studies on multilingual TikTok users have highlighted how language learners use short-form videos to creatively mix languages, challenge linguistic hierarchies, and assert their legitimacy as speakers of multiple languages (Sayer, 2015). The performative nature of these digital interactions underscores the playful, dynamic, and agentic dimensions of bilingual identity construction in online spaces (Lee, 2019).

However, online identity performance is also shaped by power relations and digital gatekeeping mechanisms. While digital spaces allow for greater linguistic experimentation, they are not always neutral or inclusive. Certain linguistic varieties—particularly those associated with dominant languages—are often privileged, while minority or non-standard language practices may be marginalized (Pennycook, 2012). Research on online academic writing communities has shown that non-native English speakers often feel pressured to conform to native speaker norms, affecting their confidence and willingness to assert their linguistic identities (Kachru, 2005). Similarly, multilingual users on professional networking platforms like LinkedIn frequently adjust their linguistic self-presentation to align with institutional expectations, demonstrating the complex tensions between linguistic agency and social conformity in digital identity construction (Godwin-Jones, 2019).

Moreover, the algorithmic nature of online platforms influences how linguistic identities are represented and perceived. Social media algorithms prioritize certain language patterns, reinforcing dominant linguistic ideologies while making other forms of expression less visible (Blommaert, 2010). This has implications for linguistic representation and identity validation, as multilingual users may find their digital voices amplified or suppressed based on platform-specific affordances (Darvin & Norton, 2021). As a result, while online spaces offer significant opportunities for bilingual and multilingual identity construction, they also introduce new challenges related to visibility, authenticity, and social power (Kramsch & Zhu, 2020).

## **SOCIAL INTERACTION AND IDENTITY FORMATION IN ONLINE LANGUAGE LEARNING**

Social interaction is central to identity formation, particularly in online language learning environments where linguistic, cultural, and social affiliations are continuously negotiated. Unlike traditional classroom settings, online platforms afford learners greater flexibility in constructing and performing their identities through text-based, audiovisual, and multimodal interactions. However, digital environments also introduce challenges, as learners must navigate issues of anonymity, visibility, and community belonging. This section explores how identity is negotiated in online language learning communities, the role of peer networks in shaping linguistic identity, the affordances and constraints of online interaction, and

the impact of virtual exchange programs on learners' self-perception and engagement with the target language.

#### Negotiating Cultural and Linguistic Identities in Online Communities

Online language learning communities provide spaces where learners actively engage in identity negotiation, constructing their linguistic and cultural affiliations through interaction (Darvin & Norton, 2015). Unlike traditional face-to-face learning, where identity is often shaped by immediate social and institutional factors, online environments enable learners to experiment with different aspects of their identities in ways that may not be possible offline (Kramsch & Zhu, 2020).

In multilingual and multicultural online spaces, identity negotiation frequently involves positioning and alignment with linguistic norms. Research has shown that learners adapt their language use depending on the audience and context, strategically selecting linguistic forms that align with their desired self-presentation (De Costa & Norton, 2017). For example, in online discussion forums, English language learners may choose to adopt native-like grammatical structures and vocabulary to establish credibility, while in informal chat groups, they may engage in code-switching or translanguaging to assert their bilingual identities (Yuan, 2018).

Moreover, cultural identity is actively negotiated in online spaces where learners encounter diverse linguistic and ideological perspectives. Virtual communities often serve as transnational contact zones, where individuals bring different cultural assumptions and discursive practices into dialogue (Pennycook, 2012). Studies on online fan communities, for instance, have demonstrated how learners negotiate cultural belonging by adopting language styles, slang, and discourse conventions that align with specific digital subcultures (Black, 2009). These interactions illustrate how identity in online language learning is not only about linguistic competence but also about cultural navigation and self-representation (Thorne, 2010).

#### **The Role of Online Peer Networks in Shaping Linguistic Identity**

Peer interaction is a fundamental mechanism through which identity is constructed in online language learning. In digital spaces, learners form peer networks that provide linguistic scaffolding, social support, and opportunities for identity affirmation (Kern, 2014). Unlike traditional teacher-centered instruction, online peer interactions are often horizontal and reciprocal, allowing learners to co-construct their linguistic identities in a more egalitarian manner (Harrison & Thomas, 2009).

A key feature of online peer networks is identity validation through interaction. Research has shown that when learners receive positive feedback and engagement from their peers, they develop a stronger sense of belonging within the linguistic community (Sunderland, 2020). For example, in online writing communities, language learners often seek validation through likes, comments, and peer reviews, reinforcing their linguistic confidence and investment in language learning (Klitmøller & Lauring, 2013). Similarly, social media platforms provide spaces where learners engage in public self-presentation, shaping their linguistic identities through audience feedback and engagement (Lee, 2019).

Additionally, peer networks enable collective identity construction, as learners collaborate on projects; participate in discussions, and co-author texts. This is particularly evident in collaborative online learning environments, such as wikis and digital storytelling platforms, where learners negotiate meaning and identity through joint authorship (Godwin-Jones, 2019). Studies have shown that learners who engage in these collaborative activities develop a stronger sense of agency and ownership over their linguistic identities, as they actively contribute to the creation of digital content (Kramsch & Zhu, 2020).

### **Affordances and Constraints of Online Interaction for Identity Expression**

While online environments provide unique opportunities for identity construction, they also introduce constraints that shape how learners present themselves and interact with others. Three key factors—*anonymity*, *visibility*, and *persistence*—play a crucial role in influencing learners' identity performances in digital spaces (Boyd, 2014). *Anonymity* can be both empowering and limiting for language learners. On one hand, it allows individuals to experiment with different linguistic identities without fear of immediate social judgment, enabling greater risk-taking and linguistic exploration (Sayer, 2015). For example, research on anonymous language learning forums has shown that learners are more likely to participate actively and experiment with language use when their real-world identities are not immediately visible (De Costa & Norton, 2017). On the other hand, *anonymity* can also create barriers to authenticity and relational identity building, as interactions may lack the personal and social cues that foster meaningful connections (Klitmøller & Lauring, 2013).

*Visibility* in online interaction refers to how learners manage their self-presentation and audience engagement. Social media platforms, for

example, afford users control over their digital personas through profile customization, selective content sharing, and strategic language use (Darvin & Norton, 2021). However, visibility also brings challenges, as learners may feel pressure to conform to dominant linguistic norms or self-censor their identity performances to fit perceived expectations (Kramsch & Zhu, 2020).

Persistence refers to the lasting nature of digital interactions, where online texts, comments, and conversations remain accessible over time (Pennycook, 2012). This feature of digital communication influences how learners construct their linguistic identities, as they must consider how their language use will be perceived by future audiences (Godwin-Jones, 2019). For instance, in professional online spaces, learners may deliberately create their linguistic self-presentation to align with career aspirations, while in informal contexts; they may adopt a more fluid and playful approach to identity performance (Sunderland, 2020).

### **Identity and Participation in Virtual Exchange Programs**

Virtual exchange programs have emerged as a significant context for identity formation in online language learning. These programs, which facilitate cross-cultural and transnational interactions between learners in different countries, provide opportunities for identity negotiation in authentic communicative settings (O'Dowd, 2018). One of the primary ways in which virtual exchanges shape identity is through intercultural dialogue and linguistic negotiation. Unlike traditional language learning environments, where interactions are often classroom-based and teacher-led, virtual exchanges immerse learners in real-world communicative scenarios that require them to navigate cultural differences, adopt flexible linguistic strategies, and engage in identity positioning (Thorne et al., 2009).

Research on telecollaboration and online tandem learning has shown that learners who participate in virtual exchanges develop greater awareness of their linguistic selves, as they reflect on their own language use in comparison to their peers (Kern, 2014). Additionally, studies have found that virtual exchange participants frequently experience identity shifts, as they adopt new linguistic and cultural perspectives through sustained engagement with their exchange partners (Harrison & Thomas, 2009).

However, participation in virtual exchanges is also influenced by power dynamics and digital access inequalities. Not all learners have equal opportunities to engage in virtual exchanges, as factors such as internet accessibility, platform design, and institutional support shape the extent to which learners can fully participate in these programs (Pennycook, 2012).

Furthermore, issues of language dominance and native-speakerism may affect how learners perceive their own linguistic legitimacy within exchange interactions (Darvin & Norton, 2021).

### **POWER, AGENCY, AND RESISTANCE IN DIGITAL LANGUAGE LEARNING SPACES**

Digital language learning spaces are not neutral; they are embedded within broader social, political, and ideological structures that shape how learners construct and negotiate their identities. Power dynamics influence online communication, determining who has access to linguistic authority, which languages are legitimized, and how learners position themselves within digital communities. While online environments provide opportunities for marginalized learners to assert agency and resist dominant language ideologies, they also introduce new forms of surveillance, regulation, and control. This section examines how language ideologies and power dynamics operate in online communication, the ways in which marginalized learners navigate agency in digital spaces, the role of digital surveillance in shaping linguistic identity, and how learners exercise resistance in online language learning environments.

#### **Language Ideologies and Power Dynamics in Online Communication**

Language ideologies—beliefs about the social value and legitimacy of different languages and linguistic practices—play a crucial role in shaping online communication. Digital platforms are not merely neutral spaces for interaction; they reflect and reinforce existing linguistic hierarchies, privileging certain language varieties over others (Pennycook, 2012). The dominance of English in global online discourse, for example, has significant implications for linguistic identity construction, as learners must navigate expectations regarding linguistic purity, standardization, and native-speaker norms (Blommaert, 2010).

Studies have shown that online language learners frequently encounter gatekeeping mechanisms that regulate language use and participation in digital spaces. In academic and professional online communities, for instance, non-native English speakers often face implicit pressures to conform to standardized English norms, limiting their ability to express their multilingual identities (Kachru, 2005). Similarly, in online learning platforms such as MOOCs (Massive Open Online Courses), English is often positioned as the default medium of instruction, marginalizing speakers of

other languages and reinforcing linguistic hegemony (Darvin & Norton, 2021).

Moreover, platform algorithms and content moderation policies shape power dynamics in online communication. Social media platforms prioritize certain linguistic forms over others, often amplifying dominant language practices while suppressing marginalized voices (Godwin-Jones, 2019). Research has highlighted how minority language communities struggle for visibility in algorithm-driven digital spaces, as their linguistic expressions may be devalued or rendered less accessible by automated content filters (Lee, 2019). These dynamics illustrate how language ideologies are encoded into digital infrastructure, influencing how learners construct and negotiate their linguistic identities online.

### **Marginalized Identities and Online Agency**

For marginalized learners—such as women, ethnic minorities, and speakers of underrepresented languages—digital spaces present both challenges and opportunities for linguistic agency. While traditional language learning settings often reinforce hierarchical relationships between dominant and minoritized linguistic groups, online environments can provide alternative spaces for self-representation and empowerment (De Costa & Norton, 2017).

Gender plays a significant role in shaping online linguistic agency. Research has shown that female language learners often navigate complex gendered expectations in digital spaces, particularly in cultures where women's public language use is socially regulated (Sunderland, 2020). In online discussion forums, for example, female participants may employ hedging strategies, indirect language to mitigate potential criticism, while male participants tend to use more assertive, and authoritative discourse styles (Darvin & Norton, 2015). However, some studies suggest that digital platforms also offer women greater linguistic freedom, enabling them to construct identities that challenge offline gender norms (Kramsch & Zhu, 2020).

Ethnic and linguistic minorities similarly experience unequal power relations in online language learning. Speakers of indigenous or heritage languages often face linguistic marginalization in mainstream digital spaces, where their languages are either underrepresented or actively suppressed (Pennycook, 2012). However, digital platforms also provide opportunities for language revitalization and resistance. Studies on social media activism have shown that speakers of endangered languages use digital storytelling,

online campaigns, and virtual communities to reclaim linguistic and cultural identities that are marginalized in offline contexts (Harrison & Thomas, 2009). For example, indigenous language speakers on Twitter have engaged in hashtag activism, promoting linguistic diversity and challenging dominant language ideologies (Lee, 2019).

Additionally, multilingual users in digital spaces must navigate racialized language ideologies, where certain linguistic practices are stigmatized based on racial and ethnic identities (Wei, 2018). For instance, African American Vernacular English (AAVE) is frequently policed on online platforms, with users facing discrimination or content moderation when engaging in culturally specific linguistic practices (Godwin-Jones, 2019). These examples highlight how language intersects with race, gender, and social power in online identity formation, shaping learners' agency in digital language learning contexts.

### **Digital Surveillance and Online Linguistic Identity Control**

Digital spaces introduce new forms of surveillance and linguistic regulation, influencing how language learners present themselves and interact online. Institutions, governments, and platform administrators exert control over online discourse through algorithmic monitoring, censorship, and data tracking (Blommaert, 2010). These mechanisms influence learners' linguistic agency, restricting certain identity performances while privileging others.

A key concern in online language learning is institutional surveillance of student discourse. Many digital learning platforms implement automated plagiarism detection, AI-driven feedback, and behavioral tracking, which monitor students' language use and engagement patterns (Godwin-Jones, 2019). While these tools are often justified as mechanisms for maintaining academic integrity, they also shape learners' linguistic identities by discouraging risk-taking and non-standard language use (Kramsch & Zhu, 2020). Research has shown that students in online courses are more likely to engage in self-censorship, avoiding creative or hybrid linguistic expressions out of fear of algorithmic misinterpretation (Darvin & Norton, 2021).

Additionally, state and corporate surveillance plays a role in online linguistic identity regulation. Governments in some countries impose language policies on digital communication, restricting the use of minority languages and enforcing national language ideologies (Pennycook, 2012). For example, studies on WeChat have documented how political discourse



in non-dominant languages is frequently censored, limiting multilingual users' ability to express their full linguistic identities online (Yuan, 2018). Similarly, corporate platforms often moderate language use based on commercial interests, privileging languages that align with advertising and market demands while deprioritizing less economically valuable linguistic communities (Lee, 2019).

### **Learner Agency and Resistance in Online Language Learning Spaces**

Despite these constraints, online language learners actively exercise agency and resistance, challenging dominant language ideologies and negotiating alternative identity positions. Agency in digital language learning is not merely about compliance with linguistic norms but also about the ability to redefine, subvert, and reclaim linguistic identities in creative ways (Darvin & Norton, 2015).

One form of resistance involves deliberate linguistic innovation, where learners challenge prescriptive norms by engaging in hybrid, multimodal and playful language use. Research on youth digital literacy practices has shown that learners frequently employ memes, slang, and stylized spelling to construct identities that resist standardized linguistic expectations (Sunderland, 2020). These acts of creative resistance highlight how online language learners can subvert dominant ideologies through everyday digital practices (Kramsch & Zhu, 2020).

Additionally, online language learners resist linguistic hierarchies by forming counter-publics, creating spaces where marginalized language varieties can thrive (Pennycook, 2012). This is particularly evident in digital activism movements, where speakers of minoritized languages mobilize online communities to advocate for linguistic rights and inclusion (Godwin-Jones, 2019). These efforts demonstrate how learners assert their linguistic agency in ways that extend beyond individual identity construction, influencing broader social and political discourses.

## **CHALLENGES AND ETHICAL CONSIDERATIONS**

The increasing integration of digital platforms in language learning has provided greater accessibility, interactivity, and opportunities for identity negotiation. However, these advancements also introduce ethical concerns, particularly regarding privacy, data security, online harassment, and linguistic discrimination. As learners engage in multilingual and multicultural digital spaces, they face challenges related to data protection,

identity risks, cyberbullying, and the regulation of online discourse. Addressing these issues requires a critical examination of the ethical responsibilities of platform developers, educators, and researchers in ensuring safe and equitable learning environments.

One of the most pressing concerns is privacy and data security, as online learning platforms collect extensive user data, including personal information, linguistic interactions, and behavioral patterns (Godwin-Jones, 2019). While data-driven learning systems offer personalized feedback and adaptive learning experiences, they also expose users to risks such as unauthorized surveillance, algorithmic bias, and digital profiling (Darvin & Norton, 2021). Many learners engage in digital spaces without a clear understanding of how their personal data is stored or shared, often agreeing to terms of service that lack transparency (Pennycook, 2012). This raises ethical concerns about informed consent, user autonomy, and the commodification of learner data (Lee, 2019). In politically restrictive environments, online language learners may also face state surveillance or institutional monitoring, particularly when engaging in discussions in non-dominant languages or politically sensitive topics, posing threats to freedom of expression and digital safety (Blommaert, 2010; Yuan, 2018). Ensuring robust data protection policies and ethical guidelines is crucial for safeguarding learners' personal and linguistic identities in online learning environments (De Costa & Norton, 2017).

Beyond data security, cyberbullying, identity manipulation, and online harassment are significant challenges in digital language learning spaces. While online platforms foster collaboration and social interaction, they also expose learners—particularly those from marginalized linguistic backgrounds—to linguistic discrimination, exclusion, and negative stereotyping (Kramsch & Zhu, 2020). Cyberbullying can take various forms, including mocking linguistic errors, reinforcing native-speaker bias, and engaging in linguistic gatekeeping that pressures learners to conform to standardized language norms (Sunderland, 2020). Studies have shown that speakers of non-standard English varieties, such as African American Vernacular English (AAVE) and Global Englishes, often experience social exclusion and stigmatization in digital discussions (Blommaert, 2010; Kasap, 2021).

Additionally, trolling, hate speech, and identity manipulation contribute to the challenges learners face in multilingual online environments. Xenophobic, racist, and sexist discourse is prevalent in transnational digital communication, often targeting language learners based on their linguistic identities or cultural affiliations (Lee, 2019). These hostile interactions not only erode learners' confidence and agency but also lead to psychological distress and disengagement from online learning communities (De Costa & Norton, 2017). To counteract these challenges, digital platforms must implement effective content moderation policies, community guidelines, and digital citizenship training that promote inclusive and respectful online interactions (Godwin-Jones, 2019).

As online language learning continues to expand, addressing these ethical concerns is essential for fostering equitable, inclusive, and safe digital environments. Educators, platform developers, and researchers must critically engage with issues of privacy, security, and online discourse regulation to ensure that language learners can construct and express their identities without fear of discrimination, surveillance, or exclusion. Establishing clear ethical guidelines and integrating critical digital literacy into language education can empower learners to navigate digital spaces more securely and assertively. By prioritizing data protection, ethical pedagogies, and learner well-being, online language learning can become not only a site of linguistic development but also a space of identity affirmation, cultural exchange, and social empowerment.

## CONCLUSION

As digital platforms continue to shape the landscape of language learning, identity construction in online spaces remains a dynamic and evolving process. While digital environments offer learners opportunities for linguistic experimentation, social interaction, and multimodal self-expression, they also introduce ethical and pedagogical challenges that require careful consideration. The intersection of technology, language, and identity in online learning is complex, influenced by factors such as power dynamics, digital equity, surveillance, and emerging AI-driven language technologies (Cizrelioğulları et al., 2019). Addressing these issues is essential for ensuring that online language learning remains an inclusive, ethical, and empowering experience for all learners.

One of the most pressing concerns is the need for equitable access to digital language learning opportunities. Not all learners have equal access to technology, stable internet connections, or digital literacy skills, which creates barriers to participation and engagement (Godwin-Jones, 2019). Additionally, online platforms often reinforce linguistic hierarchies and algorithmic biases, privileging dominant language varieties while marginalizing non-standard linguistic practices (Pennycook, 2012). To create fair and inclusive online learning environments, educators and researchers must develop pedagogical frameworks that support multilingual identities, challenge linguistic gatekeeping, and promote digital literacy as a core component of language education.

Furthermore, ethical considerations in online learning and research must be at the forefront of future developments. Issues such as data privacy, informed consent, and AI-driven assessment tools raise concerns about learner autonomy, identity protection, and the standardization of language norms (Darvin & Norton, 2021). As AI and machine learning technologies become increasingly integrated into language learning platforms, there is a need for greater transparency, accountability, and inclusivity in their design and implementation (Kramsch & Zhu, 2020). AI-driven tools must be critically examined to ensure that they do not reinforce linguistic discrimination or limit learners' agency in shaping their digital linguistic identities (Blommaert, 2010).

Looking ahead, the future of online language learning and identity formation will be shaped by advancements in immersive technologies, AI-driven personalization, and global digital connectivity. Virtual and augmented reality (VR/AR) environments will continue to offer new spaces for embodied identity construction, where learners can interact with AI avatars, multilingual chatbots, and transnational language communities in real time (Godwin-Jones, 2019). However, these innovations must be accessible, ethically developed, and designed with inclusivity in mind to ensure that all learners—regardless of linguistic background or socioeconomic status—can participate fully in the digital language learning landscape (Lee, 2019).

Ultimately, the field of online language learning must continue to evolve in ways that empower diverse voices and foster meaningful identity development. Educators and researchers must advocate for critical digital literacy, ethical data practices, and learner-centered pedagogies that

prioritize agency, representation, and social justice in digital spaces. By fostering inclusive, equitable, and ethical online language learning environments, we can ensure that learners not only develop linguistic competence but also gain the confidence, autonomy, and digital skills needed to navigate the complexities of language and identity in an increasingly globalized world.

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# AI-ENHANCED GAMIFICATION IN LANGUAGE LEARNING

Fatma Zeynep Er, Bilal Karaca

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## Introduction

Gamification refers to the ability of individuals to think through the logic of games and internalize their skills to effectively use them in learning environments (Kiryakova, Angelova, & Yordanova, 2014). When the various definitions of gamification are evaluated from an educational perspective, it becomes clear that this approach enhances students' motivation, academic achievement, interest, and curiosity, while also supporting long-term retention of learning. Therefore, incorporating game design elements into educational processes is considered to be a well-founded and effective practice (Deterding et al., 2011; Richter, Raban & Rafaeli, 2015; Zichermann & Cunningham, 2011).

Gamification is a concept distinct from games and should not be confused with them. Although it does not involve a full-fledged game at its core, it incorporates game elements and mechanics such as levels, leaderboards, badges, and experience points, which are integrated into an instructional environment (Bunchball, 2010; Huotari & Hamari, 2012).

## The role of AI in modern education and its intersection with gamification

With the rapid advancement of technology today, innovative approaches such as artificial intelligence and gamification have gained significant importance in the field of education. Artificial intelligence enhances the learning process by offering personalized content tailored to students' individual learning styles, levels, and interests (Gültekin & Babayigit, 2023). It also supports teachers by enabling them to monitor student progress and intervene when necessary. Gamification, on the other hand, makes learning environments more enjoyable and motivating, increasing students' engagement and active participation. The integration of these two technologies creates a powerful system that provides real-time feedback, delivers engaging content focused on areas where students struggle, and makes the learning experience more effective, lasting, and meaningful (Gündüz & Akkoyunlu, 2020; Kapp, 2012).

## Gamification in Language Learning



Gamification enhances language learning by using game design elements to increase motivation and engagement, making the learning process more enjoyable. Components such as points, badges, leaderboards, and rewards encourage students to put forth effort and actively participate in their learning journey. Various studies have shown that gamified language learning applications boost motivation and achievement, especially among younger learners (Babayiğit, 2024; Babayiğit & Çelik, 2023). Additionally, online language games help improve students' grammar and vocabulary skills while fostering positive attitudes toward learning. Therefore, teachers who tailor gamification strategies to their students' levels, ages, and learning needs can significantly improve learning outcomes (Ofosu-Ampong, 2020; Hashim et al., 2019; Nah et al., 2014; Brewer et al., 2013; Thurairasu, 2022).

### **Theoretical Foundations of Gamification**

Understanding the theoretical foundations of gamification is essential for designing effective gamified systems. Gamification primarily focuses on behaviors driven by motivation, and its design is guided by various psychological and behavioral theories. These include ARCS Motivation Theory, Self-Determination Theory, Fogg Behavior Model, Social Learning Theory, and Flow Theory (Marangoz, 2024).

#### **ARCS Motivation Model**

Motivation is a key concept in game-related research and has significantly influenced studies on gamification, which is seen as a novel approach to enhancing student motivation in non-game contexts (Kapp, 2012; Sailer et al., 2017). It refers to an individual's desire to perform tasks or achieve goals (Keller, 2009). The ARCS model (Attention, Relevance, Confidence, Satisfaction) emphasizes the central role of motivation in education by aiming to capture students' attention, relate learning to their personal interests, build their confidence in completing tasks, and maintain high levels of satisfaction throughout the learning process (Keller, 2009).

#### **Self-Determination Theory (SDT)**

Motivation is a key concept in gamification, and one of the most referenced theories in this area is Ryan and Deci's Self-Determination Theory. This theory distinguishes between autonomous and controlled motivation; autonomous motivation occurs when individuals act out of their own will, while controlled motivation involves actions driven by external pressure or rewards. Intrinsic motivation stems from genuine interest in the activity, whereas extrinsic motivation is based on external rewards or

avoidance of punishment. The theory also emphasizes that motivation increases when individuals' basic psychological needs for autonomy, competence, and relatedness are satisfied (Deci, Olafsen, & Ryan, 2017; Ryan & Deci, 2000).

### **The Fogg Behavior Model**

The Fogg Behavior Model asserts that for a behavior to occur, motivation, ability, and a trigger must be present simultaneously (Fogg, 2009; Berber, 2018). Motivation plays a critical affective role in learning as it supports and drives cognitive processes (Schunk et al., 2014). If one of these three elements is missing, the desired behavior may not happen, which is why gamification design should be continuously reviewed through this lens (Fogg, 2009; Xu, 2011). When learners enjoy meaningful online learning experiences, they are more likely to engage, take initiative, act, and set as well as achieve relevant goals.

### **Social Learning Theory**

Bandura's (1977) Social Learning Theory emphasizes that human behavior is learned through observing and imitating others, shaped by both environmental and personal factors. People are more likely to model the behaviors of individuals who are similar to them in age, gender, race, or social status, or those perceived as successful or high-status. A core principle of the theory is that individuals are not passive observers, but active processors of the behaviors they witness (Pratt et al., 2010; Kasap, 2021). Bandura also argued that observational learning can occur even without reinforcement, allowing individuals to acquire new behaviors simply by watching others.

### **Flow Theory**

The Flow Model suggests that intrinsic motivation peaks when there is a balance between a person's skills and the difficulty level of the task they face (Csikszentmihalyi & Rathunde, 2014). If the task is too challenging, anxiety occurs; if it is too easy, boredom arises, both of which may lead to abandoning the task. Therefore, maintaining a balance between an individual's abilities and the challenges encountered during gamification is crucial for sustaining engagement (Kapp, 2012).

## **Key gamification elements**

### **Points**

The point system is a crucial tool for indicating students' achievement levels and progress. Points can function both as rewards and as indicators of advancement or ranking among peers. In some educational digital games, Experience Points (XP) are earned by completing tasks, while other systems use in-game currency equivalents. In academic settings, such points can also be interpreted similarly to credit systems (Kumar & Khurana, 2012).

### **Leaderboards**

Leaderboards promote healthy competition among students and serve as a motivating tool. Typically, they display the names and achievements of the highest-scoring students. However, in order to prevent demotivation among those with lower scores, only the top 5 or 10 students are usually shown (O'Donovan, Gain, & Marais, 2013; Nah et al., 2014).

### **Badges**

Badges are visual symbols that indicate the completion of specific achievements or tasks. They help sustain students' motivation during the learning process and encourage participation in future learning activities (Nah et al., 2014).

### **Levels**

The level system allows learners to feel a sense of progression throughout the learning process. Initial levels are typically easier and completed more quickly, while higher levels demand more knowledge and skills. This structure gives students a sense of reward upon completing tasks or activities; however, such progression does not always translate directly into measurable learning gains (Goehle, 2013).

### **Challenges**

Challenges are motivating tasks designed to help students achieve specific learning goals. When crafted with an appropriate level of difficulty, they not only capture learners' interest but also promote deeper engagement with the content (Werbach & Hunter, 2012).

## **AI in Education**

In recent years, the use of artificial intelligence (AI) in education has gained increasing significance, playing a supportive role by assisting teachers and enhancing learners' experiences (How & Hung, 2019).

However, despite this growing importance, educational applications of AI still occupy a relatively small space in the academic literature (Tahiru, 2021).

Artificial intelligence is driving significant transformations not only in our social interactions but also in the field of education by enabling new teaching and learning solutions. Among the most common AI applications in education are intelligent tutoring systems (ITS), adaptive learning environments, and recommendation systems. ITS aim to enhance learning by simulating a human tutor using AI techniques to provide personalized support to learners (Hasanov, Laine, & Chung, 2019). Recommendation systems are software tools that offer suggestions for potentially useful items based on machine learning and information retrieval methods (Syed & Zoga, 2018). Adaptive learning environments create individualized learning experiences by modeling learners' characteristics and addressing their specific needs (Somyürek, 2009).

### **AI-driven personalized learning models**

AI-supported personalized learning aims to adapt educational processes to each student's individual needs, interests, and learning pace, thereby enhancing academic achievement (Patrick et al., 2013; Pane et al., 2015). By analyzing student data, AI technologies can offer tailored content and provide teachers with real-time feedback to support instruction (Zawacki-Richter et al., 2019; Luckin et al., 2016). This approach contributes to the development of 21st-century skills such as critical thinking and problem-solving (Bates, 2015; Roll & Wylie, 2016). Platforms like Carnegie Learning's *Cognitive Tutor*, Squirrel AI in China, and Knewton in Europe exemplify the effective use of AI-driven personalized learning across the globe (Koedinger & Corbett, 2006; Huang & Soman, 2013). Thus, AI-based systems help make learning more personalized and scalable (Holmes et al., 2019).

### **The Convergence of AI and Gamification**

Today, artificial intelligence and gamification technologies stand out as innovative and effective approaches in education. Artificial intelligence personalizes learning by considering students' individual learning speeds and styles, thereby making the learning process more efficient. On the other hand, gamification adds elements of fun and competition to learning, increasing student motivation and encouraging more active participation in lessons. The combination of these two technologies allows students to receive immediate feedback on their weak areas, making the learning

experience both more effective and enjoyable. Research shows that AI-supported gamified learning environments promote long-lasting learning and improve student achievement (Gündüz & Akkoyunlu, 2020; Kapp, 2012).

### **AI-enhanced gamification as a means to individualize learning**

The combination of artificial intelligence and gamification has the potential to provide personalized and adaptive learning experiences, enhancing student motivation and engagement. AI can tailor learning to individual student needs by offering real-time feedback and monitoring progress. Gamification makes the learning process more enjoyable, encouraging active participation and boosting motivation. Integrating these two technologies can transform education into a more effective, efficient, and enjoyable experience, leading to significant advancements in the field (Kapp, 2012; Gündüz,2022).

### **The impact of AI-generated feedback and real-time adaptation on language acquisition**

AI-based language learning applications accelerate the learning process by providing students with immediate feedback. These technologies quickly identify and correct grammar, spelling, and style errors, enabling students to recognize and improve their mistakes faster. Additionally, AI tools offer teachers detailed insights into student performance, allowing timely and targeted interventions. Studies by Burstein and Marcu (2003) demonstrate that AI systems accurately detect grammar and writing errors. Applications like Grammarly and WriteToLearn support real-time learning by instantly correcting students' written work (Şimşek, 2025).

### **AI Technologies in Gamified Language Learning**

Artificial intelligence is an effective tool for increasing student motivation by incorporating gamification elements into language learning processes. It is noted that AI-powered gamified language learning applications help students engage more actively in their learning. Gamification methods encourage students to take a more active role in the language acquisition process. For example, AI-based applications like Duolingo reward users with tasks, making learning more enjoyable. These approaches are particularly useful for capturing the attention of young learners and boosting their participation in the learning process (Şimşek,2025).

## **Adaptive Learning Systems**

Adaptive learning systems have brought significant innovations to education by offering personalized learning paths tailored to students' pace and needs. AI algorithms customize assessments and provide continuous, targeted feedback to support learners effectively. These personalized approaches adjust content and learning speed according to individual needs, thereby enhancing educational efficiency (Vanbecelaere et al., 2020; Rukadikar & Khandelwal, 2023).

## **AI-Powered Chatbots and Virtual Tutors**

AI-powered chatbots serve as effective virtual conversation partners to help students improve their language skills. Kazakova et al. (2019) demonstrated that these technologies play a significant role in enhancing communication abilities. Additionally, Kerly, Hall, and Bull (2007) found that students gain more confidence in speaking by practicing language in low-pressure environments. Such virtual practice sessions contribute greatly to boosting language learners' self-confidence (Kazakova et al., 2019; Kerly, Hall & Bull, 2007)

## **Natural Language Processing (NLP) in Gamification**

Natural Language Processing (NLP) is one of the most promising applications of artificial intelligence in education. NLP refers to the ability of computer systems to understand, interpret, and generate human language. While it is widely used across many industries today, it also holds a significant place in the field of education. NLP applications in education can be used to enhance the quality of learning materials, assess student performance, and support teachers in optimizing their instructional practices (Gündüz,2022).

## **AI's role in grammar correction, vocabulary enhancement, and pronunciation feedback**

AI-powered NLP tools assist students in improving their writing skills by providing real-time feedback on grammar, spelling, and punctuation. These tools also support the development of critical thinking by analyzing and evaluating arguments and evidence. Educators can better understand student learning and engagement by analyzing natural language data such as essays and social media posts (Owan et al., 2023).

## **AI-powered voice recognition for speaking practice**

Speech recognition technology, as one of the most effective applications of artificial intelligence, enables students to improve their pronunciation skills and receive immediate feedback. Platforms like Stone analyze students' spoken words and provide feedback on correct pronunciation (Van der Walt & Olivier, 2015). Sokolova et al. (2020) emphasized that AI-powered speech recognition is an effective tool in pronunciation training and accelerates the learning process. Additionally, these systems boost motivation, particularly in spoken language learning, supporting overall language acquisition (Hsu & Barrett, 2020).

### **Case Studies: AI-Enhanced Gamified Language Learning Platforms**

#### **Duolingo**

Bahjet Essa Ahmed (2016) highlighted that Duolingo is an effective tool for motivating beginners in second language learning, helping them stay engaged throughout the process. However, the study emphasized the need for Duolingo to expand its vocabulary range, grammar explanations, and especially its English content, given its global role. The authors also suggested that Duolingo should not rely solely on the Direct Translation Method but incorporate additional visual aids. Overall, the app's game-like structure makes it enjoyable for learners, supporting its integration into educational settings.

#### **Memrise**

Aminatun and Oktaviani (2019) found that using online learning tools like Memrise can significantly enhance students' motivation and engagement, particularly in English for Business classes. Students reported that Memrise improved their vocabulary knowledge, reducing their dependence on dictionaries and making learning easier. Despite minor inconveniences, learners appreciated the app's accessibility and its point-based system, which fostered independent and self-directed learning. Overall, Memrise supports both vocabulary development and the cultivation of autonomous learning habits.

#### **Kahoot**

Şad and Özer (2019) conducted a small-scale case study demonstrating that digital tools like Kahoot can be highly effective for formative assessment, leading to positive educational, practical, and emotional outcomes. When enhanced with gamification elements, these tools foster

engagement and motivation through a sense of competition and support retention through repeated assessments. However, challenges often arise not from the tools themselves but from educators' lack of training, experience, or awareness in implementing them effectively. Therefore, teacher trainers are encouraged to model the integration of such technologies to better equip future educators.

### **Mondly**

Hajizadeh, Salman, and Ebadi (2015) examined the effectiveness of the Mondly language learning application in EFL contexts, highlighting its potential as a supportive tool both inside and outside the classroom. Their study found that Mondly creates a multimodal, student-centered learning environment that promotes learner autonomy and real-life language use, although its limited social interaction and reliance on L1 suggest connections to the grammar-translation method. While it incorporates aspects of repetition and real-world scenarios, the lack of collaborative tasks and VR capabilities in the non-VR version restricts its alignment with constructivist learning principles. The authors recommend further research, especially into the VR version, to better understand Mondly's full potential in authentic and interactive learning settings.



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# THE IMPACT OF TECHNOLOGY ON LANGUAGE COMMUNICATION

Mehmet Veysi Babayiğit

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## Introduction

Language is regarded as one of the most fundamental cognitive and cultural tools of humanity since it not only enables communication but also holds a vital role in shaping thought, constructing identity, and preserving cultural heritage. Thanks to the functions of language, individuals express their internal world, participate in social life, and transfer knowledge across generations. As a symbolic system, language both reflects and influences human cognition and behaviour, being an essential component of human evolution, social organization, and learning. Its dynamic nature allows it to adapt over time, evolving alongside the societies it serves.

The current studies reveal that language is not merely a medium of communication but a key driver of human evolution, cognitive development, and social interaction (Durga & Mehrotra, 2022). Also, the continuous development of language, including the formation of new words, impacts both cultural and linguistic structures in parallel (Babayiğit & Çelik, 2025; Karaia, 2019). According to Smolii et al. (2021), values, which function as semantic determinants of human consciousness, are intrinsically connected to language; through this connection, individuals comprehend their existence and are able to ascribe meaning to life; therefore, language-based communication is crucial for human survival and distinguishes humans from other species because the human ability to inherit ancestral languages from birth while also adapting to new ones reflects a unique cognitive flexibility that underpins the evolution of the species (Durga & Mehrotra, 2022). In addition, there are numerous terms and definitions pertaining to the use of a particular language and its functional effects on a society's role in employing it. To begin, language serves as a vital instrument for initiating and maintaining human-to-human communication (Babayiğit, 2021; Babayiğit & Çelik, 2023; Çelik, 2022; Gültekin, 2022). According to Onan (2005), language is a systematic human capacity made up of forms, meaning, and sound. Language is also believed to be a series of signs made up of ideas (Saussure, 2001). According to Sanusi (2001),

language serves multiple purposes, including regulating social interaction (phatic communication), fulfilling ceremonial and ritualistic functions, acting as a tool for performing actions, maintaining records, transmitting instructions and information, persuading others, enabling personal expression, and facilitating the formulation and articulation of thought, who also specifies language's communicative and transferring role. Thus, language holds a mediating role in oral interaction manners.

In contemporary society, language functions not only as a means of communication but also as a carrier of cultural identity, a tool for thought, and a medium for social interaction. With the rapid advancement of technology and the widespread use of digital platforms, the structure, function, and usage of language have undergone significant transformation. Instant access to information, multimodal communication, and algorithm-driven discourse have reshaped how individuals express themselves, connect with others, and engage with their environments. Traditional communicative forms have increasingly become inadequate in meeting the dynamic needs of digitally immersed individuals, leading to new linguistic patterns and communicative behaviours in all over the modern world. These changes raise crucial questions about the future of language, its expressive capacity, its role in maintaining human connection and its dissemination in overseas communication and language learning / teaching. In this context, the purpose of this study is to critically examine the impact of technology on language communication, with particular attention to how technological innovations influence linguistic practices, reshape communicative norms, and affect the depth and quality of human interaction.

### **A Historical Overview of Language, Communication and Technology**

Human communication has evolved over thousands of years, beginning with non-verbal signs and gradually developing into complex language systems; thus, it may be claimed that there is a huge process of integration among language, communication and technology; however, this process never ends up and always continues dynamically. Also, throughout the history, human beings have employed various techniques and approaches to express themselves and build sustainable social structures. Milestones such as the rise of oral traditions, the invention of writing, and the emergence of print technology have each transformed the way knowledge is shared and preserved. These developments laid the groundwork for the modern era of

mass communication, where technological advancements continue to reshape how we use and understand language.

The emergence and dissemination of language within communication is immense and divine; therefore, it is not possible to come up with an accurate theory and definition since many assertions have been conducted and uttered in various civilizations. Firstly, it is claimed that the evolution of human communication spans millennia, beginning with non-verbal expressions such as gestures and body language, later giving way to complex language systems enabling symbolic thought, collective memory, and advanced cooperation (Sharma, 2013; Manusia et al., 2023). As *Homo sapiens* gradually developed advanced cognitive functions such as abstract reasoning, symbolic representation, and the construction of imagined realities, the language started evolving not merely as a communicative tool but as a fundamental mechanism for the transmission of cultural knowledge, the coordination of social behaviour, and the preservation of collective memory essential for long-term group survival and societal complexity (Donald, 1993). Some similar studies have pinpointed the same aspects about this evolution, and it is claimed that throughout history, communication methods have progressed from oral traditions to written scripts, culminating in revolutionary technologies such as the printing press and, more recently, digital platforms (Hauser, 1996; Nguyen, 2015). The ability to communicate through text facilitated the rise of a “metasociety”, where the preservation and dissemination of knowledge reshaped both individual identity and collective cultural perception (Margerm, 1998). In the context of mass communication, language functions not only as a medium but also as a message structured by institutional norms, professional standards, and technological platforms (Onyejelem, 2018). While mainstream media adopts standardized and depersonalized forms of expression, participatory spaces like blogs and citizen journalism reintroduce everyday linguistic features and enable critical discourse. These transformations reflect broader shifts in the psychodynamics of communication, where each technological innovation alters how text and image are perceived, interpreted, and embedded into societal structures. As such, the historical trajectory of language communication reveals enduring patterns in human response to technological change and offers insight into the cultural and pragmatic implications of new literacy forms.

In sum, the historical trajectory of language and communication is rather immense and a deep analysis is entailed for the descriptive evolution; on the other the hand, the overview reveals that it is possible to observe a dynamic interplay between human cognition, cultural evolution, and technological innovation since it holds a wide range from early non-verbal expressions to digitally mediated discourse, and each step holds significant roles in conveying and constructing meaning in a certain society; therefore, understanding these developments offers critical insight into the ongoing impact of emerging technologies on language use, literacy, and human interaction.

### **Technological Innovations in Modern Communication**

The evolution of communication has experienced various stages historically that is why it is not surprising that the landscape of communication has undergone profound changes. Rapid technological advancements, fundamentally altering how information is produced, shared, and consumed, hold a crucial role on this transformation. Also, traditional methods of information dissemination, such as blackboards or oral instruction, have given way to sophisticated digital technologies including the Internet, multimedia systems, and satellite broadcasting since human beings are able to adopt the new perspectives easily. These innovations have modernized education and mass communication worldwide, embedding connectivity and interactivity into daily life. Thus, it may be claimed that the integration of such technologies in educational settings and media platforms demonstrates a clear shift towards a more digitally interconnected and media-rich environment, redefining the processes of learning and communication. It also helps learner to gain proficiency in the target language efficiently via multiple digital tools.

Among these technological tools or developments, the Internet and social media stand out as pivotal platforms transforming language use and social interaction on a global scale. Technological advancements in communication have evolved from primitive writing to modern digital systems. The development of electronic communication began with telegraphy, followed by radio and television, and the advent of computers and the Internet revolutionized mass communication, enabling unprecedented possibilities (Onyejelem, 2018). These are rather immersive communicative tools for language and cultural development of human beings. Besides, the Internet connects billions of users instantaneously,

providing unprecedented opportunities for information exchange and cultural diffusion that is why it has especially influenced the spread and learning of English as a second language, expanding its domains of use among non-native speakers and facilitating constant engagement with digital content (Sha & Pathan, 2018). Social media platforms serve as interactive communication hubs where knowledge, entertainment, and personal expression converge. However, these platforms also present challenges regarding language standardization, as informal and sometimes incorrect language use becomes normalized. Despite the proliferation of grammar errors and slang in online communication, efforts to maintain linguistic accuracy through blogs, e-papers, and social media groups coexist with the casual nature of these exchanges. Still, language learners are able to boost their language capacity to a certain extent without getting professional support.

In parallel, mobile communication technologies have revolutionized accessibility and connectivity, integrating multiple media functions into single handheld devices, and thus, mobile phones serve not only for voice communication but also for video calls, messaging, and media consumption, becoming indispensable in daily life. This multifunctionality has accelerated the diffusion of communication technologies and reshaped social networks (Kim & Mitomo, 2006). This is also rather practical for supporting language learning as human beings can easily access digital tools for language learning and create a social environment for communicating the target language with natives. In addition, these advancements have led to significant changes in organizational communication, minimizing the impact of time and place (Herschel & Andrews, 1997). Digital communication technologies encompass various modulation techniques, error correction methods, and recent innovations such as graphene technology and underwater acoustic communication (Ramola, 2014), and these advancements are anticipated to significantly contribute to improving both the proficiency and practical application of skills in target language learning by providing more efficient, reliable, and immersive communication environments. The convergence of cloud computing, mobile devices, and wireless technologies is fundamentally transforming the architecture and functionality of information and telecommunication systems, thereby shaping the trajectory of future communication infrastructures (Park, 2013), and it is well known that this technological integration facilitates ubiquitous access to language learning resources and

real-time communication platforms, enabling learners to engage with authentic linguistic input anytime and anywhere; thus, it supports personalized learning experiences, fosters interaction across diverse linguistic communities, and accelerates language acquisition and proficiency development by overcoming traditional barriers of time and location.

While these advancements offer numerous benefits, they also present ethical challenges in business contexts, emphasizing the importance of responsible use of technology; therefore, when the technology is employed properly, the goals for learning the target language may be accomplished successfully. Another important aspect of technology is artificial intelligence (AI) which has emerged as a transformative force, extending its role from task automation to facilitating sophisticated interpersonal communication (Çelik & Babayiğit, 2023; Gültekin & Babayiğit, 2023). Although there are some concerns regarding AI's emotional authenticity and cognitive capacities, AI agents are progressively advancing in their ability to simulate social interactions and dynamically adapt conversational strategies to enhance user experience, and this development contains a prosperous future in which the boundaries between human and AI communication may become increasingly indistinct, raising important questions about the nature of interaction, agency, and the evolving role of artificial intelligence in communicative contexts (Fu et al., 2023; Gunkel, 2012). Additionally, these advancements trigger significant potential for language learning and development, as AI-driven communication tools may provide personalized feedback, facilitate immersive conversational practice, and create adaptive learning environments responding to individual learners' needs, thereby accelerating language learning and proficiency. Thanks to AI, human beings may develop their language capacity via gaining awareness for mutual communication and diminishing overall language learning barriers.

In conclusion, technological advancements in communication, from the rise of digital broadcasting and social media to the integration of mobile technologies and artificial intelligence, have collectively redefined the modes and norms of human interaction. These innovations present both opportunities and challenges, demanding continuous adaptation from users and institutions alike. Understanding the evolving landscape of



communication technology is crucial for harnessing its benefits while addressing its sociolinguistic and ethical implications.

### **Technological Influences on Language Structure and Use**

Language, as a dynamic and adaptive system, has always evolved in response to historical, social, and technological changes. In recent decades, the scope of this system has accelerated dramatically due to the proliferation of digital technologies. As communication has shifted from face-to-face interaction and traditional writing to instantaneous digital messaging, new forms of discourse, vocabulary, and grammar have emerged, and this transformation has led to ongoing debates: while some scholars argue that technology diminishes linguistic richness and standard norms, others view it as a catalyst for innovation in language use and learning (Eisenlohr, 2004). Regardless of position, it is undeniable that the intersection between technology and language has redefined how humans express, interpret, and transmit meaning in the digital age.

The widespread adoption of digital communication tools such as e-mails, SMS, instant messaging, and social media platforms has introduced significant changes to both the structure and use of language. The role of technology on language teaching and learning is immense as it has affected language not only by creating new genres of communication, but also by reshaping vocabulary, syntax, and pragmatic norms. As Ebner (2017) observes, the global circulation of digital content has resulted in the emergence of new lexicons and genre-specific styles, often shaped by the functional and aesthetic demands of virtual discourse environments. Fillers, abbreviations, emojis, and hashtags function as digital markers of tone, emphasis, or emotional stance, often compensating for the absence of non-verbal cues in text-based interactions. At the same time, these changes may contribute to misunderstandings, as meaning becomes more context-dependent and less stable in written exchanges. Furthermore, scholars such as Hamzah et al. (2009) highlight that modern computer-mediated communication has fundamentally transformed the grammar and syntax of written discourse, especially among young users who rely heavily on e-mails and SMS. While digital communication tools offer efficiency and accessibility, they also prompt concerns among educators and linguists regarding the erosion of formal writing skills and increased cognitive demands during the revision process (Eleyana Abdullah et al., 2022). Husaj (2014) emphasizes that although technology enriches language through

expanded access to vocabulary and multimodal learning materials, it also risks displacing native linguistic forms and promoting hybridized registers that deviate from standard norms. This duality between innovation and degradation lies at the heart of scholarly discourse on the technological mediation of language evolution.

It may be concluded that the continuous integration of technology into daily communication practices has resulted in profound transformations in how language is structured, learned, and experienced. While it opens new paths for linguistic creativity and accessibility, it also necessitates critical awareness of the cognitive, cultural, and educational implications it brings. Further research and pedagogy should balance innovation with linguistic integrity, ensuring that digital fluency coexists with language proficiency.

### **Digital Mediation and the Transformation of Interpersonal Communication**

In the digital age, interpersonal communication has undergone profound changes driven by the rapid evolution of communication technologies. From the telegraph to smartphones, the ways individuals connect, share, and respond to each other have continually adapted to technological affordances. Besides, modern societies have shifted from traditional face-to-face interactions to digital-first exchanges where immediacy and convenience often take precedence over emotional depth and contextual richness (Ünsal, 2021); therefore, platforms such as instant messaging, video calls, and social media have redefined the temporal and spatial boundaries of communication, shaping a new culture of connectivity where constant availability is often expected. Yet, this transformation also raises critical questions about the quality, authenticity, and implications of digitally mediated human interaction.

A significant area of concern lies in the comparison between digital communication and traditional face-to-face exchanges. While digital tools such as texting, video calls, and social media provide accessibility and efficiency, they can reduce the spontaneity and emotional nuance present in physical conversations. As Corbett (2017) notes, the shift toward text messaging and digital media has simplified interpersonal connections but at the cost of diminished personal engagement and communicative depth. Similarly, it may be claimed that digital dialogues lack the richness of nonverbal cues, body language, and conversational tangents that naturally arise in in-person interactions, and even platforms like Skype and Zoom,

which attempt to replicate face-to-face communication, often produce artificial and fragmented experiences, as users focus on screens rather than physical presence. Moreover, the increased reliance on emojis and GIFs to compensate for missing emotional tone introduces both benefits and ambiguities. Holtgraves and Robinson (2020) also highlight that emojis can enhance message clarity when intent is ambiguous, yet they are not universally effective and may still result in misinterpretation. Singh & Singh (2019) point out that even when sentiment-matching emojis are used, a significant portion of recipients interpret the communication as emotionally neutral, particularly when there is no prior interpersonal context. These findings suggest that while digital affordances offer communicative versatility, they also complicate the accurate conveyance and reception of emotional intent.

Digital technologies have undeniably expanded the range and immediacy of interpersonal communication, facilitating global and instantaneous interaction. However, these benefits come with trade-offs in emotional clarity, personal engagement, and interpretive accuracy. As society becomes increasingly dependent on technologically mediated interactions, it is essential to critically evaluate not only the tools we use, but also the communicative habits and expectations they foster.

### **Integrating Technology into Language Education: Platforms, Applications, and Pedagogical Implications**

In the contemporary digital age, technology has become an indispensable tool across all domains, including education (Gültekin & Babayiğit, 2023). The integration of digital technologies into language learning represents one of the most transformative developments in pedagogy. From online platforms to smartphone applications, learners are able to access language input and interaction beyond traditional classroom settings, and this lets them expand their exposure, autonomy, and engagement with the target language (Gültekin & Filiz, 2022). However, while digital innovations offer unprecedented opportunities, they may also raise questions about learner motivation, overreliance on automated tools, and the pedagogical soundness of certain practices (Tanhan et al., 2022). The challenge lies not only in adopting these tools but also in critically evaluating their impact on language development and instructional effectiveness.

Online language learning platforms offer structured and flexible learning environments that support various language skills, including reading,

writing, listening, and speaking. These platforms often include multimedia content, interactive exercises, adaptive feedback systems, and asynchronous discussion forums, all of which contribute to learner autonomy and motivation. Husaj (2014) pinpoints that although technology enhances convenience in language education, the purpose should not be to replace teacher roles or rely heavily on automatic translation tools, as these may reduce students' intrinsic interest and cognitive engagement. When platforms are used as supplements rather than replacements, learners are more likely to remain invested in the learning process. According to Eleyana Abdullah et al. (2023), online platforms are efficient when they promote openness, learner preparedness, and active participation, rather than merely delivering content; therefore, the pedagogical design of these systems holds a key role in shaping language outcomes, and platforms encompassing authentic tasks, scaffolding challenges, and immediate feedback tend to yield better results in terms of learner satisfaction and long-term retention. Additionally, digital education fosters critical thinking and research skills when learners are guided to navigate vast online resources meaningfully, distinguishing credible language input from irrelevant or inaccurate materials.

Also, language learning platforms, particularly those accessed through smartphones, offer personalized and context-aware learning experiences catering to diverse learning styles. Godwin-Jones (2011) claims that modern smartphones, equipped with AI technologies, voice recognition, and roaming capabilities, let learners hold roles in speaking, listening, reading, and writing practices in real time within a variety of social and educational settings, and Procel et al. (2024) believe that online platforms or applications typically provide vocabulary games, pronunciation guides, conversation simulators, and grammar correction tools, all of which can adapt to individual proficiency levels. For example, pre-recorded teacher voices or AI-generated audio content allow learners to improve their listening comprehension through repeated exposure, while gamified learning environments enhance motivation and engagement by offering reward systems, levels, and performance tracking. Furthermore, apps integrating spaced repetition systems (SRS) contribute significantly to long-term vocabulary acquisition and recall (Jorgensen, 2024); thus, it may be highlighted that mobile learning also encourages ubiquitous access to target language input, enabling learners to utilize idle moments such as commuting or waiting time for productive practice. This flexible and on-demand nature

of learning not only fosters autonomy but also addresses the need for continuous exposure, a critical component of second language acquisition.

The reasonable integration of technology into language education presents numerous benefits in terms of accessibility, personalization, and learner autonomy. Nevertheless, these tools should be employed with pedagogical caution to ensure that they enhance the educational processes rather than hinder motivation and meaningful engagement.

### **Challenges and Inequalities in Technology-Mediated Language Communication**

The integration of technology into language communication and education has brought remarkable opportunities but also significant challenges and risks. These difficulties range from technical malfunctions and data loss to more complex issues such as misinterpretation, inequitable access, and the limitations inherent in machine translation. Especially in the field of language teaching, educators and researchers face persistent concerns regarding the reliability of technology and the quality of language data collection and processing. Also, while digital communication tools enhance global connectivity, the uneven distribution of technological resources and linguistic inclusivity continues to exacerbate inequalities, limiting the participation of speakers of less dominant languages in scientific and technological discourses.

Technical failures and operational challenges of hardware and software pose a considerable threat to language research and communication. Peurey et al. (2025) emphasize that technical failures such as device malfunctions or errors in automated processing may significantly compromise data quality, threatening both the validity and continuity of such studies. Additionally, experimental designs often rely on precise and consistent delivery of auditory and visual stimuli through specialized software, where any malfunction undermines the integrity of the research. Machine translation, despite rapid advancements, struggles with capturing the semantic, lexical, and contextual intricacies of natural language, especially given the dynamic and evolving nature of language in online social networks (Goel et al., 2016). Despite the development of sophisticated Computer Assisted Translation (CAT) tools, human intervention remains crucial to ensuring accuracy and cultural appropriateness. The potential misuse of automatic translation as a tool for biased or incomplete communication further complicates its application. Simultaneously, the digital divide

persists as a major barrier, with internet penetration and access to scientific and technological information heavily skewed toward developed nations. Zoubi and Abunawas (2024) argue that this imbalance restricts the inclusion of minority and less widespread languages in scientific communication, undermining the equitable dissemination of knowledge and participation in innovation on a global scale.

While technology holds transformative potential for language communication and education, addressing the associated challenges and disparities is essential for realizing its full benefits. The reliability of technological tools, the fidelity of translations, and the equitable access to digital resources must be critically considered to foster inclusive and effective communication in an increasingly interconnected world.

### **Conclusion**

Recent technological advancements are fundamentally transforming language communication by enhancing accessibility and reshaping how people interact with various cultural and linguistic boundaries. Automated synchronous interpretation on portable devices and the widespread adoption of high-speed mobile networks like 5G and upcoming 6G may enable more sophisticated AI-powered translation tools facilitating seamless conversion between speech and text (Bourne et al., 2015), and this may change the future of language teaching via educational tools; however, both educators and the ones engaging in technology should indicate at utmost level carefulness to benefit fully. Besides, these innovations are expected to be widely adopted in both professional and everyday contexts, addressing the growing demand for effective cross-cultural communication in an increasingly globalized world, which means that human beings can employ and benefit from them in their professional and daily routines. Emerging technologies, possibly bypassing traditional spoken or written language via transmitting emotions and thoughts, directly hold the potential to redefine interpersonal communication and promote deeper intercultural understanding (Husaj, 2014); thus, human beings may come up with divine utilization and benefits.

It is anticipated by many people that this ongoing evolution of communication technology reflects historical trends where linguistic forms and social dynamics adapt to new tools and cultural exchanges, and this may yield immense development for future technological language teaching curriculums (Kasap, 2020). Hence, it is possible to claim that new

languages and dialects may arise, some flourish or merge, while others decline, shaped by shifting societal demands and technological affordances; however, the role of communication on language and its development is wide and beneficial. To maximize the benefits and mitigate risks, active involvement of linguists, technologists, and policymakers is necessary to ethically guide the design and application of language technologies. Also, multilingualism and cultural sensitivity in these innovations should be emphasized as this contributes to prevent the exacerbation of existing inequalities in global communication and support the preservation of linguistic diversity. Ultimately, balancing technological progress with social responsibility is imperative for ensuring that further communication systems are beneficial for intercultural dialogue, knowledge dissemination, and inclusive human interaction.

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# LANGUAGE LEARNERS' COMMUNICATION AND SPEAKING ANXIETY IN VIRTUAL CLASSROOM VERSUS FACE-TO-FACE LEARNING CONTEXTS: A SYSTEMATIC REVIEW

Merve Şule Gülaçar

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## INTRODUCTION

Foreign language anxiety's impact on learners' foreign language acquisition has been the subject of investigation by several foreign language experts (Babayiğit, 2022; Tüm, 2019; Bashori et al., 2020; Fattahi & Cuocci, 2022; Yaniafari & Rihardini, 2022). Anxiety in foreign language classrooms is divided into three categories: exam anxiety, dread of a bad assessment, and communicative apprehension (Horwitz et al., 1986). Horwitz and Cope were the first to identify Foreign Language Anxiety (FLA) as a distinct form of anxiety that is particular to learning a foreign language. Foreign language learners experience contextual anxiety, not behavioural anxiety, when they are in the well-defined environment of a foreign language classroom (Gültekin, 2022; MacIntyre & Gardner, 1991; Horwitz, Horwitz, and Cope, 1986) as Russell (2020) has stated that the online setting and/or the usage of new instructional technology may contribute to some of the anxiety that language learners experience when learning a language online linked to both the language and the use of instructional technologies that are used to communicate in the target language.

An essential component of every foreign language education program needs to include speaking instruction (Çelik & Babayiğit, 2023a). Students should always be encouraged to practice, regardless of the time it takes (Çelik & Babayiğit, 2023b; Korkmaz & Mirici, 2021; Madzlan et al., 2020). If students have efficient communication methods and resources and are aware of the signs and causes of their own emotions and moods (Alla et al., 2020; Ünsal, 2021) or when teachers establish consistent roles as both teachers and learners, assist students in navigating the course, and offer prompt feedback (Russell, 2020), they can successfully prevent or cope with foreign language anxiety (Kasap et al., 2022). In order to improve knowledge of course planning and execution that promotes language learners' achievement, anxiety related to learning a foreign language should

be investigated in the context of online language learning (Pichette, 2009; Russell, 2020). Nevertheless, while several of the components of online education were present in such teaching, many of them delivering excellent remote learning opportunities, it also revealed design, experience, and equitable access deficiencies that should be addressed if online instruction is required again on short notice (Gacs et al., 2020). In addition to that, the assessments of the quality of studies on language anxiety in various educational contexts about the frameworks and techniques used in language acquisition have not yet been carried out thoroughly, yet there are studies done on the comparison of two different settings in Türkiye (Valizadeh, 2021), a review of important models of FLA (Marnani, Cuocci, 2022) and another review article on the role of classroom contexts on learners' grit and FLA (Zhao, 2022).

The current study is to give a critical assessment of the research designs conducted to date from various perspectives, including the definition of anxiety, the nature of the study, the variables influencing learners' anxiety in various educational contexts, and the application of FLA in each study. The following are the research questions that were developed for this study from studies on anxiety in face-to-face and online language teaching spanning years, topics, coverage, methods, and sample groups:

Research Question 1 (RQ1) - What factors affect student anxiety in face-to-face and online language teaching from the perspective of the student and the instructor? (considering the variables such as the students' attitude towards the course, their perspective on online education, having technological opportunities, and the students' online education experience)

- In terms of the structure of the course
- In terms of activities/applications used in the course

Research Question (RQ2) - What is the relationship between virtual classrooms and the anxiety level of students?

Research Question (RQ3) - What are the differences in students' foreign language anxiety levels based on their learning environment (traditional and virtual classroom)?

## **METHOD**

A systematic literature review was employed in this paper. As Kowalczyk and Truluck (2013) stated that a systematic literature review consists of the following steps: conducting a thorough search for studies that have been published to address an application-related problem; assessing the quality of the studies relied on their inclusion and exclusion criteria; selecting research studies to be involved in the review; and synthesizing the results of the studies included in the review. The primary distinction between literature reviews and systematic reviews is the methodology used. In the former, articles are accessible via a number of databases in an elaborate and well-organized manner. However, literature evaluations are frequently conducted less methodically, with articles sourced from a limited number of databases (Robinson & Lowe, 2015).

### **Data collection**

For this systematic review, the most well-known search databases were preferred; Web of Science, ERIC, and Taylor & Francis online were searched in April 2025. These databases were chosen because they include many educational and language education studies. The different phrases and their combinations are displayed in Table 1. The search was conducted using both query strings and keywords.

### **Data analysis**

The researcher analysed the papers and articles that were part of the study, intending to have two other researchers double-check the analyses to improve their reliability. The articles are chosen as journal articles, and when the filtering is done, full access/ open access option and articles only written in English are preferred. Content analysis is used as an analysis method to conduct this study, which is prepared using the Excel program, and factors are determined to answer the research questions stated above. The factors are included the name of the database with the number of the article, name of the article, the publishing year of the article, methodology of the article, the preferred research design of the method, the sample of the article, education level of the sample, the technology integration in the article, the type of the technology, the name of the technology, the variables in the study, type and name of the variables, teacher and students' roles in the study, the effect of virtual classroom on students/ learners' speaking anxiety, positive and/or adverse effects of using technology in the language

classes and some details about the results of the studies. After reading through the studies, the form was filled out according to each study. Next, the Microsoft Excel and Word programs were used to transform the data in the form into codes, categories, and visuals.

**Table 1:** Search terms

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“Anxiety” OR “Language Anxiety” OR “speaking anxiety” “Foreign Language anxiety” OR “Language Classroom Anxiety” OR “Foreign Language Virtual Classroom Anxiety” “Foreign Language Synchronous Virtual Classroom Anxiety” OR “Anxiety Foreign Language face-to-face learning” AND "Online lesson" OR "virtual Classroom" OR "synchronous virtual classroom" OR "Live Lesson"

subject:" anxiety" AND subject:" virtual classroom" (for the ERIC search query)

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A total of 314 were found from three databases looked from within the content of the review (Fig.1). After removing the articles for various reasons such as being not related to or not published in journals about education, language, language education, or linguistics; and not free to read or do not have open access, there are total of 314 articles to sought for revival. Two hundred ninety of them are not related to virtual classroom and anxiety or speaking anxiety. Among the remaining 24, two were duplicated in different databases. Therefore, they were eliminated. Consequently, 22 studies were selected for inclusion in this study.

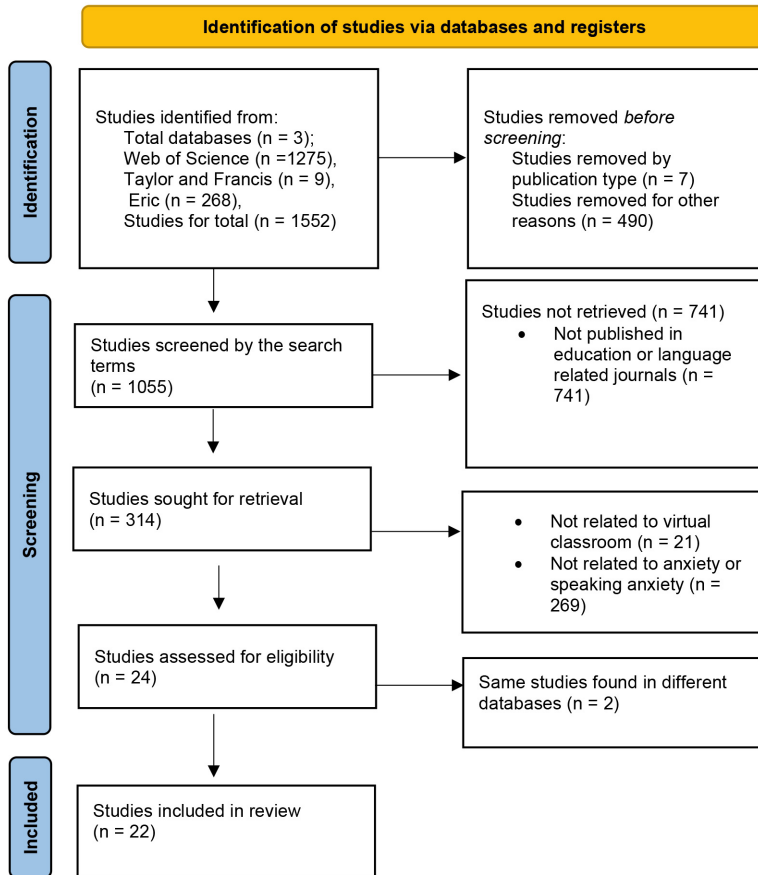


Fig. 1 Diagram of the systematic review process (adapted from Page et al., 2021)

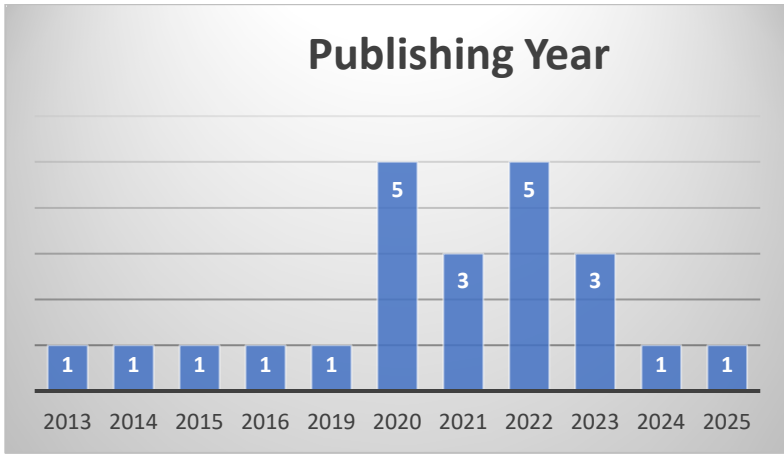
## FINDINGS

The articles determined by the search on the effect of virtual classrooms on students' speaking anxiety in language education were analysed on the Taylor & Francis Online, Web of Science, and ERIC databases for the studies. The results of the analysis of the research questions are shown below.

### Distribution of the studies by years

Figure 2 shows the distribution of studies about the virtual classroom effect on students' foreign language speaking anxiety over the years. When Fig. 2 was examined, it was observed that the first of the studies was conducted in 2013, and the number of studies increased rapidly in the

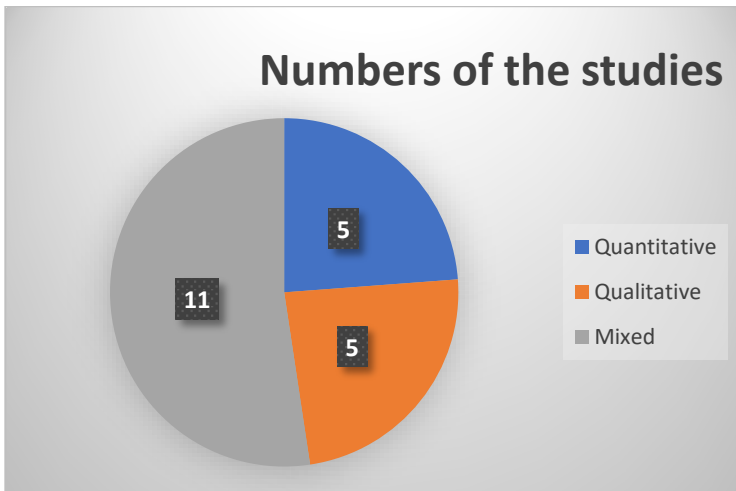
following years. In addition, as seen in Fig. 2, the studies mostly belonged to 2020 and 2022.



**Fig. 2** *Distribution of the studies by years*

#### **Distribution of the studies in terms of their research methods**

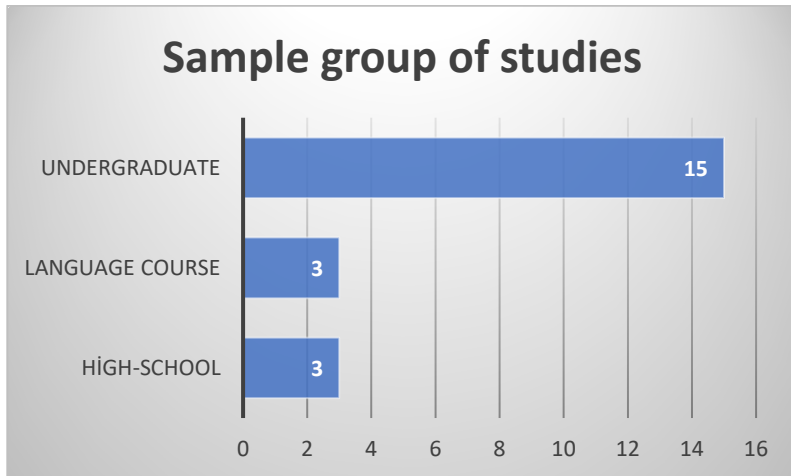
Figure 3 shows the distribution of the research methods used in the studies. Based on Fig. 3, mixed methods ( $n = 9$ ) were used primarily in the studies. The least used methods in the studies were quantitative methods ( $n = 4$ ) and qualitative methods ( $n = 5$ ).



**Fig. 3** *Distribution of the research methods used in the studies*

### 3.3 Distribution of the studies in terms of the sample group

Figure 4 shows the distribution of the studies in terms of their sample group. Based on Fig. 4, the studies were primarily conducted with undergraduate-level students ( $n = 15$ ). The other sample groups preferred in the studies comprised language course students ( $n = 3$ ) and high-school students ( $n = 3$ ).

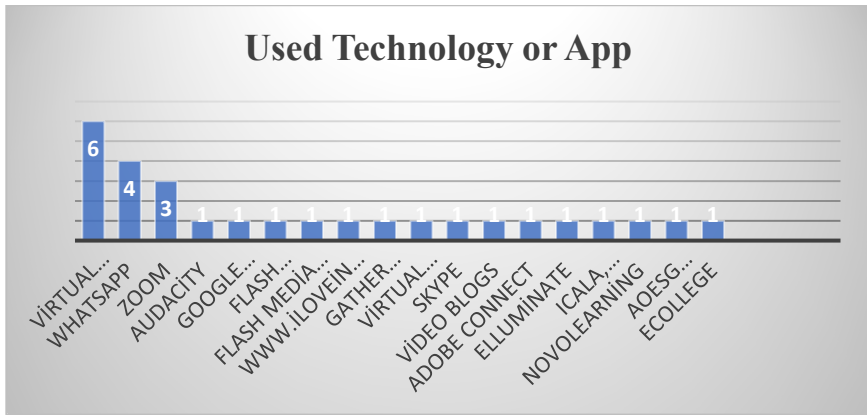


**Fig. 4** *Distribution of the studies in terms of the sample group*

### **Distribution of the studies in terms of the application used in the course**

Figure 5 shows the distribution of application platforms used in the studies. As seen in Fig. 5, Virtual Classrooms ( $n = 6$ ), WhatsApp ( $n = 4$ ), and Zoom ( $n = 3$ ) application platforms were primarily used in these studies. Other preferred applications are various kinds of online learning platforms or tools.





**Fig. 5** Distribution of the application platforms used in studies

### Distribution of the studies in terms of the examined variables

Table 2 shows the distributions of the variables examined in the studies. As seen in Table 2, it was determined that the variables examined in the studies were mostly speaking anxiety ( $n = 9$ ) and foreign language anxiety ( $n = 5$ ), and the least examined variables were classroom settings ( $n = 3$ ), public speaking anxiety ( $n = 2$ ) and virtual speaking anxiety ( $n = 2$ ).

**Table 2:** The variables examined in the studies

| The Examined Variables         | <i>f</i> |
|--------------------------------|----------|
| Speaking Anxiety               | 9        |
| Classroom Settings             | 5        |
| Foreign Language Anxiety (FLA) | 4        |
| Oral Proficiency               | 3        |
| Public Speaking Anxiety (PSA)  | 2        |
| Virtual Speaking Anxiety       | 2        |

### Advantages of the virtual classroom on speaking anxiety

Table 3 reveals the advantages of using virtual classrooms and technology on foreign language speaking anxiety. It was determined that the most reported advantages in the studies were alleviating learners' speaking anxiety ( $n = 4$ ), enhancing learners' speaking skills ( $n = 3$ ), and saving energy and time ( $n = 2$ ), helping to promote positive feelings to learning ( $n = 2$ ), respectively.

**Table 3:** *Advantages of using a virtual classroom on speaking anxiety*

| <b>Advantages</b>  | <b><i>f</i></b> |
|--|-----------------|
| Alleviating learners' speaking anxiety                     | 5               |
| Enhancing speaking skills                                  | 3               |
| Saving energy and time                                     | 2               |
| Helping to promote positive feelings toward learning       | 2               |
| Feeling at ease in both classroom settings                 | 2               |
| Learning pronunciation competence in distance education    | 1               |
| Increasing self-regulation skills                          | 1               |
| Higher post-test scores on oral proficiency                | 1               |
| Influence of synchronous text chat on speaking skills      | 1               |
| Reducing anxiety by using Avatar-assisted learning         | 1               |
| Reducing speaking anxiety by using virtual-reality therapy | 1               |

### **Disadvantages of the virtual classroom on speaking anxiety**

Table 4 reveals the disadvantages of using virtual classrooms and technology on foreign language speaking anxiety. It was determined that most of the studies mentioned reducing the interaction of learners ( $n = 2$ ), classroom participation for online lessons causing anxiety ( $n = 2$ ), and no specific effects of using different classroom settings on anxiety ( $n = 2$ ).

**Table 4:** *Disadvantages of using virtual classrooms on speaking anxiety*

| <b>Disadvantages</b>  | <b><i>f</i></b> |
|---|-----------------|
| Classroom participation may cause anxiety                             | 2               |
| Having no effect of using web-based or traditional classes on anxiety | 2               |
| Reducing the interaction of learners                                  | 2               |
| Related to a lack of competence and proficiency                       | 1               |

## DISCUSSIONS

The purpose of this study is to conduct a thorough evaluation of the literature on the effects of technology and virtual classrooms on students' speaking anxiety. In this respect, the advantages and disadvantages of adopting virtual classrooms and the impact of technology on speaking anxiety were outlined, along with the basic characteristics, methodological elements, and conclusions of the research reviewed in this systematic review. It was noted at this point that the initial research on the impact of technology and virtual classrooms on students' speaking anxiety was carried out in 2013. The research done since 2013 found that most of the linked studies were carried out in 2020 and that their number had risen. As alternative technology-driven learning approaches, virtual classrooms and remote learning have expanded fairly since COVID-19. All sectors, including corporate learning and higher and basic education, have used virtual classrooms (James, 2023). When the research methods employed in the studies were analyzed, mixed methods were the most preferred approach. This result may be explained by the growing interest in alternative technology-driven learning approaches and the potential for online education to reach many students. Furthermore, the number of studies employing this approach may rise since it is imperative to provide researchers with the conceptual and analytical tools necessary to integrate qualitative research and data.

Examining the study sample groupings, it was found that students in higher education were the most favored sample group. This statistic suggests that a bigger percentage of university students are obtaining their education through virtual schooling. Furthermore, the research should include this sample group because undergraduate students are more approachable and have better-developed self-regulation abilities. Additionally, it was determined that the advantages of using virtual classroom and technology on foreign language speaking anxiety are that asynchronous online learning stands out as a very effective method for improving speaking abilities since it may reduce speaking anxiety in English and lessen issues that arise in a language classroom (Alkan & Bümen, 2020) and also learners' speaking performance has increased as a result of using asynchronous computer-mediated communication tool such as WhatsApp to improve English speaking instruction and learning.

Looking at the settings of the studies that were part of the systematic review, it was found that they investigated the majority of online education. Web-based technology is a prerequisite for

online courses (Campbell & Larson, 2013). If students can observe web-based classroom approaches such as flipped learning, an alternate approach that lessens the intimidating nature of the learning process, their engagement may rise. Their anxiety may lower (Korkmaz & Mirici, 2021; Ünsal & hastunç, 2021). It is also possible for language learners to become more confident when speaking in front of an audience (Madzlan et al., 2020) and to gain experience with employing visual aids before speeches to boost their confidence (Hirata, 2023). On the other hand, it was observed that the most mentioned disadvantage in studies on the use of virtual classroom and technology on foreign language speaking anxiety was the significant anxiety that students feel while engaging in oral interaction in the second language (Terantino, 2014), and participation in the online class causing higher anxiety (Hirata, 2023).

### **CONCLUSION AND RECOMMENDATIONS**

As a result, it was found that research on the impact of virtual classrooms and technology on students' speaking anxiety was primarily published as journal articles, that the number of related studies grew over time, and that most of the studies used a mixed methodology. Additionally, there were several benefits to learning from utilizing technology and virtual classrooms to reduce students' speaking anxiety. However, employing them also has several drawbacks, including a decrease in student interaction. Given the results of this investigation, further research is suggested by using a higher number of samples and different age groups, rather than undergraduate students, and examining the studies using different research methods, such as the meta-analysis method.

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# ETHICAL CONSIDERATIONS IN DIGITAL LINGUISTIC RESEARCH

Büşra Dağdemir

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## Introduction

Digital communication technology has seen great growth which in turn has changed the research on language in very basic terms (Babayiğit & Çelik, 2024; Bender et al., 2021). We see now in online forums, social media and mobile messaging apps large scale language data sets which in turn enable research into many different digital settings like we have not before (Cizrelioğulları et al., 2019). But also with these changes we see very large ethical issues which go beyond what we have seen in the past in research settings. We still have the basic principles of informed consent, privacy, anonymity, and fairness at the core but putting them into practice has become very complex in the age of big data and algorithmic decision making (Mittelstadt et al., 2016).

This chapter reports on a wide range of ethical issues present in digital linguistic research. We see that large scale digital data collection brings up primary issues of informed consent, which is a main point of discussion. Additionally, we look at the issue of protecting identity and privacy in online corpora and the special ethical issues that come up in social media research (Blodgett et al., 2020). Also we look at issues of who owns user generated content and also the intellectual property rights issues that play out in that space as well as cross cultural issues that come up in digital ethnography (Floridi & Cowls, 2020). Also we present practical solutions for working within the parameters of Institutional Review Boards' guidelines and also we look at what some of the as yet unresolved ethical questions are like algorithmic bias and fair play in AI assisted linguistic analysis (Mehrabani et al., 2021). By putting all of this out there, the chapter's goal is to arm researchers with the ethical tools they need to deal with the ever growing issues in digital linguistic study (Crawford, 2021).

## Informed Consent in Online Linguistic Data Collection

Informed consent is a fundamental ethical requirement that ensures participants clearly understand and voluntarily agree to the ways in which their data will be used in research (Association of Internet Researchers [AoIR], 2020). However, in digital linguistic research, obtaining informed consent presents unique challenges due to the vast scale and heterogeneous

nature of online data. Large-scale datasets sourced from public platforms often make it impractical—or even impossible—to contact each individual participant directly (Blodgett et al., 2020). In such cases, ethical frameworks emphasize the importance of evaluating the context in which the data was originally shared. For instance, publicly available posts generally raise fewer concerns, while private or semi-private content requires explicit consent (Floridi & Cowls, 2020). These complexities are further intensified by the rapid evolution of online linguistic interaction, where boundaries between public and private data blur (Crystal, 2011).

As noted in traditional sociolinguistic research, obtaining informed consent has always required negotiation with context-specific norms and expectations (Buchstaller & Khattab, 2013). In digital environments, however, these expectations become more diffuse and less predictable. Researchers must also consider the varying degrees of user awareness and privacy expectations across platforms. Users engaging on public forums or social media may be unaware of how widely their content could be accessed or reused by researchers and third parties. Transparency, therefore, becomes essential. Researchers should clearly communicate the purpose, scope, and potential uses of the data—especially when the data originates from publicly accessible sources. Moreover, digital participants often lack awareness of the visibility of their language use across platforms, especially in asynchronous communication environments (Tagg, 2015). Post-hoc consent strategies can be particularly valuable, allowing participants to later withdraw their data or control how it is used (Crawford, 2021). Establishing opt-out mechanisms and data deletion procedures at any stage of research is key. Innovative tools such as dynamic consent forms or intermediary facilitators may further strengthen ethical data practices.

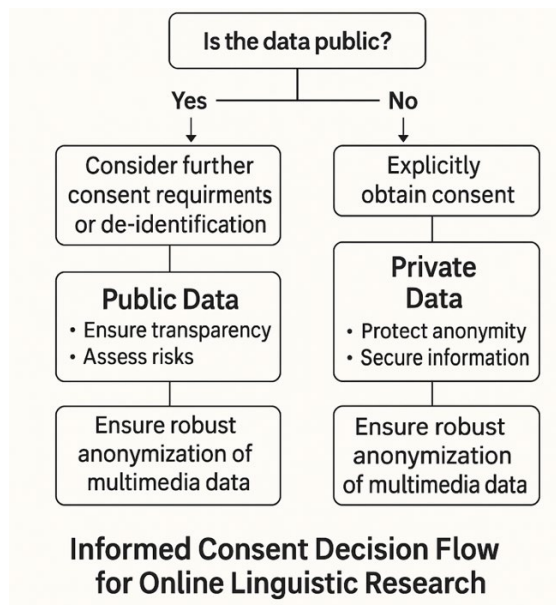
Various types of consent have risen to prominence in the digital world, such as active consent (explicit approval), tacit consent (a lack of opposition that can be inferred), and community consent (community-specific sanction). An active consent flow would require explicit consent to be given and documented, and a passive consent flow would do nothing unless consent was explicitly revoked. Community-based consent is particularly useful in research in online forums or within digital collectives where individual consent may be infeasible but community-level consent is possible. Theoretical models that may be relevant have been previously developed in discourse-centered online ethnography examining how shared



linguistic practices among online communities might justify group-level ethical commitments (Androutsopoulos, 2008).

This is compounded by the increasing convergence of artificial intelligence (AI) and machine learning in linguistic enquiry. Users may struggle to grasp how the data could be influenced by the interventions of learning algorithms, in particular, if stemming from issues related to bias, profiling and ethical responsibility (Mehrabi et al., 2021). As such, researchers have a responsibility both to emphasize clarity in their explanation of their AI methodologies and to maintain transparency and responsible use of data. An ongoing ethical reflection must reflect regularly on any new technology and clearly communicate algorithm decision-processes in digital research to maintain trust in, and integrity of, the project (Mittelstadt et al., 2016).

Ultimately, negotiating informed consent within digital linguistic research calls for ongoing ethical vigilance, flexibility to meet context-specific challenges, and an unswerving commitment to privacy and regulatory protection. An overview of the ethical decision-making process and the specification of the required consent in online data collection settings is flowcharted in Figure 1 below.



### **Anonymity, Confidentiality, and Data Protection**

Anonymity and confidentiality are the basic ethical issues in digital linguistic studies because of the potential of digitally collected data to compromise privacy (AoIR, 2020). It is not always trivial to achieve full anonymization of linguistic corpora constructed from online forums, classroom discourse, or speech data. In textual data, the use of names, places, discourse markers or individual lexical items can be ‘non-intentionally revealing’ about participant identities (Buchstaller & Khattab, 2013). These issues are particularly problematic in sociolinguistic and forensic linguistics research, where regional variation or speaker style can be the identifying source (Coulthard & Johnson, 2007).

To deal with such complexities and meet the ever-rising privacy and utility demands, many different anonymization techniques such as pseudonymization, where real identifiers are replaced by fictive ones, data masking, which hides sensitive data fragments, and differential privacy, adding random noise to the queries to prevent re-identification, are used by researchers. Yet, as Androutsopoulos (2008), in his exploration of online ethnographic discourse, argues, ‘apparently depersonalised linguistic material can be reconstructed if that material is combined with the context, the timestem and some co-textual cues’ (223).

Strong data security is thus essential to ensure that the sensitive linguistic content is not misused or accessed without permission. Research follows established data protection laws and regulations (e.g., GDPR) that set clear legal standards for the handling of personal data in research settings (Floridi & Cows, 2020). With a surge in technology for machine learning, voice recognition and AI-based processing, the challenges to protect privacy are only compounded—algorithms can estimate some of your personal information from voice tone, prosody or word frequency (Mehrabi et al., 2021; McEnery & Hardie, 2012).

Ethical data storage in linguistics does require a multi-layered approach: Closed data repositories, access restriction rules, participant consent protocol, and embedding of metadata. It is recommended that researchers make it clear to participants the realistic limits of anonymity, particularly with public sourced discourse (Tagg, 2015). Ongoing consideration of data protection, informed by interdisciplinary exchange between linguistics, law, and digital technology, is crucial to preserve trust and ethical integrity in digital linguistic research.

### **Ethical Issues in Social Media Data Usage**

Social media microblogging platforms have become repositories for large amounts of text that are relevant or potentially relevant to scholars in digital linguistics, and in particular to the researchers in discourse analysis, sociolinguistics, and corpus-based pragmatics (Page et al., 2014). Their interactive, public nature, however, also raises unique ethical issues (Blodgett et al., 2020). Users commonly share private personal data with not fully realised research possibilities and dangers. Ethical considerations in this space revolve around concerns related to privacy, handling context collapse, and ensuring that research practices are consistent with the rules and regulations of a given platform.

Collapsed context happening when some content shared in one space winds up in another with unintended consequences by blurring or complicating lines of audience. For instance, a tweet in a very personal style can be repurposed to a linguistic corpus without the user being aware of the audience. For discourse-oriented studies, these changes in orientation to the reader can misrepresent the pragmatic meaning and communicative purpose of language in use (Androutsopoulos, 2014). Ethically, it is important not to cause any undesired effects or breach privacy. Ethical issues to maintain research integrity, researchers should comply with terms of services of platforms, be transparent, how research is conducted, and be cautious when using participants' direct quotes (Markham & Buchanan, 2012). Second, researchers also need to account for varying cultural requirements and privacy norms in different online spaces (Zimmer & KinderKurlanda, 2017).

For example, homeless and less affluent populations and other “hard to reach” communities were categorized in the “gray” area for ethical risk assessment when those groups are studied through digital and social media, and the incorporation of artificial intelligence (AI), as well as other automated tools, further complicates the ethical terrain of social media research. Such technologies might lead to algorithmic bias, inadvertent surveillance, or unwarranted use of predictive analytics (Caliskan et al., 2017). Analyses of language, such as sentiment or stance detection, applied to discourse in social media should be taken with care, particularly in potentially sensitive contexts (Watts and Stenner, 2012; Jones et al., 2015). These problems must be proactively detected and managed by researchers through bias detection protocols and transparency in their research process.

Transparent and ethical procedures for the collection, analysis, and dissemination of data, and following international guidelines and legal standards are necessary for responsible research in a digital environment (European Commission, 2019).

The minimizing of the ethical risks inherent to social media research does after all depend on working with strong anonymisation measures and reliable and ongoing interdisciplinary ethical scrutiny. An open conversation about evolving ethical norms, frequent revisions of research protocols and critical self-reflection are key to ensure that research in these digital arenas is responsible and is of social value (UNESCO, 2021). As Tagg & Seargeant (2014) remind us, for scholars of socially situated digital language, there is a need to stay sensitive not just to ethical concerns, but to affective and relational aspects of language-in-use on social spaces.

### **Ethical Dilemmas in Digital Ethnography**

Research on cultures and communities through online and virtual worlds or by social-media/web-based interaction is known as ‘digital’ ethnography and raises very different research ethics questions to those in face-to-face ethnography. In terms of linguistic research, digital ethnography has been applied to studies on interactional norms in gaming discourse, language ideologies in fan communities, and multilingual practices on a forum (Tagg & Seargeant, 2014; Georgakopoulou, 2017). These include problems relating to informed consent, privacy and the lack of the distinction between public and private digital spaces e.g. (AoIR, 2020, Markham & Buchanan 2012). Researchers need to tread carefully within these intricacies, honoring the customs and limits of online communities.

The upfront challenge for scholars is how to obtain informed consent from people in rapidly changing unstable digital environments. As Don’t tend to perceive their online communication as a piece of research data, researchers must understand the importance of clear information provision and the application of consent for virtual spaces (Floridi & Cowls, 2020). The ambiguity of the private and public nature of information available on the internet leads to challenges when researchers decide ethical use of data (Zimmer & Kinder-Kurlanda, 2017). Androutsopoulos (2008) argues that discourse-oriented ethnography displays the social value of linguistic exchange as increasingly imbued with the communicative milieu so that ethical evaluations become more context-bound.

The ethical analysis of power relations in the digital field becomes vital when researchers work with the most vulnerable or marginalized groups. Online multilingual and diaspora communities create the context in which members are constantly negotiating their identity and claiming for legitimacy (Leppänen et al., 2014). Researchers must exhibit a heightened ethical sensitivity and commitment to avoid exploitative practices when examining culture-bound verbal representations as recommended by the European Commission (2019).

**Participant confidentiality and digital ethnography** Participant confidentiality constitutes a major challenge in the attempt to protect the identities of participants in a digital space. Much of the user-generated content on social media platforms as well as forums and gaming areas contain contextual hints that may help indirectly identify users. Usernames, as well as types of speech, use of code-switching, and other language-based styles of communication, show a variety of individual differences (Tagg, 2015). Research ethics should demand rigorous anonymisation alongside thoughtfulness in reporting and conditioning effects of publicly sharing identifiable linguistic patterns. Digital ethnography poses a myriad of complex challenges which again necessitate multidisciplinary cooperation of ethicists, anthropologists, linguists and digital researchers but also continuous ethical reflection and observance of worldwide ethical codes of conduct (UNESCO, 2021).

### **Ethical Considerations in Multimodal and Visual Linguistic Data**

Multimodal language research—studies that analyze textual data in conjunction with other media such as audio, images, or video—presents distinct ethical challenges. These issues become more pronounced as digital education increasingly incorporates multimodal practices to enhance 21st-century learning, thereby requiring rigorous safeguarding of participants' visual and auditory representations (Gültekin & Filiz, 2022). This includes areas such as classroom interaction studies, gesture research, analyses of language use on platforms like YouTube, and multimodal narratives shared on TikTok or Instagram (Jewitt, 2014; Adami & Jewitt, 2016). Multimodal data must be handled differently from purely textual datasets, as visual or auditory content that reveals the identity of participants complicates efforts to ensure anonymity and protect privacy (AoIR, 2020). While participants' visual, auditory, and kinesthetic presence—such as gaze and gesture—may be crucial for meaning-making (Kurhila, 2002), their exposure raises

complex ethical questions regarding consent and visibility in multimodal discourse analysis (Norris, 2004).

To mitigate these risks, researchers should use advanced methods of anonymisation, for example by blurring faces, modifying voice recognition, and deleting metadata or information that can identify the location of participants. In addition, in many instances of multimodal research, transcription and interpretation approaches perpetuate personal characteristic rendering pseudonymization a greater challenge (Bezemer & Mavers, 2011). Sociomateriality also brings with it the importance of semiotic layering, that is the manner by which texts, gestures, spaces and other elements combine to construct meanings, which also necessitates careful ethical considerations when representing data (Kress, 2010; Norris, 2011).

Multimodal research also demands that we consider what constitutes consent. Since participants are frequently recorded or have their visual likeness displayed, researchers need to be explicit about the manner in which each modality (textual, visual and auditory) will be used, stored, and distributed. Transparency of the ethical obligations implies that the agents involved are able to apprehend what can be gained or lost by sharing or analyzing their multimodal data (Floridi & Cowls, 2020). Due to higher chances of privacy violations in such research, the compliance to global data protection laws must be tight and ethics should be a continuous watch on this type of activities (European Commission, 2019).

Beyond privacy, multi-modal investigation also raises issues of ethics regarding representation, bias, and fairness. Unintentional stereotypes or cultural biases may be perpetuated within images and audio, particularly if the dataset is small or biased (Blodgett et al., 2020). These issues are heightened when the data is analyzed with the use of automated or AI-based tools that could reinforce even more the bias (Caliskan et al., 2017). Critical reflections on how data collection is currently conducted is essential to keep datasets diverse, inclusive, and ethically representative. Developing robust international ethical principles for multimodal research depends on the cooperation between ethicists, linguists, technologists, and social scientists (UNESCO, 2021).

## The Ethics of Crowdsourced Linguistic Data Collection

**When it comes to** collections of linguistic data sourced from the crowd—drawn from analyses of speech samples, transcriptions, spoken linguistic variations, lexical items, and the like, provided by many contributors through digital interfaces—**unique ethical challenges arise** in relation to participant rights, data ownership, and fair compensation. For most linguistics projects, workers can provide unique value in the form of linguistic judgements – translating, recording regional accents of speech, correcting automatic transcriptions, etc. As De Smedt et al. (2015), participation of the crowd has evolved as a cornerstone in producing language resources at scale for under-resourced languages and minority varieties. Hence it is ethically hard to justify not giving credit to and, if necessary, also money for linguistic contributions made (Floridi & Cowl, 2020).

Ethical matters involved in crowdsourced linguistic research include transparency and benevolence. Authors should justify the aims and scope of linguistic data collection. This might take the form of explaining to contributors how speech or text, or the act of annotating, can be used in the construction of a corpus, a speech recognition model, a dialect atlas, or other product of linguistics (Rymes & Leone, 2014). Data ownership is especially relevant in the light of such scenarios, because participants ideally should continue to have some rights over their contributions. That calls for clear consent agreements, transparent data usage rules that protect contributors, and guidelines that are consistent with the ethical design principles of citizen linguistics (Cooper, 2013; Blodgett et al., 2020).

Another important issue is how to provide anonymity in the CS data pool and to protect the personal language information in the CS platforms. For example, voice samples taken as recorded audio and dialect-specific expressions can have cultural and personal markers that can be linked across media. Thus, researchers should follow stringent procedures for protecting the data to avoid misuse or unauthorized disclosure, e.g., process of anonymization and data storage in a secure environment. As Mallinson, Childs, & Van Herk (2013) stress, ethical dialect research entails both the protecting of contributors' identities as well as the acknowledging of sociocultural significance carried by their language use.

There are also practical implications for ethical crowdsourcing in linguistics, including ongoing working with citizen contributors, open

dialogue on their rights and the development of fair, inclusive and sensitive research processes. Researchers must weigh up how to achieve the highest participation rates alongside the strictest ethical gatekeeping, particularly when working with non-academic language communities.

### **Ownership and Intellectual Property of User-Generated Content**

User-generated content (UGC) raises pressing ethical and legal issues of epistemic justice, authorship, and intellectual property, especially in the context of digital linguistic research. It is not rare that UGC is composed of publicly available text, for example forum or blog comments, social media updates, online reviews, or even transcriptions tagged by the users themselves such as often found in linguistic corpora or natural language processing (NLP) datasets. Linguistic scientists confront this complicated interplay between the rights of users as content creators and TOS constraints when using third-party hosting platforms (Blodgett et al., 2020). These issues are most relevant in discourse-based studies that use authentic digital talk as evidence either of pragmatic action, sociolinguistic value, or style (Barton & Lee 2013; Androutsopoulos, 2008).

Although platforms tend to have broad usage rights claims on hosted content, researchers have an ethical obligation to honor the authorial voices and original linguistic forms in user-generated content. In linguistic discussion, this could mean referencing forum discussions for pragmatic analysis, quoting tweets in studies of discourse, or fine-tuning language models on user-generated text (Crystal, 2011; Kasap, 2020). Some conflicts can arise between the type of submissions that are legally permissible and the type of submissions that are ethically acceptable in linguistic research (Markham & Buchanan 2012). Furthermore, who the audience and author on digital media contracts and expands—what one may consider to be a semi-private action could as such be converted to public corpora without acquiring the user's knowledge (Tagg & Seargeant, 2014).

Proper quotation and accreditation are crucial—sometimes the examples, styles, or structures of the language are based on the user content. Even if identity is not at risk, ethical norms require an explicit reference to the source of data, and the goal of the study (Floridi, & Cowls, 2020). Researchers need to disclose to users or communities when their language is being subject to linguistic analysis and ensure that that is acceptable to the community. You should also be familiar with licensing mechanisms such as Creative Commons which can help delimit reuse and user rights (Zimmer



& Kinder-Kurlanda, 2017). Projects such as the Linguistic Data Consortium (LDC) and OpenSubtitles provide good examples of how data can be transparently shared with usage constraints.

Furthermore, copyright legislation, fair use clauses, and such cross-border legal discrepancies become influential in dictating what ethical treatment of user-generated language data in global research entails. For instance, what is considered fair use in one country might be seen as copyright violation in another. It is necessary for researchers to keep up-to-date with these regulatory landscapes to not misuse participant content and to conduct respectful and appropriate research within context (European Commission, 2019). Ultimately, ethical linguistic work with UGC will rely on recognizing the value of contributions in language and the legal status of both contributors, expressions (through respectful citation) and access to communication channels, as well as interdisciplinary sensibility (UNESCO, 2021).

### **Ethical Implications of AI-Assisted Linguistic Analysis**

The integration of artificial intelligence (AI) into linguistic research brings major advantages—such as speed, scale, and precision in analyzing large datasets. AI systems are now commonly used for parsing, part-of-speech tagging, named entity recognition, and sentiment analysis in a variety of linguistic subfields, including corpus linguistics, discourse studies, and applied linguistics (McEnery & Hardie, 2012; Jurafsky & Martin, 2023). However, it also introduces significant ethical challenges, including algorithmic bias, lack of transparency, accountability concerns, and societal impacts (Bender et al., 2021; Mehrabi et al., 2021). When trained on biased or imbalanced data, AI systems can inadvertently replicate and intensify existing social prejudices, leading to unfair or discriminatory outcomes (Caliskan et al., 2017). This is particularly concerning in linguistic applications such as gender detection, dialect classification, or sentiment scoring across languages (Blodgett et al., 2020). Therefore, researchers must incorporate bias detection and mitigation strategies into their analytical frameworks to maintain ethical standards.

One of the most pressing concerns is the lack of transparency in AI models. Often referred to as “black boxes,” many AI systems operate in ways that are not easily interpretable, even by their creators (Floridi & Cowls, 2020; Mittelstadt et al., 2016). This opacity challenges the foundational linguistic principle of accountability in analysis (Leidner &

Plachouras, 2017). To address this, researchers should prioritize transparency and explainability, use interpretable models with documented decision-making processes, and provide open-access metadata and annotation guidelines where possible (Rogers, 2021). Transparent research not only reduces ethical risks but also builds public trust in AI applications in linguistics.

Beyond research settings, AI-driven linguistic tools raise broader societal concerns—such as digital surveillance, privacy violations, and unintended behavioral impacts stemming from algorithmic predictions. For instance, language-based profiling in hiring or security contexts may target speakers of non-standard varieties or marginalized dialects. These risks demand proactive ethical reflection and careful handling of NLP outputs. Ongoing collaboration among ethicists, linguists, computer scientists, and social scientists is crucial for developing resilient ethical frameworks and keeping pace with technological innovation (UNESCO, 2021). A linguistically grounded ethical framework should also account for issues of linguistic justice, especially in cross-linguistic NLP, where majority-language dominance can marginalize minoritized linguistic identities (Crawford, 2021).

### **Algorithmic Bias and Fairness in Linguistic Data Analysis**

Algorithmic bias in linguistic data analysis refers to the systematic and unjust treatment of certain language communities or demographic groups, caused by embedded biases within the algorithms or the linguistic datasets they are trained on. In digital linguistics, such biases often arise from historically imbalanced corpora, underrepresentation of minority languages or dialects, and data collection practices that favor dominant language norms (Bender et al., 2021; Caliskan et al., 2017). These factors can unintentionally reinforce existing societal prejudices within both linguistic research and its downstream applications—such as automatic speech recognition, sentiment analysis, or machine translation. As Tatman (2017) demonstrated, even basic NLP tasks such as part-of-speech tagging perform significantly worse on non-standard varieties of English, pointing to entrenched inequities in training data.

To address these challenges, linguistic researchers must adopt proactive strategies for identifying and mitigating bias in the design and deployment of language technologies. This includes curating diverse and representative corpora, applying bias-detection algorithms tailored to linguistic variation,

and conducting regular audits that combine both quantitative metrics (e.g., classifier accuracy across dialects) and qualitative linguistic insights (Mehrabi et al., 2021; Blodgett et al., 2020). Tsvetkov et al. (2016) argue that embedding fairness criteria into corpus development from the outset is key to creating socially responsible NLP systems.

Fairness in algorithmic linguistic research needs open information about dataset limits and the sociolinguistic assumptions within models. Researchers ought to tell people where data does not show the whole variety of natural language. This is true especially in places with many languages, many dialects, or few materials (Pavlick, 2019). Training sets that come mostly from main languages or standard ways of speaking can warp how a system works - it also spreads the idea that some languages are less important. Following global ethical guidelines that stress fairness and language access is important. Discussions among linguists, computer scientists, sociolinguists, ethicists along with policymakers help create better algorithmic methods (European Commission, 2019).

Fairness in algorithmic language programs is a shared duty - it calls for better technology and social understanding. When people put fairness, openness along with responsibility first, researchers can check that AI language tools help communication plus justice in language. This keeps the tools from spreading bias (UNESCO, 2021; Crawford, 2021).

### **Future Ethical Frameworks for Digital Linguistic Research**

As digital linguistic research continues to evolve, it will face increasingly complex ethical challenges—driven not only by rapid technological innovation but also by the emergence of new linguistic practices, modalities, and data environments. The proliferation of multilingual digital communication, voice-based interfaces, synthetic speech technologies, and AI-mediated language generation systems demands ethical frameworks that are deeply attuned to the linguistic diversity, representation, and power dynamics in digital spaces (Crawford, 2021; Pennycook, 2018). Preparing for advances in areas such as AI-enhanced discourse analysis, big data sociolinguistics, multimodal corpus development, and immersive virtual language experiences requires proactive ethical foresight and ongoing refinement of research standards (European Commission, 2019).

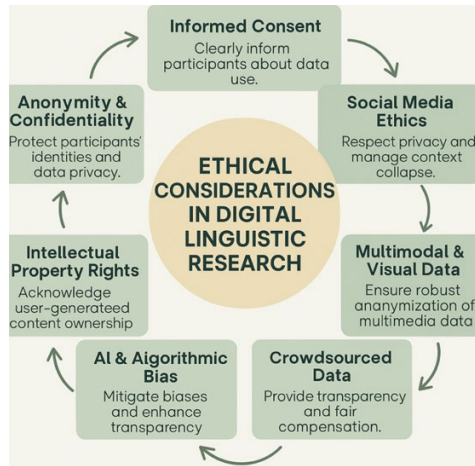
To meet these evolving needs, linguistic researchers and institutions must foster continuous interdisciplinary dialogue—particularly between

applied linguists, computational linguists, and digital ethics scholars. For example, corpus architects must consult with critical sociolinguists to ensure that representation in datasets is equitable (McEnery & Hardie, 2012). Ethical guidelines should be scalable and responsive enough to accommodate emerging technologies like augmented/virtual reality, language avatars, and algorithmically interactive dialogue agents—systems that fundamentally reshape how language is produced, interpreted, and archived (Tagg et al., 2022). These frameworks must also address enduring ethical concerns in linguistics, such as informed consent in multilingual communities, representational fairness in under-resourced languages, and transparency in corpus annotation and labeling practices, while remaining sensitive to cross-cultural values and regulatory asymmetries (Zimmer & Kinder-Kurlanda, 2017).

Establishing robust ethical practices for the future of linguistic research will require ongoing training, ethical literacy, and methodological innovation. This includes integrating ethics into research methodology curricula, developing dynamic consent protocols for evolving data types (e.g., real-time voice data or multimodal chat logs), and promoting reflexive, inclusive practices in corpus construction and platform-based language studies (Adami & Jewitt, 2016). Interdisciplinary projects such as those within the CLARIN infrastructure offer promising models for collaborative, ethically guided linguistic data work (De Smedt et al., 2015).

Ultimately, responsible and inclusive digital linguistic research will depend on long-term collaboration among academia, industry, civil society, and policy-making bodies to build socially beneficial, linguistically inclusive, and ethically accountable research ecosystems (UNESCO, 2021). As scholars increasingly engage with algorithmic linguistics, language ideologies in data, and speech technologies in daily life, ethical frameworks must evolve beyond legal compliance toward equity-centered, participant-driven, and justice-oriented models (Blodgett et al., 2020; Tufekci, 2015).

Digital linguistic research involves important ethical areas. This infographic describes the main ethical points a chapter discusses - it shows how consent, privacy, ownership, openness along with fairness join together in research that uses digital means.



## Conclusion

The field of linguistic research is expanding rapidly, driven by technological advancements and increased access to varied online data sets. This exciting process, however, brings crucial ethical issues. Responsible research today requires researchers pay close attention to issues of informed consent, anonymity and privacy as well as intellectual property while tackling the complex ethical issues presented by multi modal, crowd sourced, and AI included data practices.

Research practices are in a state of evolution which requires at the same time growth in our ethical approaches to study which in turn must be flexible, transparent, and fair. As researchers, we must put into practice an ongoing review of our ethical standpoints which we do so in collaboration across disciplines as a key to identifying and solving new issues. Establishing strong ethical standards is a must for research integrity which also includes protection of study participants. In digital language research this means we must be very much dedicated to social responsibility and in at the same time growing public trust.

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# EMOJI AND EMOTICONS: THE VISUAL LANGUAGE OF DIGITAL COMMUNICATION

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## 1. Introduction to Visual Communication

Human beings have always used visual communication. Iconic signs date back to the Palaeolithic cave paintings of Lascaux (Lascaux, n.d.), and in historical times, pictographic languages such as those of the Egyptians and the Chinese have been important complements to their phonetic writing systems (Logogram, n.d.). With the introduction of new technology, ancient forms of visual language have resurfaced and adapted to new contexts.

While pictograms on roads and in public spaces have played complementary roles to phonetic writing in many countries, online visual communication started as a completely different ecosystem. Very basic graphical communication such as digital stickers and animated GIFs date back to 1999 (Moschini, 2016), and similar content currently enriches online communication via social media and messaging apps (Digital Marketing Institute, 2024). This mode of communication reaches its climax with emoji, a Japanese graphical app for mobile phones which became a global hit in 2010 (Kerslake & Wegerif, 2017).

Though different from phonetic writing, emoji is currently the most successful case of graphical communication gaining an independent and hybrid status with phonetic writing. With their distinctive history, technology, design, and traits, emojis are an interesting focus of study for the semiotics of visual language. Complex sets of emojis can be read by the same user in completely different ways. Thus, the meaning of emoji in many contexts is extremely open. For instance, the “Face with Tears of Joy” emoji was the first to receive the “Word of the Year” distinction in 2015 by the Oxford Dictionaries (Oxford Languages, n.d.). This gesture shows carefreeness and jest, but it can also imply sadness. While it takes decades for phonetic writing to develop intricate grammar systems, graphical writing is now evolving into a fully functional language step by step at an unprecedented speed (Writing system, n.d.).

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## 2. History of Emojis and Emoticons

Most people would consider emoji to be a 21st-century development, although their historical roots extend far deeper (Bellis, 2025). Emojis originated in Japan in the late 1980s with early sets on devices like the Sharp PA-8500, but gained global popularity after Shigetaka Kurita's 1999 NTT DoCoMo set (Sharp Corporation, 1988; Kurita, 2015). Evolving from text-based emoticons, they were standardized by the Unicode Consortium in 2010, becoming a universal digital communication tool (Unicode Consortium, 2010).

It is too simplistic to view emoji solely as a new form of writing; rather, emoji illustrate how quickly meanings can evolve as a language matures (Schnoebelen, 2012). While early representations had universal relevance (e.g., a heart symbol representing "love") (EBSCO Research Starters, n.d.), today the same symbol may connote different messages depending on culture and context. For example, the widely popular pizza slice emoji has become synonymous with "I love you" for some, a sign of new love for others, and a trigger of nostalgia or sadness for another group (Wiseman & Gould, 2018). Emoji can thus vary in meaning between cultures or subcultures, but they also allow for unique adaptations to take shape at an individual level (e.g., among close friends, couples, or family members) (Doliashvili et al., 2020). Linguistic analysis of emoji's semantic evolution is complex, as words and letters don't change, while meanings quickly reinvent themselves when visual representations are concerned (Schnoebelen, 2012). Conventional language change tends to last over generations, while emoji language change may occur on a relative level in the span of days (Schnoebelen, 2012).

### 2.1. Origins of Emoticons

The word 'emoticon' is a blend of 'emotion' and 'icon', designating 'picture words' which express human feelings using ASCII codes (Fahlman, 2021). Initially, they were composed of punctuation marks such as shift + 0 (colon), shift + 9 (left parentheses), shift + 5 (comma), shift + b (lowercase b), and/or character (letter), which look like a human face when viewed sideways. There were five standard emoticons including smiley ':)' and frowny ':(' (Fahlman, 2021). Of them, smiley, which denotes joy, is considered a kind of polite sign (Giannoulis & Wilde, 2019). In addition, it

is said that the frowny emoticon arose in response to besieged people who began depicting their despair on paper, as required by hysterical chromatics. The emergence of emoticons at first restricted to the US. (Fahlman, 2021). They had strong comic connotations and were actively used in formal writings such as business letters or tutorials, thus invalidating the practicality of emoticons (Ozaki, 2017).

In the 1990s a boom in the internet took place, across which Japanese-style emoticons 'kaomoji' depicted in Japanese half-width letters flourished (Giannoulis & Wilde, 2019). They represented mainly eye expressions such as '^\_<' (wink) and 'もろ「-」' (screaming) (Giannoulis & Wilde, 2019). In contrast to Western emoticons denoting positive or negative one's outlook, kaomoji were more neutral, thus expressing one's subjective view and supplying rich information on the background of the writer (Giannoulis & Wilde, 2019).

Emoticons are a kind of pictorial representation of facial expression formed by keyboard characters. According to (Chen et al., 2024), the first known use of emoticons in electronic communication was on 19 September 1982, when Scott Fahlman suggested using the sad (:() and happy (:) faces to punctuate the tone of an otherwise unmarked message on the Carnegie Mellon University bulletin board (Fahlman, 2021). Emoticons can partially replace non-verbal communication in face-to-face conversations, especially facial expressions that were found to be common cues in inferring intentions and feelings (Doliashvili et al., 2020). For example, “I am so mad!” may be used in text chats to express anger, while “I am so mad:-@” indicates this feeling more vividly and colloquially (Giannoulis & Wilde, 2019). In 1999, an icon called “shitamitsu” was used on an online bulletin board in Japan (Ozaki, 2017). It was composed of 12 pixels, with black pixels representing the border of the face and white pixels inside symbolizing eyes and mouth. This icon resembles a simple smiley face and may convey happiness or satisfaction. In the same year, the originator of emoji, Shigetaka Kurita, developed the first-generation emoji set for the Japanese company DoCoMo (Bellis, 2025). With its 12×12 modus, Kurita designed 176 symbols and images to help with data communication through mobile devices (Bellis, 2025).

To distinguish between emoticons and emoji, emoji can express more subtle and complicated emotions and are richer in semantics (Schnoebelen,

2012). Scholarly attention has been given to emoji in fields such as linguistics, psychology, education, information science, advertising, health communication, and brand marketing (Doliashvili et al., 2020). It has been found that people vary in their use and comprehension of emoji and emoticons (Kaye et al., 2016). Also, Kaye et al. (2016) explored why people tended to choose emoji instead of, or along with, words in online chat. A survey was conducted on British adults, and it was found that sending emoji could promote more positive interpersonal relationships, creating a relaxed chat atmosphere, promoting communication and interaction, and reducing ambiguity in discourse (Kaye et al., 2016).

### **3. Emojis and Emoticons in Different Cultures**

Establishing effective communication in global environments is a challenging task. An assured way of committing a misstep in your interaction with someone across culture is to use a metaphor or idiom (Ting-Toomey & Chung, 2012). Even lesser understood clichés can baffle people from different cultures (Ting-Toomey & Chung, 2012). In the digital world, the problem is similar, when users of the same company's digital communication service rely on a series of moves or picture-signs less than commonly understood by all users, a way of understanding each other in a conversation may be irretrievably lost (Doliashvili et al., 2020).

Different cultures use or understand the same emoji/emoticon differently (Kaye et al., 2016). Therefore, what an emoji in a communication exchange means suggested by most users may be understood differently by those users backgrounded in one culture than by someone in a different culture (Kaye et al., 2016). In the exchange between users, it may be interpreted as a straight reference by one user and as a lavish sarcasm by another (Wiseman & Gould, 2018). For example, China's use of the emoji interprets it as a love sign, so the difference between two groups of users' understanding is irreconcilable (Wiseman & Gould, 2018). There is variability in the understanding of emojis or cultural presentation of emojis/emoticons across platforms (Chen et al., 2024). Beyond the variability of platforms, there are also cultural variables in the understanding of emojis (Chen et al., 2024).

There are many different styles of emoji and emoticons that reflect cultural characteristics and conventions (Giannoulis & Wilde, 2019). Cultural preferences in the use of emojis lead to the emphasis on different

parts of the face, which are traditionally presented in different ways (Giannoulis & Wilde, 2019).

### **3. Influence of Emoji and Emoticons on Language and Communication**

With the development of digital communication, languages used in e-mails, chat rooms, and mobile phone messages are changing (Holtgraves & Robinson, 2020). The shape and message of many emoticons are influenced by culture-specific or language-specific facts, such as Japanese orthography and manga culture (Giannoulis & Wilde, 2019).

Language and communication consist of a complex, interwoven bundle of symbols, sounds, gestures, and context (Ting-Toomey & Chung, 2012). Many of today's social occasions are marked with a countless of electronic communications, such as e-mails, chat rooms, and mobile phone messages (Holtgraves & Robinson, 2020). Using computers and e-mail as a significant tool of modern communication, one redefining many communicative events (Holtgraves & Robinson, 2020). Today's increasing variety of means of communication via computers changes the natural status and use of the language (Holtgraves & Robinson, 2020).

The kinds of change are varied such as graphical use of letters in ASCII art, shape writing, special punctuation symbols to create symbols of emoticons, and other graphic pictographic symbols such as “kaomoji” and “emoji” (Bellis, 2025). The graphic elements in use reflect the cultural beliefs and perspectives of societies (Giannoulis & Wilde, 2019). Hand-drawn pictures in books can invoke imaginations, create a world of dreams, and amuse children. The use of artistic designs through e-mail graphic symbols generates variable coding to communicate moods and feelings which extend beyond what verbal descriptions can express (Doliashvili et al., 2020).

Emoticons with different shapes, functional idiomatic interpretations marked as friendly, humorous, mean, sad, or angry represent a distinctive choice of response (Kaye et al., 2016). And while the use of emoticons in relation to prose reveals a transition in writing from prose to graphics, it also suggests a perspective mark on attitude, feelings, emotions, and moods motivating the signs of graphics in computer-mediated communication different from that of traditional writing (Doliashvili et al., 2020).

#### 4. Emotional Expression through Visuals

The visual channel (e.g., body language, facial expressions) enables people to express their emotions in real life through body language and facial expressions according to Ting-Toomey & Chung (2012). The use of emojis and emoticons in text-based synchronous dialogues faces communication challenges because the verbal channel alone does not function properly (Doliashvili et al., 2020). Online message readers experience emotional responses to emoji and emoticon content which extends beyond text processing and people also appreciate them in a more emotional manner (Kaye et al., 2016). Emoticons can replace non-verbal communication, especially facial expressions (Doliashvili et al., 2020). Research shows that adding emoticons to dull text-based chat messages makes them more expressive (Kaye et al., 2016). However, they may not be accurate enough in expressing some emotional nuances (Schnoebelen, 2012). Consequently, Textual emoticons evolved into multiple types including typographic emoticons that follow punctuation rules like ^\_\_^ or ☺ •••? and Unicode emojis (Giannoulis & Wilde, 2019).

With their intrinsic visual nature, emoji can convey a variety of subtle emotional texts, enhancing the expressiveness and richness of electronic messages compared with text-only messages (Schnoebelen, 2012). Sending emoticons strictly made of keyboard characters could promote positive interpersonal relationships, create a relaxed chat atmosphere, and reduce multiple types of ambiguity, which has been supported by researchers (Kaye et al., 2016). However, there are still no guarantees that an emailed own-face emoji will not be misinterpreted (Kaye et al., 2016). The main function of emoji is to offer means of expression that may not be readily available or inherent in the spoken word (Holtgraves & Robinson, 2020). In other words, users insert emoji into messages to express either an emotion or humour (Holtgraves & Robinson, 2020).

#### 5. Texts vs. Emojis and Emoticons

In digital communication, text serves as the foundational medium for conveying structured and precise information, excelling in formal contexts like academic or legal discourse where clarity is paramount (Ting-Toomey & Chung, 2012). However, text often struggles to transmit emotional nuances or tone, and there are limitations in computer-mediated communication (CMC) where non-verbal cues are absent (Holtgraves &

Robinson, 2020). Emojis and emoticons, as visual semiotic tools, address this gap by enhancing expressiveness and adding emotional context to messages (Schnoebelen, 2012). For instance, a text statement like “I’m happy” gains emotional depth with an emoji, aligning with findings that visual symbols amplify affective communication (Kaye et al., 2016; Kasap, Ünsal, 2024). Despite their advantages, emojis and emoticons introduce interpretive challenges due to cultural and individual variability, necessitating a comparative evaluation of their roles relative to text.

Text’s strength lies in its standardized grammatical structure, which fosters universal comprehension when carefully crafted, though cultural context can still influence interpretation (Hall, 1976). In contrast, emojis and emoticons, while effective in clarifying tone, are prone to ambiguity. Research indicates that emoji interpretation varies significantly across cultures, genders, and age groups, with symbols like carrying positive connotations in Western contexts but potentially negative ones elsewhere (Kaye et al., 2016; Pumble Blog, 2021). Cultural differences further complicate usage; for example, Eastern cultures emphasize eye-based expressions in emojis, while Western cultures focus on mouth-based ones, reflecting divergent communicative norms (The School of Manners, 2019). These findings underscore the need for cultural awareness in emoji deployment to mitigate misunderstandings, a challenge less prevalent in text-based communication.

Beyond expressiveness, emojis and emoticons have transformative applications across disciplines. In marketing, emojis enhance social media engagement by conveying brand personality and attracting consumer attention (Digital Marketing Institute, 2024). In education, they improve learning efficiency by making content engaging and facilitating emotional feedback (Dunlap et al., 2016). In public health, emojis increase the accessibility and emotional resonance of campaigns, promoting behaviors like vaccination (Willoughby & Liu, 2018). Text, while dominant in formal applications, lacks this visual appeal, highlighting emojis’ unique role in informal and affective contexts. Looking ahead, advancements in AI-driven sentiment analysis and customizable emoji designs promise to enhance their utility, though increased complexity may amplify interpretive risks (Felbo et al., 2017; Doliashvili et al., 2020). Thus, while text remains essential for precision, emojis and emoticons are reshaping digital communication by

bridging emotional gaps, with their efficacy on cultural and contextual sensitivity.

## **6. Effectiveness of Emojis in Communication**

Emoji language has become a necessary component of online chatting in mobile computing (Holtgraves & Robinson, 2020). Usage of emoji can promote positive interpersonal relationships from the chat recipient's perspective by creating an relaxed atmosphere, promoting online chatting, and reducing the ambiguity caused by its non-verbal information limitations, and through onboarding communication by sharing humorous emoji content (Kaye et al., 2016).

Emoji are used to express emotion and humour, and this relates to the choice of emoji appearing in the communication (Holtgraves & Robinson, 2020). Various fields have adopted emoji to improve communication efficiency (Doliashvili et al., 2020). Emoji have been extensively applied in marketing, especially in social media marketing using mobile computing smart devices (Digital Marketing Institute, 2024). They are widely used in marketing on social media platforms to create humour or to promote brands and advertisements (Digital Marketing Institute, 2024). Marketers also make use of emoji to attract consumers' attention in e-commerce by visually describing the consumers' emotional states and attitudes toward products (Digital Marketing Institute, 2024). On-line advertising, featuring emoji linguistics in the message texts, can induce greater emotional response and deeper elaboration on advertisements, improving encoders' purchase intention (Li et al., 2018).

Views of emoji usage are still growing in fields other than management and design, such as and social behaviour, doctor-patient communication, and sentiment analysis on social network posts (Doliashvili et al., 2020). Using emoji together with text in health messages proves effective for steering people toward healthy actions and boosting their participation (Willoughby & Liu, 2018). Engineers in computer science use emoji to facilitate the training of sentiment analysis on social network posts, especially for unsupervised machine learning tasks (Felbo et al., 2017). Emoji are applied in education to improve learning efficiency (Dunlap et al., 2016). Nonetheless, some studies in the cognition and psychology areas show that people's interpretation of emojis or emoji strings may be still ambiguous, causing variations in comprehension across individual senders

and receivers even when the same emoji or emoji string is chosen (Kaye et al., 2016).

The global rise of emoji use highlights the importance of this visual language in strengthening interpersonal relationships (Holtgraves & Robinson, 2020). Emoji are useful supplemental symbols in online chats when the communication contains emotional content (Kaye et al., 2016). Even simple emoji usage can increase relationship closeness, while an emoji gesture in a non-affective intent chat can create a more relaxed atmosphere (Kaye et al., 2016). Emoji could blend in with everyday conversations, expand the language scope, and convert the interpretation with different meanings (Schnoebelen, 2012). However, the widespread use of emoji is possibly a local phenomenon, like access to the Internet. They may be invisible in the mainstream communication for underprivileged groups and users who are against or unfamiliar with them (Dolan, 2016). Emoji can sometimes be ambiguous, causing difficulties in interpersonal communication and even misunderstandings (Kaye et al., 2016). This may be due to differences in the understanding of emoji, different original meanings and interpretations of emoji, and variations in connotation (Kaye et al., 2016). It is important to clarify the use of emoji and the contingency of emoji use to balance the benefits and disadvantages of emoji in digital communication (Doliashvili et al., 2020).

## **7. Future of Emojis and Emoticons**

Emojis and emoticons provide a means for visual communication, or semiotic resources, that extend and complement text in digital interaction (Schnoebelen, 2012). Currently, emojis have limited stylistic variation and their meanings are semiotically fixed, but these limitations will likely be loosened (Danesi, 2016). In the near future, emoji design and usage will proliferate in styles, shapes, and modes of manufacture (Danesi, 2016). New ways of alteration will arise, providing new forms of emoji and emoticon creativity (Danesi, 2016). Differently from earlier variations of text-based emoticons, some of the manifestly diverse innovations in emojis already exist side by side and are contemplated as semantically different and creative usage will take place both with and beyond new resources (Giannoulis & Wilde, 2019).

Recent discussions focused on emojis and emoticons in digital communication have shown that these visual communicative elements, like



faces, help to ensure that a message is interpreted how the sender intended, to allow emotions that may not be easy to articulate to be expressed, or to guide the reader toward an interpretative context (Behrens, 2019).

The evolution of digital communication runs parallel to technological advances in text-based messaging (Holtgraves & Robinson, 2020). Computer-mediated communication has allowed a faster, more efficient, and more social way of interaction than face-to-face or voice communication (Holtgraves & Robinson, 2020). Since it was born from computer technology, this revolution typically includes a consideration of text-based means of communication (Holtgraves & Robinson, 2020). In most instances, additional visual representation, often a boring keyboard-based one, is overlooked in the historical examination of digital means of communication (Fahlman, 2021). However, its visual communication innovation will likely motivate future changes in digital communication (Danesi, 2016).

### **Conclusion**

The use of visual communication by human beings exists since the beginning of time. The evolution of visual communication, from Palaeolithic cave paintings to modern emojis, underscores humanity's enduring reliance on iconic signs to complement linguistic systems (Kerslake & Wegerif, 2017). In contemporary digital contexts, text remains the cornerstone of structured and precise communication, excelling in formal settings where clarity is critical (Ting-Toomey & Chung, 2012). However, its limitations in conveying emotional nuances have propelled emojis and emoticons to prominence as vital semiotic resources, enriching text with affective and contextual depth (Schnoebelen, 2012). This hybrid integration, facilitated by the rise of instant messaging and social media, reflects a new social semiotic that blends text, images, and visual symbols, transforming communication patterns toward brevity and expressiveness (Holtgraves & Robinson, 2020).

Emojis and emoticons outperform text in fostering emotional engagement, creating relaxed atmospheres, and reducing ambiguity in informal exchanges, as evidenced by their widespread adoption in mobile communication (Kaye et al., 2016). Yet, their visual nature introduces interpretive challenges, with cultural, gender, and age differences leading to varied understandings of symbols (Earth.com, 2024; Pumble Blog, 2021).

Unlike text's standardized grammar, emojis' meanings are context-dependent, necessitating cultural awareness to prevent misunderstandings (Doliashvili et al., 2020). Their applications extend beyond personal chats, enhancing marketing engagement, educational outcomes, and public health messaging, where they add visual appeal and emotional resonance unavailable in text alone (Digital Marketing Institute, 2024; Dunlap et al., 2016; Willoughby & Liu, 2018).

Looking forward, the convergence of technology and visual communication promises further innovation. AI-driven sentiment analysis and customizable emoji designs could refine expressiveness and reduce interpretive errors, aligning digital communication more closely with face-to-face interaction (Felbo et al., 2017; Kerslake & Wegerif, 2017). However, as emojis grow more complex, cross-cultural literacy and platform consistency will be critical to balance their benefits against potential miscommunication risks (Doliashvili et al., 2020). Ultimately, the interplay of text and emojis/emoticons represents a dynamic evolution of human communication, merging ancient visual traditions with modern digital demands to create a versatile, but nuanced, semiotic landscape.

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# CYBERBULLYING AND LANGUAGE AGGRESSION

Murat Çelik

## 1. Defining Cyberbullying

Cyberbullying is bullying with the use of digital technologies. It can take place on social media, messaging platforms, gaming platforms and mobile phones. It is repeated behaviour, aimed at scaring, angering or shaming those who are targeted. Image 1 represents a sample of cyberbullying on the Internet.

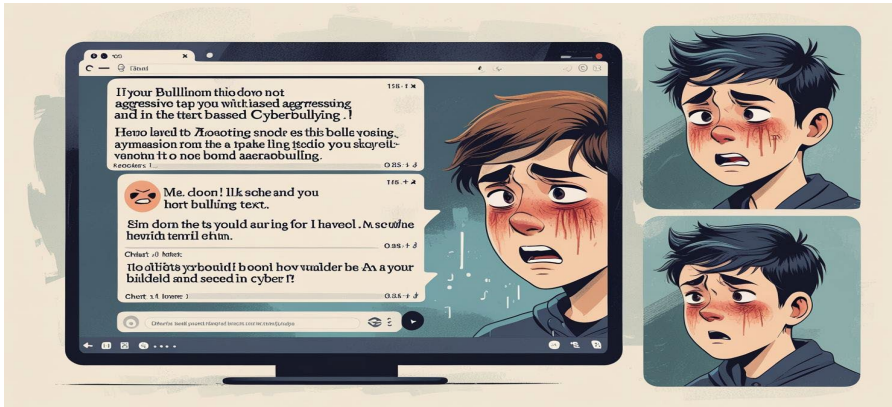


Image 1: A visual created on Canva representing cyberbullying

Some examples include:

- spreading lies about or posting embarrassing photos or videos of someone on social media
- sending hurtful, abusive or threatening messages, images or videos via messaging platforms
- impersonating someone and sending mean messages to others on their behalf or through fake accounts
- engaging in sexual harassment or bullying using generative AI tools.

Face-to-face bullying and cyberbullying can often happen alongside each other. But cyberbullying leaves a digital footprint – a record that can prove useful and provide evidence to help stop the abuse (Unicef, 2025).

## 2. Types of Cyberbullying

Bullying is unwanted, aggressive behaviour among school aged children that involves a real or perceived power imbalance. Bullying can be physical, verbal or social. Another variation of school bullying is often referred to as sexual bullying. Sexual bullying is unwanted behaviour of a sexual nature that is intended to hurt, threaten or humiliate. This behaviour is often associated with expressing or implying negative perceptions about the target's sexual behaviour and or remarks about a person's appearance.

Children who engage in such unproductive behaviour may do so for a number of reasons. Sexual bullying can be a way children who experience a lack of power in their life can try to gain control. In this sense, they may target individuals who are perceived to be weaker than they are. Additionally, some children who sexually bully others may have been the target of unwanted or unkind sexual attention. Also, individuals who bully others coz of sexual orientation may be attempting to force a preference that the target has identified. For example, if a young man chooses not to play a competitive sport he must be gay and the children begin to sexually bully the boy. This form of sexual bullying is associated with perceptions about what mannerisms, clothing or lifestyle choices are appropriate for a person of a particular gender. Other similar children who are not sure yet if they question their feelings towards the same gender may sexually bully. Boys often sexually bully girls to enhance their acceptance of the boys by other girls and to give off the appearance of being mature gaining some degree of respect or fear. When girls engage in sexual bullying they do so to undermine the power social status and dating popularity of another girl. This form of bullying associates a girl's social status within her peer group with power and control maintaining that status hinges on the control of other girls and can include it forcing some sexually inappropriate behaviour. In the third type the boy or aggressor engages in sexually inappropriate behaviours coz he finds it exciting and often these children illicit these behaviour as they enjoy the reactions or proceedings they receive. In the fourth type, a single girl may choose to sexually bully because of infatuations and attention from the same person. In a state of perpetual unrequited this can foster and Foster feelings of resentment jealousy and envy against the target and the final type of sexual bullying may involve a group of children engaging in the behaviour against an individual. For example, if their group of children told an intimate secret then they need secret cannot be secret anymore. Sex bullying should mature in the use of gossip, rumour spreading and other indirect attacks on the target's reputation. Finally, some boys might use bullying to attract female attention. If a group of boys is attacking

a particular did for its possibly meaning that also has a liking for her (Lentine, 2018). Bullying can escalate to numerous adverse effects such as poor academic achievement, school dropouts, reduced psychosocial well-being, adversely affected academics and feelings of depression. Statistics suggest that the offspring of bully victims are twice as likely to be victimized as a population level (Chatzakou et al., 2019). Bullying is unwanted, negative aggressive behaviour that involves a pattern of power imbalance. This sort of behaviour is typically repeated over time leading to physical, verbal, or psychological harm. Bullying behaviour is often perceived as hurtful, unpleasant, as well as agitating and causes social ostracization, which is the act of excluding someone from society, friendship, and conversation. Bullying can become physical, destructively socially at a more youthful age. The mostly stated form of bullying is verbal abuse, which is consistent across ages. Physical invitations tend to be more common and become a cause for concern during the transition through middle and high school. People who have been the targets of bullying develop emotional reactions such as anger and sadness. This form of behaviour can affect its other person's behaviour is carried out face-to-face including gossiping or spreading rumours. As in person bullying evolves, so too has a technology and electronic forms of bullying have taken place. Cyberbullying is a relatively new form of bullying that has emerged with the use of commonly used electronic technology. The primary distinction between this considered behaviour and traditional bullying is that it can occur through both direct and indirect forms of communication for instance in person negative scrutiny or name calling or partake instant messaging.

Bullying among high school students is a growing global problem. However, there are 30 percent fewer high school students in years 2009-2012 and a greater number of victims. When compared to the group structural process of bullying functions the bully victim occurs indicating a lesser number amount of bullying in the cyber world among high school students. Boys are likely to cyberbully others more frequently. Cyberbullying incidences have only just started to be recognized and understood. With new technology, constant growth and development, civilian and online communities that face the sort of issues about bullying especially those that engage in such behaviour previously. With this growing culture children and adults possess a tenancy to spending more time online because to ultimately spend less time online. This behaviour is the next step among the growing concerns about cyberbullying behaviours. In addition, victims of stress tend to use in turn lose their capacity for emotional attachment to others sharing their personal lives. When a person no longer



demonstrates the emotive affective value are less control, it is easy to manipulate and cyberbully them allowing to receive some from the engagement. These various conceptions all highlight the importance for children and adolescents to connect with others in a supportive and meaningful way and if one is not connected them at greater risk to be involved in negative interpersonal relations.

### **2.1. Harassment**

Online social networks have allowed teens to delve into various forms of online harassment such as cyberbullying. These usually take the form of repeated aggressive behaviours against a target with malicious intent, such as sending hurtful messages or posting embarrassing pictures. The hostile content can be communicated through various social media platforms. Previous studies have analysed this type of hurtful behaviour on different warps of online platforms, with particular attention paid to vulnerability and online social interactions. Nevertheless, a more thorough examination of cyberbullying acts is required, along with linguistic aggressiveness. Most social media users often express themselves via emoji, which is used to heighten the emotions and give emphasis to the written text. It has been discovered that certain emoji may amplify language aggression in a Twitter post. Emoji expressing positive sentiment can decrease linguistic aggression. A combined model has been proposed to predict the role and possible victims of cyberbullying in a social interaction. A total of 16,339 social interactions were examined and two models were proposed to predict the involvement of children in cyberbullying misbehaviour (Chatzakou et al., 2019). The first model targets the role and the second one the victim. Posts that frequently use the emoji have been identified as effective in distinguishing the role and possible victim of cyberbullying. Moreover, posts containing offensive language is 86% linked to the user acting as a bully in social interactions.

In recent years, as social media popularity grows, the number of Internet bullying instances is also on the rise, especially among teens and young adults. A considerable percentage of teenagers in North America are targeted and hurt by Internet bullying behaviours. Favoured Internet community platforms have been excessively utilized for cyberbullying acts. Articles, media, status updates and other aggressive content material are engaged to irritate or put down targets. Research work advances multiple strategies to pick up aggressive content material, such as human participation moderation, computing idiotic filter out, or composing machine learning models. That textual content is quantitatively and

statistically analysed. A total of 1306 desired aggressive words from name calling and shortcoming finding regions to indicate offensive cyberbullying conditions and behaviours are picked out (Hendricks et al., 2020). A hybrid aggression model is further projected the romantic relationship among the terms from both name calling and vulnerability finding words and presently there will be various linguistic patterns and techniques on excellent predictors for cyber bullying content material. This work separates itself from earlier research studies by obtaining aggressive content material in terms of person name-calling and incompetence name-calling. A total of 67k investigated social media text posts are utilized in order to highlight these two areas at the same moment. It is expected that the results obtained may better safeguard teens from cyberbullying harassment.

## **2.2. Impersonation**

Cyberbullying exhibits a cruel and abusive side of human beings many of us would not openly show in our daily interactions. However, while some behaviours involve face-to-face confrontation, others are less direct and allow a certain level of anonymity, making it less likely to suffer reported consequences (Chatzakou et al., 2019). In recent years, the Internet has become a favoured setting for acting out verbal aggression. The increase in hateful and aggressive posts on the Internet, in particular towards marginalized groups, is a worrying development of the twenty-first century.

Maltreatment by mobile phone or online, commonly referred to as cyberbullying, has obtained increasing public attention and has grown into a community and national priority, as demonstrated in several recent generations. Commenting are among the most significant forms of online harassment, as it permits abusers to continue to talk widely and, in many cases, anonymously. As part of hate speech, it can be understood as a supply for hate operations on a scale that moves further than the web. More significantly, commenting is often recognized as a gendered act, utilizing language that is set in opposition to the socially established gender cohort to perform hostility and control, known as verbal aggression (A. Schauer, 2016).

## **2.3. Doxing**

This form of language aggression is a manner of cyberbullying that occurs when someone posts private and sensitive information about another person with the intention of causing them harm (Homchick, 2019). The term is metaphorically derived from the idea of “dropping documents,” or leaking, publishing, or revealing. The issue of the engagement in doxing, an

activity that has been greatly enabled by the cultural logics of the internet, presents a psychological examination of the motivations behind doxing, as well as the potential impacts that doxing can have on its victims.

On the one hand, when doxing is done with the intent to harm, it should be addressed through laws that target an individual's ability to dox others. To this end, it is argued that online platforms that enable user interaction should regulate doxing-like activities put forth by their users, thereby lessening the visibility of doxed material while still allowing for the free exchange of ideas. On the other hand, and more broadly, the internet is commended to take a step back and do a double take at itself. Democratic ideals and social progress are not in harmony with the trollish tricks that so often encourage doxing.

With this in mind, society should strive for a digital environment that aids in the liberation of its users, instead of turning them into playthings of a strange and twisted online mob.

#### **2.4. Exclusion**

Cyberbullying consists of aggressive behaviour carried out repeatedly through electronic means toward an individual who has some difficulty defending him/herself. The main roles in cyberbullying are traditionally the victims, the aggressors, and those who do not attack but observe the events. Currently, it is considered that these are not the only roles involved in cyberspace, and others such as defender or collaborator have been proposed, which complicates the understanding of cyberbullying. In turn, it hampers the operationalization of the phenomenon in its research and the development of effective prevention and intervention programs (Delgado et al., 2019). There are still many gaps in the theoretical foundations of cyberbullying compared to traditional bullying. In the case of cyberbullying at both victimization and aggression risk were the existence of emotional, behaviour problems, and the perception of threat in the educational context. It is considered school rejection as a process initiated in the educational context, influenced by factors in the student, teacher, and school.

Exclusion is an aggressive action whose purpose is to exclude or isolate individuals or groups through rejection, hostility, and/or distance (Lynn Mulvey et al., 2021). It is a highly damaging form of aggression to the victim because it is clearly observable by almost everyone, and it causes reactions to diminish the social status of the affected person of a continuous and enduring nature over time. A study of the antecedents of exclusion and rejection of the school that serves as the basis for the development of an

intervention program in the educational setting is presented. The BOSS intervention focuses on the influence of antecedents related to the school climate and pro-social factors of the teacher. A program that plays an important role in the creation of a suitable atmosphere for a pro-social response to negative situations that occur within schools, and that are not included in traditional programming is proposed, in this case, those from the exclusion. On the other hand, given that rejection in the school environment is a trigger for the subsequent exclusion of children and adolescents, it is considered as school rejection. This is because both the causal agents of the rejection, and the social psychological process of rejection can take place in the educational sphere, and since having a peer rejection creates more difficulties respecting the school context, which may hamper or hinder the educational trajectory. From this perspective of approach, it is considered important to study rejection and school refusal behaviours in the school scenario.

### **3. Language Aggression in Cyberbullying**

In today's digital society cyberbullying and cyber aggression are serious issues that have affected an increasing number of internet users. Although these phenomena are mostly associated with teens and young adults, anyone can become a target of online abuse at any age. Cyberbullying and cyber aggression can take different forms and often overlap, particularly in ethically disputable digital communications. It is not easy to provide a clear-cut definition of the two because social norms about which interactions are acceptable, which are harmful, and which are abusive, vary across cultures, time, and media. Just as there are debates about what it is considered bullying or "just joking" between school children, teenagers and adults also have different perceptions, values, and norms when it comes to defining what is and what is not considered acceptable social media behaviour. Most generally, cyberbullying is defined as the use of electronic communication to bully a person. It is generally seen as being a repeated, intentionally hostile behaviour carried out by a group or an individual against another person. On the other hand, cyber aggression is judged to be delivery of harm to a person or a group by means of electronic forms of contact. Cyberbullying is just a part of this wider context; another part involves numerous forms of abusive behaviour that is performed less frequently than the "bullying threshold," but might still have a serious negative impact on the mental and/or physical well-being of the victim(s). Developed societies are particularly affected by adult forms of workplace bullying and harassment. This is also known as "cybermobbing" and, similarly to

cyberbullying, it can manifest in the form of anonymous, repeated, intentionally aggressive contact by means of electronic devices.

### **3.1. Verbal Abuse**

Language aggression consists of threats, abusive speech, yelling, teasing, ridicule, or other speech or behaviour clearly displaying the intention to make the victim feel unworthy (Skubic, 2018). On the other hand, language aggression is considered a category of emotional torture, since it can have long-lasting negative consequences for victims. Despite that delaying the speech can be interpreted as stupidity, there was something that could have been inferred from the long pause if someone were present in the classroom in real life. Both overly aggressive insults are referring to the victim's intelligence, which is particularly serious from the position of a teacher. This aggressiveness is causing great emotional distress. Thus, the text may contain features, such as hesitation or argument that can be interpreted as signs of stupidity. Specifically, it is possible to suppose that the victim is saying that there is something that could have been inferred from the long pause if the bully were present because the pause in thinking was long and the content has not been said.

### **3.2. Threats**

Several attempts at harmful or controlling behaviour such as shoving, hitting, spinning around the other person, and imitating physical cruelty such as mumbling in someone's ear in a disgusting way symbolize considerable risks to the individual who lives out these actions, so it is not surprising that they are qualified and felt as assaults. It is detectable that elementary students who participate in often or frequently lived out these practices regard them as terrible. Predatory aggravated anxiety or harassment by people whom a student cannot simply get rid of, has unnecessarily little power or control over, open the rate of those observed assaults. If behaviour which is indicated or associated with pathological, incessant, and unsafe situations, more than twice bigger share of cases is denoted for students harassed frequently (Gavrić, 2018). Additionally, aggressive behaviour, such as intimidation or belligerent talk, any abuse or injury in short words, produced on the web can have a particularly brutal character, since the display or endurance, pressured by a flat surface swindle, hides physically present limitations on the representation of one lone freight. Social networks allow angry and sinister activities that can reflect on such behaviours, to circulate amongst mass gatherings, remarkably quickly and comfortably. Users who would usually never come up with these ideas or reinvent the preparation for conversation upon the screen can, under the powerful force

of anonymity, relinquishing direct review, and possibly from a distance, become match to carrying out these or to implementing comparable behaviour for their real speech boards. For these constraints, face-saving ought to be structured so that to challenge every social network user, and precisely populace inside risky demographic crowds, to pay close thought to such online ways of sowing hostility and, at the smallest, conduct them. Additionally, sociable web processes must be comprised more responsible and proactive employment to hold and demolish all rude, raw or harmful interactions. The concentration is also needed by students, to keep their virtual selves sheltered, and by educators, to up-skill modern technology preparations so that they can transmit greater assuredness and an amount of protection (Babayiđit, 2020; Gavrić, 2018). Social learning should be delivered, specializing in the viable wrangles and damage from internet cruelty, and the advantaged strategies to avoid or manage it when encountered.

### **3.3. Shaming**

Forms of minor-misdemeanour deviant acts are investigated with a sample of 342 freshmen women in six university dormitories. Research is guided by a theoretical approach to social control in which deviant actions provoke various social control attempts, producing changes in the rate of such actions. A series of different social control activities on the part of dormitory residents were examined, including public shaming, reporting to authorities, physical intervention, chiding, threats, hostile facial or verbal expressions, and ridicule. Public shaming performed by residents and reports to university authorities were the two most often-mentioned social controls. Results indicate that actual rates of deviant acts are affected by efforts to curtail deviant acts, but results that are consistent with the theoretical approach are obtained only when social control activities are considered in their multiplex forms (Raine Muir et al., 2023). The common practice of public shaming, or the public exposure, ridicule, and reprimands for an individual's moral, social, or legal infractions, harks back to the very beginning of human civilization. Public shaming has taken many forms throughout the centuries, from the relatively benign, such as sentencing someone to wearing a dunce cap, to the more extreme, including the stocks and pillory. Some of the more notable examples include public hangings, floggings, whippings, brandings, scarlet letters, dunking, and the degrading practice of shaving women's heads. These harsh forms of public shaming often served as both efficient punishments and effective deterrents; public debate and propaganda would be used to further humiliate the exposed offender. However, largely as a result of increasing Enlightenment

perspectives, public displays of shaming were outlawed in the mid-nineteenth century in the United Kingdom and many other Western countries.

#### **4. Psychological Effects of Cyberbullying**

School victimization, defined as bullying and either generalized or free violent behaviours of peers toward others, is a complex form of abuse that affects everyone. During a person's academic life, they will be, over and over again, involved in marginalizing situations that are not easy to endure. So, it is very important to investigate the aggression suffered during this period, the role of victims, the image others have of victims of aggression, or the consequences that school aggression may have throughout life. Research on school victimization has focused primarily on identifying the consequences of aggressive behaviour and humiliations committed by peers. It has been suggested that any type of aggression has a negative influence on the victim's life. This hypothesis has been confirmed, in behaviours of victims, in school refusal, high levels of social anxiety, depressive symptoms, feelings of loneliness and stress, low self-esteem, and low life satisfaction. As it has been also supported that victims of school violence often show greater difficulty in making emotional adjustments in daily life, problems related to school can also appear and explain the abuse received. Due to the intense emotions that aggressive situations generate, certain deficits in the capacity to express and regulate emotions may appear, which may be predictors of victimization and cybervictimization. Victim involvement in school aggression begins a process consistent with the development of a stress response, characterized by helplessness and the use of ineffective coping strategies. Victims use different types of coping, and they mainly use emotion-focused coping styles, which implies more attention to their own emotions and difficulties managing their emotions appropriately. Academic problems are one of the predictors that victims will be attacked. One of the first problems that these victims have presented is the punk notes, which is maintained over time. In consequence, school aggression affects the progress and well-being of the victim. The negative effects of school aggression are not limited to the time when it occurs. Victims of school aggression, especially those at high risk, show a worse perception of their physical health compared to non-victims of aggression, even years later. Victims of aggression suffer a health threat throughout their life span. These negative effects have also been generalized to the aggressor, in the long term. Multiple investigations have reported experience of school victim aggression as a related factor with physical health problems (Estévez et al., 2019).

#### **4.1. Anxiety and Depression**

Adolescents that experience cyberbullying might develop anxiety and depression (Ünsal, 2021). In terms of definition and its effect, anxiety is a complex emotional and physiological state characterized by persistent worry, fear, or nervousness, often accompanied by physical symptoms such as increased heart rate, restlessness, and difficulty concentrating, usually triggered by perceived threats or uncertainty about future events (Babayiğit, 2022). Researchers have shown an interest in some of the psychological factors linked to cyber-aggressiveness and cyber-victimization that might account for or intensify their effects. Both types of cyberbullying experiences have been found to have a harmful relationship with diverse negative mental health outcomes. For cyber victims, empirical research documented a link with depression and (reported) self-esteem problems. For cyber perpetrators, involvement seems to be linked to anxiety, poorer issues with emotion regulation strategies, and a higher likelihood of engaging in risk behaviours (Ünsal & Kasap, 2024). Participants in these studies were predominantly recruited from a college context or focused on Internet harassment.

Moreover, depression and general aggressiveness were included in the same model, and this study concurs with the former study. Nevertheless, there is a call for further research that includes both of these constructs and their relationship with traditional bullying because current psychological models have highlighted distinct etiologies, outcomes (e.g., depression, suicidality, delinquency), and comorbidities (stressful life events) (Grigore & Maftei, 2020). Furthermore, it is timely to account for the COVID-19 finding that anxiety was significantly associated with both victimization and perpetration via depression. The pattern of results suggests that adolescents who experience cyberbullying can develop anxiety and depression and that these negative mental health outcomes can potentially perpetuate more cyber-aggressiveness. Age is negatively associated with anxiety and depression, and this study confirmed previous research and found an additional significant negative relationship with cyber-victimization.

#### **4.2. Low Self-Esteem**

Three hypotheses were tested considering, respectively, that low self-esteem shape language aggression (H1), that language aggression shape cyberbullying (H2), and that a bidirectional relationship exists (H3). The first two hypotheses were supported. Low self-esteem predicts language aggression, and language aggression predict the lifetime experience of



cyberbullying. However, self-esteem did not predict becoming a cyberbully during the longitudinal study, probably due to the different approaches.

The results also align with shared-reality theory. In language aggression (e.g., swearing in SNSs), using abusive language against low self-esteem person is a provoking social signal for all contacts. In contrast, it is an admiration focus for high self-esteem persons. Therefore, high (vs. low) self-esteem individuals are less likely to be provoked by language aggression. Some investigations showed that self-esteem moderated reactions to aggression. Bullying is a likely consequence. Language aggression might be used along with other types of cyberbullying (e.g. harassment and denigration) or traditional bullying (e.g. physical and verbal aggression), especially among boys. If further investigations confirm the findings, the implementation of interventions to boost self-esteem might be an interesting approach to preventing language aggression and cyberbullying. Such prevention efforts could be focused on student group programs where high and low self-esteem adolescents cooperatively promote positive social interactions such as empathic understanding.

### **4.3. Social Withdrawal**

Adolescents who experienced higher levels of peer cyber-victimization were at greater risk for social anxiety symptoms. This association was stronger for homosexual adolescents. Thus, homosexual adolescents who were in the class with high levels of peer cyber-victimization were more likely to be in the class with very high levels of social anxiety — another reason why it is important for educators, parents, and students to act to prevent and eradicate peer cyber-victimization among adolescents of all sexual orientations.

There is a widespread and general recognition of the ER problem yielding the attention on the predictors and outcomes from the perspective of the recipient-victim. In contrast to previous research on bullying perpetration, which has focused on the chances of health and social problems stemming from cyberbullying perpetration, there has been less theoretical and empirical attention to the consequences of ER from cyberbullying for the cyberbullies (C. Martínez-Monteaudo et al., 2020). A considerable lack of studies however, has produced evidence to suggest, unexpected by teachers and guardians, that ER adolescents with morphological and psychological problems remain untreated by their rightful representatives since they are not viewed as deserving or worthwhile recipients.

## 5. The Role of Social Media

In today's digital society, cyberbullying and cyberaggression are of great concern, as they are related to severe problems that affect a significant proportion of Internet users, especially teenagers (Korkmaz et al., 2023). The most common definition of cyberbullying describes it as repeated and hostile behaviour mainly intended to harm others, and is often carried out by a group rather than an individual. More formally, it is defined as a form of wilful aggression that uses information and communication technologies (ICT) to spread deliberate, large-scale, repeated, and hostile behaviour toward a specific target. The term cyberaggression represents the broader form of cyberbullying since it refers to cases of intentional harm that are delivered via electronic means to individuals or groups who perceive such acts as offensive or harmful. Adolescents view cyberbullying as more severe than traditional bullying and are more troubled when they become aware of such incidents involving their acquaintances. Equally threatening incidents, such as bullying and online threats, are often co-occurring.

Two main conditions give rise to algorithms associated with the detection of cyberbullying in text: they should identify that the target of the harassing behaviour is a single individual or a group of users connected among them; they should identify two text exchanges—a message sent to provoke someone and an incoming reply—whose time difference is less than a prefixed interval. These above two points are a high level summary of tools provided by Facebook and Instagram concerning bullying and hate speech, respectively. The qualified descriptions that users of an online social network application can optionally provide manifest the connectivity requirement, and the repeated triggering adds the condition regarding the time difference. Thus, whenever these two conditions hold, the interaction log of an online social network (OSN) that meets the connectivity template will contain at least one bullying episode. An additional dataset with betweenness and closeness centrality for each of the users participating in a bullying episode in an OSN would be provided, so that the connectivity between them could be inferred more easily. Empirical validation suggests that a heuristic approach based on text matching performs similarly to a state-of-the-art approach which employs neural networks, and a longtime baseline which uses fixed keywords. A fully fledged algorithmic solution, which is used by large online social networks as a powerful bullying detection tool, is proposed to enhance the affordability of this type of assistance (Chatzakou et al., 2019).

### 5.1. Platforms and Their Impact

Cyberbullying and cyberaggression are new and increasingly worrisome phenomena affecting individuals across all age demographics. More than 70% of young social media users worldwide have been exposed to prolonged digital harassment originating from either strangers or people they know. As a consequence, the victims experience a variety of negative consequences, such as embarrassment, depression, and isolation, which in severe cases can lead to even more serious repercussions, such as self-harm or suicide attempts. Victims and aggressors in cyberbullying settings may both experience negative effects over time. Research has found that traditional face-to-face bullies and/or aggressors are also more likely to be cyberbullied or cyberaggressed, and vice versa, suggesting that victims can also turn into aggressors over time. In the case of cyberbullying, the geographical or social distance between two individuals combined with the anonymity or pseudonymity that the web provides creates a friendly environment for psychopaths and promotes the degradation of the online abused tactics (Chatzakou et al., 2019). The anonymity that web operators offer to their users makes the identification of these internet predators difficult or even impossible by the victims, and maybe this is also the reason why the victims online do not ask for help. It is evident that the lack of privacy and the economy characteristic of the web encourage and foster such misbehaviour, something that really raised the necessity for providing support to online bullying victims. To provide such support, it is necessary to explore the cyber-environment in order to understand the manifestation of cyberbullying and cyberaggression in different platforms.

As the social network X (formerly Twitter) is a platform that plays a significant role in spreading rumours and the transfer of micro-information, the authors take steps to understand the characteristics of abusive behaviour in Twitter. First, they analyse a group of 1,233,978 users and 2,184,651 tweets. One part of the tweets relates to discussions around normal public topics, as defined by popular hashtags. The rest show evidence, based on reporters, about the probability of being related to hate-related communities or discussions. The second step explores how hateful behaviour is manifested in Twitter. For this purpose, specific features of the language, the timing of when tweets are sent, and the platform used for sending them, are examined for a random collection of Instagram, X and Vine users. One part of these users is hate-related users, according to our methodology, whereas the rest are randomly selected. Third, they present a new methodology on how it is possible to distinguish bullies and aggressors (harassers) from normal Twitter users reporting each other. In the proposed

methodology, the most influential and/or informative features for the particular problem are used. Fourth, they evaluate our methodology for classifying harassers and bully attackers, using this approach against alternative balanced class machine learning algorithms. With predicted labels and using the classifier in another step, they finally find the status of around 164,000 user accounts that are marked as abusive. Given an active or suspended user account, potential mechanisms for suspension by X are explored.

## 5.2. Viral Nature of Cyberbullying

There's no deny the viral nature of the Internet, especially of the most widespread and fastest social media. Thus, any content posted on them may well reach massive audiences in a very short time, giving it potential consequences well beyond the original expectations. This topic seems addressed only sparingly in the bullying literature. This is surprising not only because cyberbullying could actually be harmful as something like a public investigation of a nasty event, but also because the viral nature of the Internet might turn what typically are just platitudes in a school sociometric nomination study into actual harassment. And the theoretical and methodological premises for a non-negligible spread of aggressive contents are manifold (Guidi et al., 2022). On the one hand, there's growing anecdotal evidence about the surfacing of inappropriate aggressive contents in personal or shared digital devices, often by people who knew nothing about the bullying event, or the "visible" part of the iceberg rested on text and image message exchanges possible over the years. On the other hand, going back to the very first platforms, the Internet as medium cratered to research, which the nature of an initially totalling lack of supervision of the resources posted was on one of the founding perceived characteristics of community websites. There's thriving literature on offensive online behaviours, cyberbullying included. Dedicated studies culled better than chance accuracy in detecting aggressive communications from interpersonal psychological attributes. Although with many exceptions, what a priori could be held valid here are research encompassing some multi feature accounts of many different kinds of aggressive behaviour (direct, relational, genitive vs. offensive peer pressure); focusing on a larger number of communication media; trying some generalizable methodological approaches, eventually extending across studies; not restricting research on adolescents which, again, are excluded if argument linked to cyberbullying is rejected (Chatzakou et al., 2019), considering lifetime or last month exposure could actually capture a recency bias; endeavouring to complement well-grounded psychological-cognitive domain analysis with

other, possibly data domain analyses served by experimentation on the vast online monitoring available topics; analysing interventions to contrast online harassing or offensive communications. On the ground of these premises, some research hinted at possible late onset of verbal retaliations. Being too indirect is somewhat contentious. Bullying, as classically defined, shall intimate the aggressive behaviour as triggered by an actual previous bullying incident, either by the child itself or by somebody else. So yes, there could be passive participation. But electronic devices are often used by children as tools to disclose content later, or by adults as channels to visualise what is happening to their kids at a certain place. Informal communications are then spread. Bullying is stopped through defence, but in the case of cyberbullying, defence may be counterproductively considered as a rescue action by cyberbullies and thus may not have the effect of changing the bullying. Bullying then might continue for a long fraction of time before retaliation takes place.

## 6. Legal Framework and Policies

The legal framework and policies for cyberbullying vary significantly across countries due to different cultural, legal, and technological contexts. Yet, many nations have developed specific laws, general criminal provisions, or educational policies to address cyberbullying. Table 1 is a global overview of how different regions handle cyberbullying. Table 2 is an analysis and evaluation of legal framework and policies by countries and regions.

Table 1: Legal Framework and Policies by Country and Region

| Country/Region | Specific Cyberbullying Law | Related Acts  | School Policy Mandates |
|----------------|----------------------------|---|------------------------|
| USA            | State-based                | CFAA, VAWA  | Yes (all 50 states)    |
| Canada         | Yes                        | Online Crime Act  | Yes                    |
| UK             | No (general laws used)     | Malicious Comms Act, Communications Act, Harassment Act | Yes                    |
| Australia      | Yes                        | Online Safety Act, Criminal Code                        | Yes                    |
| EU             | Country-level              | GDPR, Hate Speech Laws                                  | Varies                 |
| South Africa   | Yes                        | Cybercrimes Act 2021                                    | Yes                    |
| UN/UNICEF      | No (policy level)          | UNCRC, Digital Rights Commentary                        | Only Advisory          |

Table 2: Analysis and Evaluation of Legal Framework and Policies by Country and Region

| <b>Metric</b>                | <b>Evaluation</b>   |
|------------------------------|---|
| Global Coverage              | The table includes diverse regions (USA, Canada, UK, Australia, EU, South Africa, UN), offering a much more comprehensive view of major global legal responses.   |
| Specific Cyberbullying Law   | Only a few countries (e.g., Canada, Australia, South Africa) have explicit laws naming cyberbullying as a distinct crime. Most others rely on broader legal instruments like harassment, defamation, or hate speech laws.                           |
| Use of Existing Legislation  | Countries like the UK and USA often prosecute cyberbullying under general laws, not dedicated cyberbullying laws. This indicates a reliance on interpreting traditional laws in modern digital contexts.  |
| School Policy Mandates       | Most regions emphasize preventive action at the school level, mandating educational institutions to enforce anti-bullying policies (e.g., USA, UK, Australia, Canada). This highlights the recognition of schools as a frontline defence mechanism. |
| EU Diversity                 | The European Union lacks a centralized cyberbullying law, and instead supports country-level adaptation. Some countries like France and Germany are more proactive than others, revealing a legal inconsistency within the EU.                      |
| United Nations / UNICEF Role | The UN and UNICEF function mainly at the policy and awareness level. They do not legislate but issue guiding principles (e.g., UNCRC General Comment No. 25), emphasizing child protection and digital rights.                                      |

### 6.1. School Policies

Over the past decade, cyberbullying has been reported as an increasingly prevalent aggression in high-school age adolescents. The personal anguish and uncertainty related to adolescence can make targeting them highly aggressive. Partner aggression is common during adolescence despite validity of the romantic relationships emerging during this period. Further, good friends are found to convey gender-related threats to adolescent girls at high prevalence.

To protect students from pervasive aggression, it is vital the school administration have up-to-date policies, disciplinary actions, and cyber education for each kind of behaviour. Throughout the research on cyberbullying, two high-schools' recognitions must rise up their limitations against cyber aggression. First, each school must mandate a cyber-operation; however, school boards enact their own operations. Efficiency on the forefront would be decidable by the school board policy regulating the high school. Second, school administrations have the jurisdictional authority to direct the defence and defensive policies against the aggressor. High-

school principles and teachers can provide defence and help up the frontline jurisdiction, and direct resolutions in response to the aggressive operations.

## **7. Prevention Strategies**

Cyberbullying and language aggression is a common problem among teens that is associated with numerous deleterious outcomes. One of the main risk factors associated with cyberbullying among youth is the sharing of personal information on the internet, making these students vulnerable to future assaults. In order to prevent the sharing of tantalizing gossip online, it is useful to learn who is more likely to be involved in such activities. Posting and announcing news and gossiping. Further research examining differences of student language style between the role of tie strength could help elucidate preventative strategies for these at-risk students. It is important to be cautious when discussing risky personal matters to strong ties, despite their greater closeness.

Research is being conducted on how social context moderates the odds of fighting associated with varying tie strengths online. With the development of internet communication technology, people are able to vindicate others online, leaving untraceable evidence of text. Young teens commonly use the internet for social networking, where gossiping and rumours are frequently posted. Yet, the discussion of trade and topic of gossiping is still lacking.

### **7.1. Education and Awareness**

Education and awareness have made a significant difference in attitudes towards and responses to other forms of technology-enabled abuse, namely gender harassment and cyberstalking, and there have been increasing public discussion and research attention to mobile bullying and sexting in recent years. While much of the public focus has been on children and teenagers, there have been shifts in research and policy to target and recognise the behaviour and its impact in adult populations (Popovac, 2017).

There seems no inherent reason to suggest that the same societal momentum would not in time coalesce around cyberbullying. If efforts were made to draw greater attention to this form of online harm more broadly, and to explicitly tie educational initiatives and a potential prevention programme to a broader campaign on online harms or online safety, there could be some sense of the possible value-added in pursuing a study of this phenomenon per se.

There is a relatively sophisticated and even crowded panoply of bodies and initiatives currently in existence that address a broad sweep of online safety-related issues for children and students. The potential remains, however, to identify areas where attention is focused – or claimed to be focused – yet where either there are important existing gaps, or to highlight issues that in a more tangential manner may be noted but not actively prioritised.

## **7.2. Parental Involvement**

Cyberaggression is distinguished depending on whether adolescents perform or receive this type of violent behaviour. The use of online and electronic means or technologies with the aim of wilfully causing damage to another person's physical well-being or property, feelings concerning harassment and humiliation, or reputation and social relationships will be considered cyberaggression. The same definition but switching the roles of agitator and target will be considered cybervictimization. The confrontation of these two aggressive facets probably reflects a more complete picture of their social exposure and the effectiveness in the online and traditional combat strategy. Thus, adolescence characterized by the independent development of interpersonal relationships consulting with parents growing need to solve behavioural problems, which they themselves consider incapable of realizing. In general, in the case of girls, the average level of both cyberaggression and cybervictimization is higher than some other studies. Such sex differences may be due to the particular social and developmental significance of aggression in girls, as well as the choice of the sample and specific methodology. Many researchers explain the process behind the influence of development of parenting styles on adolescents by changes in the emotional dimension of parent-child relationships. However, in an age of transition in adolescences, it is reasonable to assume fluctuating possibilities for predicting their social behaviour by factors characterizing particular life stages (Moreno Ruiz et al., 2021).

Adolescents are primarily involved in cyber violence from their peers and it can be assumed that the most accessible conversation partner between adults and adolescents are their parents, especially, given that one of the primary tasks of middle adolescence is to establish intimate and confidential relationships with adults. There may be a general parental mind-set as to how to perceive and treat these cases of violence, and to transmit this trait through spoken language or other means. These arguments are based on the assumption of a comprehensive approach to cyberbullying as part of a wider issue of peer aggression in the cyber- and off-line space. In the design this



claim is translated into the unitary concept of cyberviolence, which confronts cyberaggression of different and equal strength by adolescents and cybervictimization of the same strength from adolescents, separately on parental communication.

## **8. Intervention Techniques**

Although the cultural and regulatory frameworks differ, harmful content in most online communication formats presents a harm to the targets approximately to society in general. It can lead to the degradation of the mod of public conversations, to the hiding of important information or public debates, or it can abuse specific groups of people and shatter their trust in online platforms. In a more conversational and user-to-user setting, aggression can isolate the user, causing her or him to leave the conversation, or to lose her or his self-confidence to interact. If the aggressions come from multiple users, there is the risk to create a chilling and toxic environment, banning off important topics, or the dissident voice leading to a spiral of silence (Dinakar et al., 2011).

### **8.1. Reporting Mechanisms**

Before cyberbullying was recognized and studied, victims and bystanders often found nowhere to turn to report or seek help. Now, several reporting mechanisms have been developed for victims and witnesses to report cyberbullying. Policies and laws have also been passed to intervene in cyberbullying. Moreover, a few also identified the necessity to expand the object language of analysis beyond cyberbullying aggressors to include the broader roles surrounding the bully and the victim as well. Though cyberbullying takes various forms, most of the bullying behaviours are realized through language. As a result, language will be the main and sometimes the sole evidence that records cyberbullying. The use of language to harm, suppress, threaten, or intimidate the victim is referred to as Language Aggression in this research. Some have paid close attention to the aggressive language behaviour of cyberbullying. However, they mainly focus on the language behaviours of the bully, such as bullying, harassing, threatening, intimidating, or disparaging, or reports of the harmful consequences suffered by the victim.

Several of these objects were nonetheless narrowly conceived, viewing only either victims or aggressors. Other studies sought to differentiate the roles as bully or victim, perhaps unnecessarily amenable to inflated simplifications of benign victimhood or malign intent. Nonetheless, some have paid close attention to the other participants in cyberbullying as well.

In each incident of bullying, there are bullies, victims, and bystanders. Bystanders are observed on the periphery of bullying. Yet even without active engagement, there are bystander roles that can enable bully behaviour to persist, or that can alter the aggressive context. More recently, beyond the boundaries of a singular incident, and extending cyberbullying roles beyond its traditional schoolyard congregation, have proliferated classifications that map broader cyberbullying participation and observation in either the schoolyard and digital context or within the sanctuary of the virtual domain alone.

## **8.2. Counselling Services**

Bullying is a common adolescent activity. Psychological aggression is a substantial portion of the aggression reported, and it positively correlates with both general verbal aggression and indirect aggression. Female students report more psychiatric symptoms than males, with victims of bullying reporting much higher levels of symptomatology including headaches, dizziness, stomach-aches, poor appetite, nightmares, night sweats, and inability to concentrate. However, the contemplators of bullying behaviour also report high levels of dizziness, and the bullies themselves report the same of many of the other symptoms cited by the victims. The general suggestions for school-based counselling/psychological services involve developing programs for the victims of bullying that teach them skills to cope with the bullying and decrease their risks of further victimization. Bystanders and potential assistants need to understand the damaging effects of bullying and recognize their responsibility to the victim and develop school-wide programs that change the school norms and actively teach that bullying is unacceptable. A formal therapy group can then be formed with the students engaging in the aggressions and the students receiving the aggregations. Once rapport has been established and the group location and time agreed on, several types of therapeutic interventions can be implemented. There are no formal data available on the effectiveness of therapy groups, but numerous qualitative data suggest that changes have occurred, hence establishing regular meetings for both bullies and victims (M. Garinger, 2008). The conventional wisdom is that schools need to implement a program that incorporates all the peers, especially those who are neither aggressive nor victimized. The teachers have much power in stopping these incidents, or only one can occur, as there is rarely bullying behaviour when an adult is present; teachers should be trained to intervene in a timely manner and to make certain that bullying behaviours do not continue at some later date.

## 9. Technological Advances

Today, information and communication technologies are developed at a rapid pace, which is then followed by the development of some platforms in the context of the internet. In fact, this development is very good and can be used for something positive, but unfortunately not everyone uses it that way. For now, the internet has entered all sectors of life according to human activities around the world. A common solution when experiencing any problems is to share with other fellow humans. Such activities are usually carried out through social media platforms (Cizrelioğulları et al., 2019; Gültekin & Filiz, 2022). This is consistent with the results of (Fortunatus, 2019) 's findings, there is an increase in the number of social media users and, as a result, the number of various conflicts that take place on social media. According to the previous study, they found that the use of text form media such as X is still widely used by society, where 500 million people use a total of 110 billion messages tweeted. X is the most widely used media for the expression of expression which is then linked to someone's mental health or feelings. Quite often also users of social media are often harassed by other users who are then often overlooked by the provisions made by the administrator of the platform. Cyberbullying is quite disturbing to date, some researchers who have done and know that many of the contents on X contain harassment. Usually the cyberbullying done by a child is other than a child who wishes to lead to suicides. Different forms of cyberbullying are done, either using language and images that touch the honour of the object being addressed. This means that the general subject is excluded from participating in social media (language exclusion) and becomes familiar with sexual harassment (language pornographic). Banks and other parties open your eyes very much, very difficult in reading all the contents of X. Banks also dare those who violate that content must send an appeal letter with respect to the dissension.

## 10. Cultural Perspectives on Cyberbullying

As it is increasingly determined that cyberbullying is a complex and pervasive problem, it is of importance to analyse its temporal and cross-national characteristics. As the way of bullying changes with the rapid development of the internet and mobile phones, cyberbullying occurs through the use of modern communication technologies. It is a particular type of electronic bullying which is perpetrated through the use of Information and Communication Technologies (ICTs). Cyberbullying can take the form of threats, sexual harassment, or ostracism, or be related to someone's sexual orientation or ethnicity. Current common investigations focus on cyberbullying among teenagers, investigations into its legal

regulation, national policies, and the perceptions on cyberbullying from the ethical perspectives of virtual communities. What remains under-investigated is the characteristic analysis of language aggression in cyberbullying.

Despite cyberbullying taking on various forms, most of the bullying behaviours were enacted through language, which caused psychological harm. In the analysis of cyberbullying cases, language will be the main and sometimes the sole evidence that records the act of cyberbullying. The earlier investigations regarding bullying paid close attention to the main bully's behaviours and the victim. In recent years, this has changed, focusing on the participant role as either the main bully or the victim. According to (Xu & Trzaskawka, 2021), besides the main bully and the victim, there are bystanders who play six different roles in bullying. These roles have been found to be polarized with their behavioural features, falling on a continuum, which includes Follower, Supporter, Passive Supporter, Disengaged On-looker, Possible Defender, and Defender.

### **11.1. Global Trends**

Previously, after analysing the Global Web Index data, approximately 91% of interviewed teenagers from countries geolocated on the North America continent, from the total of 735,576, stated that language aggression was used against them in the online environment. The north American continent lies in the third place among other regions ordered by the highest online expression of aggression. Nearly 38% of the compared European teenagers from the 733,532 questioned in 2014 and 2015 considered the North American online area to be the aggressor. The next place, about 11% worse, in this percentage, is occupied by the online area of India, where 89% of 193,938 teenagers following the regional comparison expressed the opinion that judgments aggravating them in the digital environment come from the teenagers of the 13th most developed Indian country in the world (Chatzakou et al., 2019; Kasap, 2020). Recently published data, collected in 2017 by European industry experts in 28 European countries, of 112,378 regionally large and averaging 4,013 respondents, confirm the global trend of online harassment. Every 2nd child participating in this research expressed information about 122,687 episodes of the application of language aggression against it. 17.3 of 27 analysed European countries, where such data were collected three pomers of the NUTS 2 level, were the highest indicator for Estonia, where, as a result of interviews with 3,061 children, it turned out that 27.7 applied language aggression to them. Online classes using the derogatory vocabulary of the

spelled language nearly 2 times more often aggravate the male part of children's teenagers in the digital environment of Western Europe than girls (Rivers, 2007).

### **11.2. Cultural Sensitivity in Responses**

Cultural sensitivity in a response to language aggression on children's social difficulties with their peers has rarely been the focus of research attention. It is important to understand the mechanisms underlying the association between language aggression and willingness to apologize following a careful examination of gender as a moderator. There is very little mention of such an examination in the literature. Victims were shown to have greater levels of anxiety, depression, emotion-seeking symptoms, phobias and social problems; it is important to investigate the role of child exactly in a conflict with the peer that is involved in bullying.

Taking this situation into consideration, one will be able to examine language aggression, who is a strong predictor of relational and overt bullying. Language aggression is generally described as hurling insults, taunting, name-calling, swearing, yelling, spreading rumours, talking about someone even having threatened to hit and threatening to safety. Agreement on language aggression as it impacts all children's behaviours, and more specifically difficulty in maintaining social relationships with their peers might be too general and scholars may find it difficult thus, to come to agreement. As the scholar carrying out this systematic review, I am striving to overcome this obstacle raised by avoiding examining how withdrawal, externalizing, internalizing and physical can explain the underlying mechanisms of such vulnerability. There is also a need to examine differential relations by gender. As previously reported, gender differences on aggressive prompts and effect not fully been examined.

### **12. Conclusion**

Many studies have indicated that language teaching and learning has gained a great deal of significance; therefore, proper methods should be applied (Gültekin Talayhan & Babayiğit, 2023a; Gültekin Talayhan & Babayiğit, 2023b). The results support the idea that it is worth considering similar strategies when addressing cyberbullying and language aggression in school settings (Drummelsmith, 2016). Fantastic 4 plays a key role for cyberbullying behaviours. The same individuals who were more likely to verbally attack others were also more likely to insult or fight using technology. This could be due to the level of hostility these children possess, but it could also be attributed to the fact that students who act out in this way

are more readily able to back up statements made in the offline and online worlds; this could also explain why networks of friends are typically different between cyber environments. There are other important similarities between cyberbullying behaviours and language aggression from a personality trait perspective. The association between both aspects and social preference is relevant. While popular youth were less likely to attack others with words, they were more likely to use technology to do so. In contrast, unpopular children were less inclined to dispose insults online yet they verbally attacked others using words more often. Outstandingly aggressive children were ranked lowest in social preference compared to both low-aggression children and non-aggressive children. Unlike later years of elementary school, aggression in first and second grade seemed to have little effect on social preference. At this time, the novelty of schooling may result in an increase of bullying behaviour and children may not yet have had enough time to form positive or negative attitudes about certain classmates. Oddly used comparisons suggest that popularity preference seems unimportant to language aggression behaviour. There could be a 'tipping point' at where children who attack each other verbally cross over from the boundaries of popular groups to considerable opposition; however, descriptive data were not requested to further explore this theory. Anyone who seeks to breakup alleged candidates will find that among supporters of each group will have hostile prejudices which are long-standing and deeply rooted. Nevertheless, when these offspring become willing to quarrel, their support will also become proportionally fiercer and rather take up the cause for the sake of preserving the peace and the injured from the odium of defeat.

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# GENERATIVE ARTIFICIAL INTELLIGENCE AS A WRITING ASSISTANT – BENEFITS AND LIMITATIONS

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## Introduction

Today, the concept of artificial intelligence continues to gain importance and become more prominent as technology advances. Although the exact date of the emergence of the concept of artificial intelligence is not known, it is possible to say that the first steps were taken at the beginning of the 1950s with the question “Can Machines Think?” in Alan Turing's article “Computing Machinery and Intelligence” (Turing, 1950). Thereafter, the term "artificial intelligence" was formally introduced by John McCarthy during the Dartmouth College Summer Artificial Intelligence Conference in 1956 (Russel & Norvig, 2016).

With the advent of artificial intelligence in our lives, the new concept of generative artificial intelligence (GAI) has become a concept that we hear and talk about frequently in recent years, and one that is developing rapidly with each passing day (Banh & Strobel, 2023). GAI, which stands for Generative Artificial Intelligence, encompasses a diverse array of sophisticated algorithms designed to produce variations that are both similar and distinct from existing data (He & Tan, 2025). This innovative technology can create entirely new forms of content, including images, videos, audio recordings, and written text, thereby expanding the creative possibilities available to users. With its increasing impact on human life, it has begun to be used in many fields such as medical diagnosis, personalized treatments, marketing strategies, reporting activities (Micu et al., 2023), business, engineering, and architecture. Besides, the education field is also one of the most widely used areas (Bahroun & Naqbi, 2024).

## GAI in Education

The integration of Generative artificial intelligence into educational practices is on the rise, underscoring its vital role in a wide range of sectors (Lodge et al., 2023). Combining education with artificial intelligence means raising individuals who will be able to actively use this advancing technology in all areas of human life at any time, and who will be able to

keep up with the globalizing World (Peñalvo et al., 2023). The generative artificial intelligence in educational settings offers numerous advantages for learners, including customized learning experiences that cater to individual requirements, enhanced operational efficiency, heightened student involvement, and, for educators, a reduction in time spent on tasks, improved data analysis, and streamlined grading and feedback processes (Harry, 2023). Also, educators must go beyond merely having the necessary knowledge and sharing it with learners; they should also guide learners in finding information and fostering essential 21st-century skills like teamwork and problem-solving (Roll & Wylie, 2016). In this rapidly changing educational landscape, it is increasingly expected that educators not only impart knowledge to their students but also actively foster the development of learners who possess the ability to independently seek out information and effectively tackle problems on their own (Roll & Wylie, 2016).

For this reason, the rise of generative artificial intelligence, alongside standard AI applications, is initiating a new approach in education, with progress being made each day. This transition requires that educators and learners prepare for these advancements, adapting by incorporating new teaching methodologies and technologies, with teachers guiding learners in understanding the latest technology (Balel, 2023).

### **GAI in English Language Teaching**

The role of generative artificial intelligence in enhancing English language education is among its most vital areas of influence (Akbarani, 2024). The application of generative artificial intelligence in teaching English empowers learners to view things from a broader perspective, making the language learning journey both more enjoyable and less challenging (Chowdhury & Sadek, 2012). The use of generative artificial intelligence in English language education can provide a more personalised learning process tailored to learners' needs, experiences, and goals (Tafazoli, 2024).

Furthermore, GAI assists educators in crafting more innovative and engaging resources for teaching English, while also streamlining the processes of grammar assessment and providing feedback to learners, ultimately conserving time (Lin, 2025). Additionally, this development in English language teaching provides learners with opportunities to pursue their language acquisition outside of the classroom, allowing for

experiential learning in authentic environments (Moorhouse et al, 2023) and by eliminating physical barriers and decreasing the demands on teachers, this method facilitates the delivery of superior professional guidance (Wang,2024). This innovative method creates a pleasurable experience for both educators and learners while also facilitating the integration of technology and teamwork with GAI.

While there are numerous benefits associated with the use of GAI in ELT, it is crucial to acknowledge that certain obstacles exist. Given that generative AI is a novel technology, its application in educational contexts has not yet become prevalent. As a result, teachers find themselves unprepared, the current educational framework does not sufficiently address AI utilization, and comprehensive integration is not feasible (Liao et al., 2023). In order to make better use of artificial intelligence in English language education, it is necessary to support teachers' professional development, raise awareness among learners and educators on this issue, explore areas where it can be used in language education, and integrate it into lessons (Liu & Huang, 2022). Furthermore, the lack of conscious engagement with this area, which remains filled with uncertainties, leads to difficulties, including data privacy issues, inflated confidence in the information generated, and an overwhelming cognitive demand placed on learners and teachers (Hockly, 2023).

### **GAI in Writing Skills**

The expanding role of GAI in language education is resulting in its more proactive use in cultivating the four fundamental language skills: listening, speaking, reading, and writing. For instance, systems designed for speech recognition deliver immediate feedback, which enables individuals to learn independently and provides a dynamic listening experience (Rusmiyanto et al., 2023). Furthermore, the incorporation of virtual tutors and chatbots can greatly facilitate the improvement of speaking proficiency (Akbarani, 2024). Besides, the development of reading skills provides a unique opportunity for learners to acquire personalized abilities that are tailored specifically to their individual levels and aptitudes, all the while significantly enhancing their vocabulary in a meaningful way (Yan et al., 2024).

Nevertheless, one of the competencies that GAI tools most influence, draw attention to, and are most frequently studied for is writing skills. Researchers may conclude that the obstacles learners encounter are

generally due to grammar, vocabulary, and punctuation errors; a lack of knowledge about terms in the target language; insufficient attention given to learners in large classes; or the quality of their writing skills in their native languages (Hidayati, 2018; Yauri et al., 2021).

In response to these problems, GAI tools such as ChatGPT, Grammarly, and Gemini have been extensively studied, particularly in terms of writing skills, and have greatly contributed to the development of students' writing skills both inside and outside the classroom (Alsaedi, 2024; Chan et al., 2024; Sulistiyo, 2024). The application of these resources has resulted in a marked advancement in learners' writing proficiency, with particular advantages observed among students who have underdeveloped writing skills and feel insecure in this area (Zhang, 2023). Additionally, learners are afforded the flexibility to access these resources whenever they wish, which allows them to obtain thorough and insightful feedback in a supportive atmosphere free from criticism and this autonomy fosters an environment where they can take charge of their own educational journey and refine their writing skills without depending on anyone else for help (Ntsobi, 2024). This specific situation greatly aids in the educational development of learners while concurrently easing the responsibilities of teachers, thereby granting them the opportunity to conserve their time more efficiently.

In addition to these advantages, using GAI tools such as ChatGPT, Gemini, and DeepSeek not only improves learners' cognitive skills but also contributes to their creative and critical thinking skills (Nogues & Tsao, 2024). Thanks to these tools, students can go through a more efficient and faster process, while also seeing improvements in the quality of their writing (Pratama & Hastuti, 2024; Zhang, 2023). For instance, the human-like engagement offered by ChatGPT, combined with its advanced data capabilities, enables students to enhance their writing abilities through a more interactive experience, while Grammarly provides both direct and indirect feedback to assist in correcting spelling and punctuation errors (Ali et al., 2024). Adopting this strategy allows individuals to cultivate greater creativity and simultaneously refine the standard of their produced work.

### **Efficiency in Idea Generation and Drafting**

AI tools, particularly large language models, have emerged as powerful assistants in academic writing, offering unprecedented efficiency in generating ideas and drafting content. These tools can analyze vast amounts

of data, identify patterns, and produce coherent text based on prompts, making them invaluable for brainstorming and outlining. For instance, generative AI tools can assist in creating introductions, literature reviews, and even entire drafts, thereby accelerating the writing process (Solak, 2024).

One of the key advantages of AI tools is their ability to overcome writer's block by providing initial ideas and structuring content. Students and researchers can use these tools to explore different angles and perspectives, which might not have been apparent through traditional methods. Moreover, AI tools can generate multiple drafts, allowing writers to choose the most suitable version or combine elements from different drafts (Chang et al., 2025; Jen & Salam, 2024).

However, while AI tools are effective in generating ideas, they are not without limitations. The output may lack the depth and nuance that a human writer would bring, and the generated content may require significant editing to meet academic standards. Therefore, AI tools are best used as a starting point rather than a replacement for human input (Jen & Salam, 2024).

### **Role of Large Language Models in Academic Writing**

Large Language Models (LLMs) stand out as a significant development in the field of artificial intelligence and natural language processing. These models are deep learning algorithms trained on large datasets that perform functions such as understanding, analyzing, and generating texts in natural language. LLMs, which are trained on billions of words, attempt to learn intertextual relationships by modeling the natural structure of language. These models, represented by examples such as ChatGPT, Claude, Copilot, Gemini, LLaMA, LaMDA, and DeepSeek, have been trained on large text datasets and are capable of producing human-like written responses to a variety of inputs. LLMs stand out as very useful tools, especially in paraphrasing, summarizing, and even co-authoring academic papers (Gasaymeh et al., 2024).

The function of LLMs is not limited to text generation alone. These models can also help develop concepts, improve grammatical structures, and increase the clarity of written communication. For example, individuals whose native language is not English can benefit from LLMs to improve the

linguistic quality of their writing and make their work more understandable to global readers (Feng & Zhang, 2025; Ntsohi, 2024).

However, despite their potential benefits, LLMs also raise important ethical debates. Issues such as authorship, originality, and risk of plagiarism are particularly noteworthy. Since LLMs produce texts based on existing data, questions arise about the ownership of these contents and whether they can be considered original work. Furthermore, excessive reliance on such models can lead to the weakening of critical thinking and writing skills among students (Kim et al., 2024; Tumiran et al., 2024).

### **Impact on Academic Writing Structure**

The integration of AI tools has significantly influenced the structure of academic writing. LLMs can assist in organizing ideas, creating outlines, and even drafting sections of a paper. For instance, AI tools can help structure introductions by identifying key points, outlining the methodology, and summarizing findings (Chang et al., 2025; Jen & Salam, 2024).

Moreover, AI tools can facilitate the creation of abstracts, literature reviews, and conclusions by analyzing existing literature and generating summaries. This can save time and reduce the cognitive load associated with these tasks. However, the structure generated by AI tools may lack the creativity and personal touch that a human writer would bring, necessitating human oversight and editing (Jen & Salam, 2024; Solak, 2024).

The use of AI tools also raises questions about the future of academic writing. While these tools can enhance efficiency and productivity, they may also lead to a homogenization of writing styles, as multiple papers may rely on similar AI-generated structures and language (Albariqi, n.d.).

### **Time-Saving Benefits of AI Tools**

One of the most significant advantages of AI tools in academic writing is their ability to save time. Tasks such as proofreading, editing, and formatting can be automated, allowing writers to focus on more critical aspects of their work. For example, AI tools can quickly identify grammatical errors, suggest improvements, and even format references according to specific citation styles (Gasaymeh et al., 2024).

Moreover, AI tools can assist in generating initial drafts, which can then be refined and expanded by the writer. This can significantly reduce the time spent on brainstorming and outlining, allowing writers to complete their work more efficiently. However, the time saved may be offset by the need to review and edit AI-generated content, which may not always meet academic standards (Chang et al., 2025; Jen & Salam, 2024).

The time-saving benefits of AI tools are particularly valuable for students, who often juggle multiple responsibilities. By leveraging AI tools, students can complete their writing tasks more quickly, allowing them to focus on other aspects of their studies. However, educators must ensure that students do not rely excessively on these tools, as this may hinder the development of their writing skills (Kim et al., 2024; Tumiran et al., 2024).

### **Student Support in the Writing Process**

AI tools have emerged as an indispensable asset for students engaged in the writing process. These instruments are capable of delivering instantaneous feedback, recommending enhancements, and even generating concepts for topics. For instance, AI tools may assist students in ideating, structuring their papers, and composing segments, thereby rendering the writing process less intimidating (Jen & Salam, 2024; Solak, 2024).

Furthermore, AI tools can facilitate the enhancement of students' writing competencies. Specifically, AI tools can offer corrections in grammar and syntax, propose alternative expressions, and even provide evaluations regarding the clarity and coherence of the writing. This can prove to be especially advantageous for students who are non-native English speakers or those who encounter challenges with academic writing (Feng & Zhang, 2025).

Nevertheless, the integration of AI tools in academic writing engenders ethical dilemmas. Students may find themselves inclined to depend excessively on these tools, resulting in a deficiency of originality and potentially infringing upon academic integrity policies. To mitigate this issue, educators are compelled to establish explicit guidelines governing the appropriate utilization of AI tools and to ensure that students comprehend the ethical ramifications associated with their use (Kim et al., 2024; Tumiran et al., 2024).

### **Ethical Considerations and Recommendations**

The incorporation of artificial intelligence tools within the realm of academic writing presents numerous ethical dilemmas. Concerns regarding authorship, originality, and the risk of plagiarism are particularly significant. To mitigate these issues, it is imperative to formulate explicit guidelines governing the utilization of AI tools in academic writing endeavors. For instance, it should be mandated that students and researchers disclose their use of AI tools in their scholarly works and ensure that the resultant output is duly credited (Albariqi, n.d.).

Furthermore, it is incumbent upon educators to advocate for the responsible employment of AI tools, highlighting their function as augmentative resources rather than substitutes for human contribution. This objective can be realized through the facilitation of workshops, training sessions, and the incorporation of AI tools within the academic curriculum. By nurturing a judicious approach to the application of AI, educators can empower students to leverage the advantages of these tools while upholding the tenets of academic integrity (Kim et al., 2024; Tumiran et al., 2024).



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