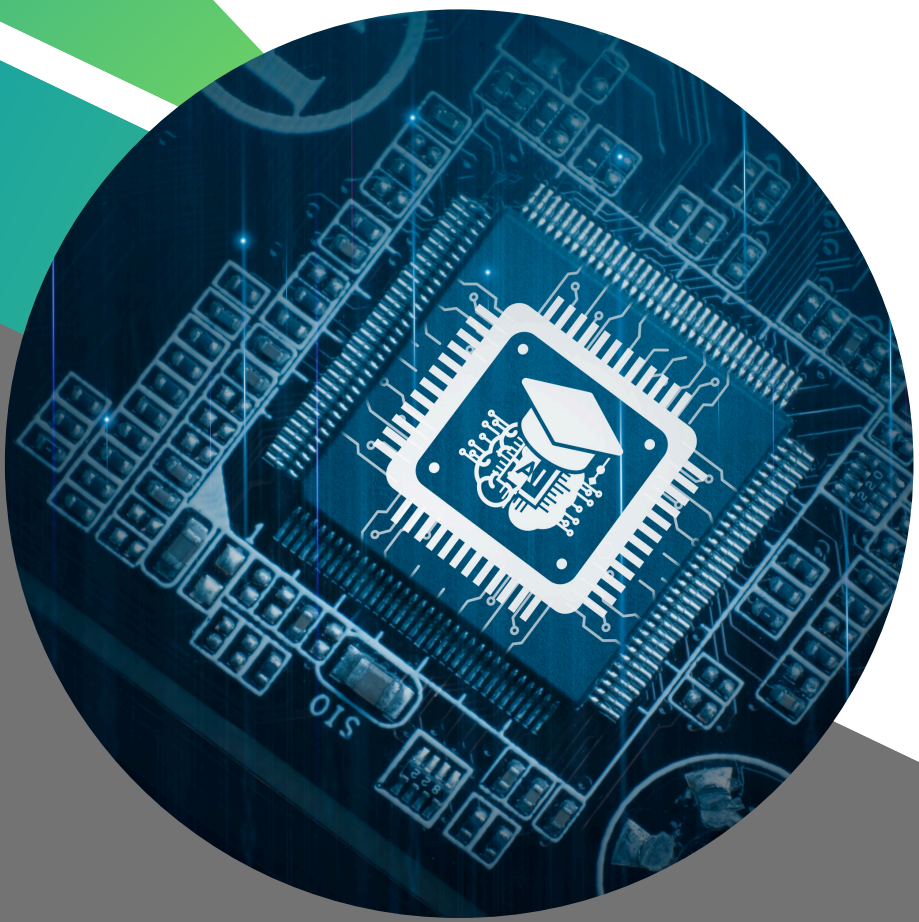
THEORETICAL AND APPLIED APPROACHES IN EDUCATIONAL SCIENCES

Editor:
Prof. Dr. Semra DEMİR BAŞARAN



DUVAR

THEORETICAL AND APPLIED APPROACHES IN EDUCATIONAL SCIENCES

Editor

Prof. Dr. Semra DEMİR BAŞARAN

THEORETICAL AND APPLIED APPROACHES IN EDUCATIONAL SCIENCES

Editor: Prof. Dr. Semra DEMİR BAŞARAN

Editor in chief: Berkan Balpetek

Cover and Page Design: Duvar Design

Printing : May -2025

Publisher Certificate No: 49837

ISBN: 978-625-5885-40-1

853 Sokak No:13 P.10 Kemeraltı-Konak/İzmir

Tel: 0 232 484 88 68

www.duvaryayinlari.com

duvarkitabevi@gmail.com

TABLE OF CONTENTS

Chapter 1

Language Learning at the Crossroads of AI, Pedagogy, and Professional Practice

Bora BAŞARAN[1]

The exponential growth of AI and increasing incorporation of education and learning with digital technologies into the global workforce has started to shift deep changes in vocational educational systems not only in job composition but also in how we think, communicate and learn to learn. Language, which is at the juncture of cognitive functioning and cultural representation, is central to these changes as a medium and object of transformation of digitally mediated learning and communication. Especially in the field of vocational education where communication competence and technology competence converge, we need to rethink language education.

Language has been pragmatically viewed as static rules and vocabulary; we now need to view it as flexible and responsive practice that is socially and culturally contingent and that evolves physiologically through technological mediation. There is increasing significance of AI applications—technical systems, conversed cognitive AI or natural language processing— that has been shown to add enormous value to core language skills, especially writing, reading and vocabulary (Liang et al., 2021). These technologies do not typically address higher-order cognitive and metalinguistic abilities critical for professional reflexivity and complex problem solving. There is no doubt that studies are showing measurable benefits to AI-enabled safe language learning environments; many studies show performance improvements of as much of 45% compared to conventional learning experiences (Alzahrani, 2024), yet the teaching role of the human instructor cannot be omitted. How effectively AI-embedded language learning is integrated into classroom practices will depend on digital technology and on the climate of learning designed to cultivate socio-cultural, pragmatic, and ethical uses of language (Yang & Kyun, 2022; Erdocia et al., 2024).

The emergence of digital platforms and AI-mediated pedagogies has

[1] Doç. Dr. Anadolu Üniversitesi Eğitim Fakültesi, ORCID: 0000-0003-0251-5895

accelerated the shift to dynamic learning experiences personalised to quality pedagogical practices inclusive of curricula that involve productive technology. Language learning is shifting, and while globalisation and migration of individuals across the world has changed how vocational programs are structured, curricula, and design, assessment practices to learning evidence - language learning will continue to evolve. Language education is no longer confined to formalised or linear curricula and standardised assessments but includes engaging with live learning experiences informed by active assessment, responsive algorithms, virtual simulations and real-time platforms (Bengsch, 2024; Eswaran et al., 2024). This shift requires reconceptualising or reshaping curriculum aims and outcomes - especially in vocational education - for language to be not only used to communicate sense, but for clarity, technicality, professional collaboration, and cultural competence.

In addition, the pervasive use of technology with digital resources has also resulted in breaching structural boundaries that dictate how we design curricula, assess learning, and our roles as educators. These previously held conceptual boundaries around education have been rapidly disrupted by recent global restrictions on education (e.g., COVID-19) that have revealed the inadequacies of conventional pedagogies in teaching and learning, and the need for resilience and adaptable instruction (Azamatova et al., 2024). The emergence of automated assessments with AI mediation, learner engagement of immersive virtual worlds, and learning through augmented tools highlight the need for language courses and curriculum that include multiliteracy-focused learning experiences with global citizenship, multilingualism and intercultural competence (Menegale, 2024).

That being said, the opportunities of AI to develop language learning should be balanced with very real pedagogical and ethical concerns. An emphasis on language as computer data runs the risk of ignoring language's social and situational aspects (Erdocia et al., 2024). Furthermore, the digital divide, inequities in access to quality resources, and differences and challenges in preparing teachers, will complicate the possibility of equitable implementation (Maiboroda, 2024). Data privacy, academic integrity, and the ethics of pedagogy, are issues we will continue to face, and we will rely on the partnerships created through policy, and institutional structures, as well as ongoing professional collaborations (Cohen et al., 2024; Bengsch, 2024).

In conclusion, AI and digital tools offer some striking opportunities to re-imagine language education, especially in vocational spaces. However, these tools need to be understood within a much larger educational philosophy emphasizing human agency, situational awareness, and ethical considerations. As

language develops within increasingly digitized and multilingual contexts, educators and policymakers are encouraged to offer equitable, inclusive, and forward-thinking learning opportunities for learners that reflect their ability to, communicate, engage, reflect, and act situated in complexity of technology.

Pedagogical and Institutional Reconfiguration

Digitalization has emerged not as an incidental enabler of vocational education, but as an accelerator and systemic development that alters completely professional competence, the organization of work, workplaces and organizations. Such development requires a comprehensive redefinition of professional competence, especially around language as it is used and operationalized in vocational situations. New tools and digital infrastructures are not just added to the workplace routines; in the use of language they entrench greater precision of professional jargon, collaborative work via digital platforms, digital literacy, and profession-specific recording practices. For instance, people in commercial occupations will undergo a change from simple data input to interpretative data analysis and data-driven decisions. Similarly, in both care work and commercial contexts, there will be an emphasis on electronic record-keeping, ethical communication and negotiating the linguistic landscape across the professional spectrum.

The implications of these changes for vocational education are significant. It would no longer suffice for curriculums to adapt to market conditions; they must now also contribute to the development of reflective professional competence (Dehnbostel, 2013). Therefore, pedagogically speaking, we need to open up a practice model with practical ramifications, where job-specific skills and transversal communication skills are fundamental elements of each professional formation.

As technologies from Industry 4.0 increasingly take hold of the workflow, vocational systems must respond accordingly, and accommodate the qualification needs required to compete digitally in a skilled and highly skilled labour market (Spöttl & Windelband, 2020).

Despite attempts to integrate digital contact in the vocational school curriculum, the focus tends to remain on short lessons, where students are operationally familiar with digital tools and retrieve information from the internet, rather than using digital media meaningfully for critical thought and innovation (Delcker, 2022). It is worth noting that the vocational educators themselves face challenges; these challenges are from the continual evolution of workplace technology and the integration of digital media in the didactic strategies of vocational education to ensure that the use of digital media is pedagogically sound and situated

(Carlsson & Willermark, 2023).

In addition to these challenges, there is constantly increasing writing-centred work, particularly since apprentices are responsible not only for profession-specific jargon, but also developing general textual competencies, while working environment remain hybrid and often located remotely (Hellne-Halvorsen et al., 2021). Digital literacy, therefore, emerges as a basic skill, that is interpretative and communicative, not just technical. Vocational education must be re-designed to meet the moment as digital competencies are at the centre of the learning experience (Jia & Huang, 2023).

However, challenges remain. The differences in resources, entrenched disconnects between industry expectations and programs, and infrastructural issues continue to hinder progress (Wang, 2024). Financial and technical limitations, particularly in under-resourced institutions, create limitations on the adoption of digital tools and environments. Systematic issues like these will only be solved with appropriate policy frameworks, long-term investment in digital infrastructure, and an informed vision with collaboration between sectors (Wang, 2024).

On a pedagogical level, the utilization of digital learning environments cannot simply be the digitization of existing content, it requires a new curriculum with some blended and distance learning approaches, aimed at flexibility and diversity of learner response (Klös et al., 2020; Xu et al., 2024). Simulation technology, cloud learning environments and multimedia instruction are providing pathways to move from static format, where learners are passive consumers of information, towards interactive formats, in what in many cases is a valuable focus for learners in preparing for future competencies in the digital economy.

The successful management of this shift relies heavily on key stakeholder involvement. Public-private partnerships harness the transfer of knowledge, ensure resource sharing and give capacity to align the curriculum with industry changes (Xu et al., 2024). The professional development of educators is multi-faceted; it not only establishes if the pedagogue is able to navigate different digital pedagogies, but also competencies required to follow an online or hybrid education program, employing barcamps, digital masterclasses, immersive virtual laboratories. The networking occurred to encourage educators with similar technological experiences (Chun, 2016)

The digital transformation of vocational education must also align with deep structural disruption in pedagogical practice, and institutional settings. Scholars have warned long enough that digital media does not improve learning; digital learning spaces do not improve learning outcomes either, for any infant to call this clear; improvement is contingent on critically, theory-based integration into

teaching and assessment (Klös et al., 2020). In this sense, language education is an opportunity for professional development, instead of only developing technical vocabulary, language education opens dialogic competence, critical thinking, adaptive forms of communication for digitally-mediated working spaces.

Therefore, vocational education appears at a crossroads: in order to remain relevant and forward-looking, it must keep up with technological advancement but also commit to developing holistically competent people for complex, multilingual, and technologized professional spaces.

Digitalization and the Shifting Role of Language Competence: Beyond Upgrading vs. Downgrading

The growing influence of digital technologies in working life has sparked a significant debate in the literature about the cognitive implications for this change. The essence of this debate is the binary of performing higher order tasks (upgrading) versus formalizing low-level tasks that obfuscate the task from its context (downgrading). This question has considerable implications for language education, especially in vocational and professional contexts. When we consider upgrading as the most critical outcome of digitalization, the importance of language is acute - it is necessary in a multitude of realms of symbolic thinking, contextual-based, in-situ decision making, and intercultural bargaining and communication. However, if downgrading is the most pertinent outcome, language may move to the periphery of action and may be limited to mechanical following of instructions and absorption of information.

Nevertheless, in these not so novel realities, the dichotomy framing is being challenged through empirical data. It appears that the meaning of the jobs we know is being abstracted from this linear upgrading to downgrading. Rather, we are learning that there is expansion of the job demands we have. There is a hybridizing taking place in the forms of competences (i.e. cognitive, technical, and communicative human competences) that vocational practitioners must master simultaneously. Workers must now not only interpret a data dashboard, or follow a prescribed way of working, but importantly direct and engage in communication with AI or smart algorithms, lead ethically sensitive appointments in virtual settings, and develop individually tailored communications across digitally mediated or multimodal interactions (Peiró & Martínez-Tur, 2022; Baethge-Kinsky, 2020).

This reframing of job communications will have significant consequences for language education. The increase of digitalized competences necessitates a rethink of language away from solely verbalization of language and as a layered, context-bound tool for symbolic interaction and professional agency. The blending of digital tools into language learning, particularly applications for real-time translation and AI

writing assistants, has enabled learners to communicate across linguistic and cultural barriers in manners that are not restricted to remembering fixed language forms (Tomita, 2023). However, this also means that teaching now has to evolve away from achievement of static grammatical forms to the dynamic engagement with information, creativity, and innovation in digital contexts (Butler, 2022).

The multimodal, interactive, and networked aspects of digital communication environments require new learning in language contexts defined as digital literacy. Digital literacy, as outlined by Jones (2022), is not merely a technology fluency, but rather the capacity to navigate semiotic systems, critically evaluate sources, and engage in meaningful interactions across multiple platforms. To meet these changes, therefore, language learning programs need to transform to include digital communication practices alongside traditional linguistic practices. This is not to say that linguistic practices are outdated or irrelevant but should now reflect the online communication practices of contemporary society. Haroun (2023) notes a needed redeveloped competency-based language curriculum in higher education, resulting from digital literacy, professionalization, and needs analysis of teaching and learning in higher education.

The evolving nature of work further emphasizes the role of language and communication in professional competence. According to Nissi et al. (2021), employment communication is no longer just an add-on skill but an indefinite characteristic of an employee's occupational identity and value. Beer and Mulder (2020) emphasize that automation of manual processes will lead to cognitively and communicatively demanding tasks, and now workplaces require more than technological awareness but willingness to change, and managing self-efficacy.

Even with the opportunities that exist a number of challenges still exist. Limited access to language learning technologies in our education systems will continue to threaten equitable participation, tool over-reliance will further challenge attention, communicative authenticity and continued erosion of linguistic dimension (Obidovna & Rustambekovich, 2024; Salfin et al., 2024). Additionally, and vitally significant in the change process is the direct relationship of educators' digital competency the extent to which digital resources were included in pedagogic practice. Research by Bhuvaneswari et al. (2023) shows that educational leaders with high digital competencies are more able to use the range of technologies on offer in ways that prevailed learning possibilities for students.

In conclusion, we must shift the ongoing discussion about upgrading and downgrading and shift it to how digitalization is reshaping the place of language in the identities of work and learning. Digitalization does not diminish the place of language, but expands how many contexts and modalities the communication of linguistic competence exist. This will require changes to pedagogical approaches

from the transmissive approaches that focused on decontextualized language structure to transformative approaches that place value on flexibility, interaction, and critical perspectives. Language education, particularly in contexts such as vocational and higher education, has to embrace this complexity and develop hybrid competences that position learners in a digital economy that is increasingly reliant on communication in professional capacities.

Embedding Digital and Transversal Competencies in Vocational Language Education

Against the backdrop of an increasingly digitised and interdependent labour market, the integration of digital and transversal competencies into vocational language curricula has become not just an innovation in teaching practice, but an education requirement. Digital technologies are changing the way work is done and industries and workplaces are organized, which is also changing the communicative tasks people have to engage in as part of their work in these vocational contexts. Language education is no exception and needs to adapt what is taught, and how it is taught, so that students can develop the layered competencies to work effectively in their professional environment.

Transversal competencies - abstract reasoning, critical thinking, problem-solving and interpersonal communication - are now key employability competencies for all vocations (Härtel et al., 2018; KMK, 2017). Similarly, digital competencies - ranging from information literacy to the critical evaluation of information found online - have moved from 'nice to have' skills to key competency requirements for virtually any type of work (Dai, 2024). These current trends highlight the instructional need for language curricula that integrates both content and pedagogies not as a fringe enhancement, but rather as cornerstones of their instruction.

In vocational language education, this entails focusing on several inter-related areas of emphasis:

- Digital discourse fluency: the ability to communicate using tools such as emails, chat, and collaborative tools,
- Socio-technical discourse: how one describes the interaction between the system and users in the workplace,
- Language of collaborative problem-solving: includes negotiation, mediation, and reaching consensus,
- Ethical and empathetic communication: especially relevant for people-related services. (Hanesová, 2022; Calero López & Rodríguez-López, 2020).

Digital discourse fluency (especially in terms of effective communication using email, chat, and online collaboration tools);

- Sociotechnical language particularly in contexts where defining interactions between operator and technical systems must be included;
- Collaborative problem-solving language (e.g. negotiating, mediating, consensus building) in digital or hybrid task-focused team learning contexts;
- Ethical and empathetic communication, particularly important in person-related occupations such as health-related and social services (Hanesová, 2022; Calero López & Rodríguez-López, 2020).

Responding to curricular adaptation to these types of work would not only include the literal use of digital tools, but would need careful re-thinking of pedagogical goals and designing informed pedagogies. Digital literacy that informs this work would not be confined to technical competence with devices or software, but would involve the possibility of action in multimodal spaces, interactive content, and purposeful engagement with digital texts (Gałan, 2021; Jia, 2023). Research has shown when instructors themselves possess a high level of digital competence such that their students have access to authentic materials and engage in responsive / personalized instruction, students' outcomes in language learning are dramatically improved (Bhuvaneswari et al., 2023).

In addition, transversal skills, such as critical thinking and complex problem solving, cannot be taught independently from communicative activity other than to engage meaningfully with language. Hopefully, this is done with active and participatory teaching methods of project-based learning, simulations, and case discussion. In that sense, students develop simultaneously their cognitive and linguistic capabilities in ways further connected to professional experiences that encourage using the language (Hanesová, 2022).

Despite the studentizing value of teaching digital and transversal competencies contemporaneously, to shift pedagogical practice is an enormous challenge for systems. A significant challenge is for schools to adapt practices differently than are already established in many educational systems depending on the quality of digital infrastructure and mapping of resources (Delcker, 2022). This divestment may well lead to further digital disparities and inequality of student participation in quality technology mediated education. Effective curricular adaptation also relies on teacher preparation. In order to teach these competencies meaningfully, teachers will need to be not only digitally literate educators themselves, but knowledgeable about how to design digital competency as these competencies related to language learning (Harangus & Kovacs, 2022; Meniado, 2023).

The systematic change is also about policy frameworks and institutional collaboration. Finding ways to develop partnerships among educational authorities, vocational training institutions, and industry is an important relationship to build so that curricular adaptation is not aligned to labour market demands and technological change in general (Calero López & Rodríguez-López, 2020). As education evolves, for example towards something like Digital Language Teaching 5.0, which is at least conceptual associated with the greater change of industry 5.0; it is clear education must adopt flexible and future-oriented teaching models that respond in the moment to change (Meniado, 2023).

In summary, the engagement of digital and transversal competencies in language education can be seen as part of a wider epistemological shift: a shift in perception of language learning from an isolated academy subject to the lens of social participation, technical mediation and ethical agency (Hanesová, 2022). Achieving a coherent pedagogical position that embraces digital innovation while developing language skills, remains a concern - and one that amplifies and contextualizes language skill development within complex communicative ecologies of living in the world today.

Sector-Specific Demands: Digitalization and Language Use in Vocational Clusters

The incorporation of digital technologies into vocational education and the workplace has exposed large variations across professional fields, particularly related to language use and communicative expectations. These changes across sectors highlight an increased need for differentiated pedagogical approaches to language, which necessarily include communicative, technological, and ethical priorities across vocational clusters. Digitalization, as an impetus for diversity, has amplified the linguistic diversities of the professional role, prompting educators to develop language curricula that attend to various contextual requirements and utilize digital literacies appropriately.

As an example, digitalization in commercial-administrative fields has increased the importance of accuracy and clarity in documents in environments characterized by AI-based analytics and cloud collaborative systems. Employees in commercial-administrative roles have to manage a multitude of digital environments, interact smoothly across cultural and linguistic divides, and manage information delivery in increasingly rigorous, structured, and data-oriented work (Klös et al., 2020). Language instruction in this regard should emphasize digital discourse fluency, enabling students to create communication that is concise, accurate, and responsive to cultural considerations in a range of settings. Consequently, instructional approaches in commercial-administrative

fields must also depend on strategies that simultaneous develop digital literacy and functional language use (Çela et al., 2024).

On the other hand, in object-oriented vocational roles, such as in mechatronics, workers must demonstrate a greater fluency in their technical skills, involving both the manipulation of complex systems and articulate procedural knowledge. The process of bringing together automation and remote diagnostic tools involves redefining certain professional tasks, which necessitates practitioners articulating certain operational procedures as well as conducting troubleshooting with the assistance of digitally mediated means (Balanov, 2021). With these in mind, pedagogies for future language training should be developed within simulation-based learning environments where VR and AI-based tools can create opportunities for a practice of communicative routines in particular and realistic workplace contexts (Thakur et al., 2024).

In the world of person-related services that includes healthcare, nursing, and eldercare, the communicative dimension becomes (qualitatively) different. In this form of communicative dimension, language facilitates the exchange of information, empathetic response, ethical reasoning, and interprofessional engagement. In these fields, digitalization is characterized with the use of platforms that allow professionals and clients to communicate in real-time but is also often means that practitioners will develop a level of communication competence that explicitly includes the ability to respond to emotional and ethical nuances through written or spoken forms of communication (Septiandri et al., 2024; Babazade, 2024). VR training can allow for some degree of simulation with emotional complexity, such as communicating bad news or understanding cultural sensitivity where learners can develop soft-skills in simulated, reflective settings (Dubiel et al., 2025; Lisbet et al., 2025);

These disparities of demands across vocational clusters highlight structural and pedagogical issues in relation to practice. These include, and are not limited to, infrastructure and teacher competence as two of the most pressing factors that affect the meaningful integration of digital tools in vocational language pedagogy (Kovalchuk et al., 2023). In many situations, educators are challenged to keep up with fast paced technological advance and adapt their teaching practice when they establish new digital environments (Carlsson & Willermark, 2023). This is further complicated by ethical issues of data privacy, algorithmic bias, and access to technology, which can only be remedied through clear policy and professional development (Çela et al., 2024).

On a related note IF but already probably not mentioned, even though AI and digital platforms can provide game changing forms of instruction, they also pose questions around language itself. For example, Hafner and Pun (2020) warn that,

although multimodal composing digitally is innovative, the result provides less syntactic complexity than a traditional scribble through writing. Likewise, Erdocia et al. (2024) warn that when programming languages are considered solely as data, the socio-semiotic, contextual and interpretive features inherent in meaning-making disregards the importance of these dimensions. As a result, language education can and must resist the urge to reductively define linguistic competence toward linguistic form and communicative function in professional practice in a vocational education setting.

Digital work in today's world can be characterized by increasing complexity (Beer & Mulder, 2020). This means that the level of work increasingly cannot classify as simple versus higher order thinking and cognitive load, not only actual cognitive and technical skills (i.e., systems), but also a need to be willing to change continually, to have disposition/technology awareness of how to maintain skills relevant in an ever-changing direction, and self-management/career-planning skills. Language learning intersects directly here as the abilities outlined often occur through figuring out how to exercise, assess and develop competencies through the language they use to communicate.

To summarize the asymmetrical impacts of digitalization across vocational clusters outlined above indicates that language education cannot adopt one way of doing. Rather, language education engaged with vocational contexts must be strategically intended to operate effectively across each field's communicative ecologies, engaging with emerging technology to enhance relevance, engagement, and pedagogical depth. Only through the effective organization and reflection of vocational language education can language education address the demands of language use in a digitally transformed world while maintaining the humanistic and contextual integrity of language use.

Immersive and Intelligent Technologies in Language Learning Environments

New digital technologies are driving forward change in language education, especially within vocational contexts where language use is context-sensitive and practical. Simulation-based learning environments, especially those that use virtual reality (VR) simulations and AI-facilitated diagnostics, may be the most consequential changes to the delivery and assessment of language competence. The implementation of these tools allows the development of language skills associated with communicative competence needed for the specific and often nuanced abilities required for professional life.

Among the growing suite of tools for disrupting language teaching and learning, virtual reality (VR) stands out among the offerings due to its experiential and

immersive capabilities. Virtual reality technologies provide learners with immersive, safe environments that are contextually rich and trackable. Through VR technology, learners can conduct realistic communicative activities (e.g. client consultation, technical explanation of tasks, conflict avoidance, with little possibility of adverse ramifications. By allowing learners to encounter simulated authentic interactions in a myriad of contexts, VR can enhance learner motivation, engagement, and retention, especially within vocational education that employs experiential learning opportunities (Zheng et al., 2022; Ravichandran & Mahapatra, 2023). As a result these emerging virtual reality technologies may assist students to develop a task-specific language competence in high-stakes learning environments (e.g. healthcare; customer services; business negotiations; etc.) (Wibawanto et al., 2022).

Although the pedagogical ability of VR is unequivocal, technology implementation in language education remains a hurdle. Equipment cost, technical ability, and the need for educator training all pose a limitation to widespread accessibility of VR (Ravichandran & Mahapatra, 2023). However, if implemented enjoyably and effectively, VR can be a powerful strategy for composing emotionally and contextually sophisticated environments that provide opportunities to foster both linguistic and socio-pragmatic competencies. Whereas VR immerses learners in a specific context, AI-based diagnostic systems (for example, speech recognition, natural language processing (NLP) systems, etc.) can provide real-time assessments of learners' language performances. Unlike traditional assessments, AI systems can tailor feedback on pronunciation, vocabulary or phrase selection, morphological and syntactic complexity, and pragmatic context based on real-time measures that allow for highly individualized learning pathways (Luo, 2022). AI systems also can develop learners' profiles, adapting dynamically to each learner's progress, with scaffolds delivered to make the project achievable based on each learner's specific strengths and weaknesses. They support high levels of autonomy, and they not only give feedback to learners, but they provide educational practitioners with actionable insights about each learner's performance analytics, enabling more responsive and evidence-informed ways of teaching.

In professional language training contexts such as business English, AI and VR together mean learners can at least be meaningfully engaged in simulated task-based interactions with their occupational realities, yielding not only desired self-efficacy and communication outcomes, but significantly building their confidence and perceived communicative efficacy (Luo, 2022). The opportunities afforded through AI and VR converge to create an integrated meaningful, experiential, and assessable learning ecology, where experiential, contextualized

practice can occur simultaneously with precise and scalable assessment of learning to simulate learning, increase agency, and the proportion of real-life language learning experiences. These digital-first platforms provide personalized content and can even analyze learners' spoken and written output, including video-based responses, generating instant feedback from personal input (Langenfeld et al., 2022). With this form of multimodal practice, learners can have continuous, nuanced measures to the communicative skills they are continuously developing and learning when able to process their experiences of input and not just output for feedback.

While the promise is considerable, it is also important to deal with the gaps and limitations. AI-generated performance assessments may be challenged in considering the wider socio-pragmatic, cultural idioms, emotional tone, or non-verbal behaviours—each of which is paramount to effective language in the socially rich context of language use. Second, in shifting formal learning environments entirely from the physical to the digital world, issues of access, digital equity, and the reflective human-centered pedagogical values education is known for will need to be considered (Chernikova et al., 2020; Erdocia et al., 2024).

In addressing these issues, educators can continue to use a blended approach to create the best learning by considering their individual students' needs by combining immersive and diagnostic technologies, with collaborative and social pedagogies: e.g. mobile-assisted language learning, tandem learning partnerships,/or service learning models. Each of these examples is promising in their approach to utilizing the richness of language use beyond artificial environments for authentic communication opportunities and outcomes toward developing intercultural competence (Guillen et al., 2020). If an educator is skilled to be able to use those initiatives, they can help augment the pedagogical potentials of digital tools and decision-making to create contexts across a wide spectrum of typologies for language learning to be both useful and meaningful.

In conclusion, digital tools, particularly VR and AI, are changing and re-imagining approaches for language educators by reconceptualizing culturally rich, practice-orientated, adaptive, persistent and multimodal learning experiences. Educators will need to think carefully about how we best implement these tools, as success will depend on intentional pedagogical value and institutional buy-in to all the infrastructures, institutional processes, training and research needed to support successful instructional integration. Ultimately, resources should be allocated toward realizing the possibilities of digital learning in ways that respond to the complex communication required for functional and sociopragmatic problem-solving in professional and digital realities of 21st

century living.

Aligning Pedagogy and Policy: Overcoming Institutional Challenges in Digital Language Education

While digital tools have the potential to transform language learning by allowing more interactive and personalized assessments, whether they work revolves around addressing a number of challenges, most of which are complex issues related to didactic and institutional aspects, not just technology, but are also about pedagogical coherence, institutional readiness, and social educational equity. So while we can embrace the digitalisation of language learning in our own personal practices as technology substitutes, we must also not lose sight of the fact that digitalisation represents pedagogical change that demands prolonged reflection, time, and human-centered design.

Didactic Integration

In order for digital tools to be educationally valid, educators need to interrogate how they contribute to learning intentions. This forms one of the key challenges to implementing digital-tools in language learning environments. The ability to align the affordances of technology with a coherent set of pedagogical intentions and practices is a primary challenge. This is similar to Jiang (2023) and Nagy (2021) as they claim the need to employ technology in ways that minimize distraction, deepen learner engagement, and promote active interaction; while also being responsive to differentiated student needs. Thus, putting together an implementation plan requires significant investments in teacher professional learning and curriculum adaptation. Having teachers be competent not only in how to use a number of digital tools, but also in how to apply them as part of a range of task-based learning experiences (Bahari et al., 2022). Initiatives, such as those offered by the Municipal Technology Center (NTM) in Itabuna/BA, underscore the need for systematic development of teachers which also highlight the systemic shortcomings - such as lack of teacher capacity, inconsistent support - that threaten the viability of these efforts (Duarte & Coelho, 2022). Furthermore, digital tools should be used in ways that maximize potential for real communicative contexts that support collaborative construction of knowledge, as found within Web 2.0 task-based activities (Nagy, 2021).

Organizational Support

Since the successful implementation of digital language education depends on leadership, infrastructure, and a supportive culture within organizations, the leadership role is key as it gives shape to a collective vision with resources that

leverage organizational learning processes to allow participants to navigate digital transformation (Jiang, 2023). In addition, institutions must reimagine their structural arrangements for things such as curriculum and assessment to genuinely embed digital media into broader educational ecologies (Kandel, 2022).

On a related note, organizational culture must change from facilitating digitalization as replacing current pedagogy to viewing it as enhancement. This includes creating collaborations between educators that support evidence-based innovation, as well as embedding digital literacy as a valued institutional artifact (Jiang, 2023). To achieve sustainable cultural and structural change requires ongoing dialogue and reflexivity to ensure technological integration is ethically based on pedagogy and learner development.

Equity and Access

Lastly, the challenge of equity is perhaps the primary and ongoing challenge. The digital divide continues to create inequality, whereby students from low socioeconomic status backgrounds are often deprived of adequate high-speed internet, adequate devices, or requisite learning environments (Dorner & Cervantes-Soon, 2020; Jiang, 2023). This disparity translates into learning outcomes related to language outcomes that do not support digital learning, many of which may be assumed or mandated based on context.

Addressing these divides must take a multi-layered approach that includes public/private investment in infrastructure, collaboration and communication across sectors, and making inclusive digital content that supports multi-modal learning viable. Further, the digital literacies of teachers are determinative of their learners' access to good digital materials and participatory language practices (Bhuvaneswari et al., 2023; Srivastava, 2021). Without adequate support, technology may perpetuate existing inequalities rather than bridging them.

In summary, the didactic and institutional framing of digital tools within language learning must balance the two learning perspectives of innovation and being human in relational ways that respect cultural situatedness of language learning. When we can achieve this balance, digital transformation can become not a threat, but a mechanism for socially just, meaningful, and socially responsible language learning for the future.

Preserving the Human Dimension in an AI-Driven Language Learning Era

In endeavoring to maximize the possibilities afforded by digital platforms, it is essential to recognize that language learning is inherently human. As highlighted by Cummins (2024) and Lantolf & Xi (2023), language acquisition is an

important vehicle for developing not only technical competencies, but also cultural understanding, emotional meaning, and identity. While these aspects can be supported by technology, they cannot be replaced. In fact, technology executed poorly may result in the technical de-contextualization of language, diminish the potential for first languages to be honored and utilized, and further diminish the social dimension of learning if not grounded in a strong pedagogical rationale (Rodríguez-Abitia et al., 2020; Erdocia et al., 2024).

Sociocultural Theory (SCT) provides a solid basis from which to view the language learning process digitally, as long as significant ideas, such as mediation, scaffolding, and the legitimacy of learners' multi-lingual repertoires are appropriately interpreted and applied (Lantolf & Xi, 2023). Here, technologies should promote mediation and scaffolding by offering opportunities for interaction, collaboration and learner autonomy rather than to replace these dimensions (Cummins, 2024).

Conclusion: Reimagining Language Education as Human-Tech Synergy

As digital transformation continues to alter the epistemologies, modes of communication, and professions of the 21 st century, language education finds itself at a critical juncture. The rise of artificial intelligence, immersive technologies, and rapid shifts in the nature of work have not only increased possibilities for language learning, but have also realized the limitations of traditional pedagogical designs. Language, far from being a benign, passive participant, is shown to be an instrumental and historical apparatus to support this change—an ambient cognitive, cultural, and performing base from which successful vocational competence is developed.

In this study, AI-powered tools, digital platforms, and multimodal contexts have been shown to be valuable sources for the diversification of pedagogies and the personalization of learning opportunities. This includes not only virtual simulations that replicate the ethical complexities of care work, but also diagnostic AI that provides individualized, even instant, targeted language feedback to learners. If the use of digital tools for language education is vast and multifaceted, it is not pedagogically significant. Without intentional design, teacher agency, and ethical considerations, digital tools can easily become performative rather than transformative.

One of the key insights from this work is that dualisms, such as upgraded and downgraded, are inadequate to inclusion the lived experience of digital labour and language use. The idea that language learners should develop hybrid competence—technical expertise, critical reflexivity, and purposeful communication according to context—was found to be a more accurate and

pedagogically productive lens. Language education must move beyond fixed conceptions of grammar and vocabulary to a fluid repertoire of digital discourse fluency, socio-technical articulation, intercultural empathy, and collaborative problem-solving.

In addition, the inequitable distribution of digital infrastructure, the ongoing digital divide, model variations in teacher readiness, underscore structural limitations that continue to constrain educational equity. To address these limitations will require not only technological solutions but more importantly, a resetting of institutional priorities: developing cultures of innovation, experiencing sustained professional development opportunities, and implementing inclusive policy frameworks that recognize language education as a form of social participation and social capital.

Perhaps most fundamentally of all, this analysis indicates the human aspect of language learning cannot be off-loaded to algorithms, or subsequently reduced to computing efficiency. Language is not a system to be solved or a skill to be assessed—it is an embodied, relational, and meaning-making practice. Although AI can replicate communication, it cannot duplicate the emotional subtlety, cultural significance, or ethical deliberation that characterize authentic human communication. As a result, all digital tools must be considered as an extension of (not replacement for), the dialogic relationships at the core of transformative education.

As a way forward, educators and policy makers must forge a design philosophy of human-tech synergy: a pedagogy that holds onto the affordances of digital innovation but also protects the cultural, ethical, and affective aspects of language learning. There is therefore, a need to commit resources not just to hardware or software, but to pedagogy, imagination, and social justice.

In closing, the future of language education in the world of AI is neither predetermined or digitally determined. Future language education will, ultimately, depend on decisions we make today around what we teach, how we teach, and importantly, why we teach. In re-investing in language as a site of human agency, independent judgement and collective meaning-making, we are not only preparing our learners for the complexities of a world immersed in digitality but importantly, reaffirming the importance of language as a pillar of democratic, pluralist and socially responsible education.

References

Alzahrani, S. (2024). The Future of AI in Language Education. Advances in Educational Marketing, Administration, and Leadership Book Series, 309–332. https://doi.org/10.4018/979-8-3693-7016-2.ch015

Azamatova, A. Kh., Bekeeva, N. Zh., & Sadibekov, A. K. (2024). Digitalization of Language Education in Higher Education Institutions. A. Âsaui Atyndaġy Halyḳaralyḳ Ḳazaḳ-Tùrìk Universitetìniṇ Habaršysy, 133(3), 206–220. https://doi.org/10.47526/2024-3/2664-0686.87

Babazade, Y. (2024). Digital Language Trends: How Technology is Shaping Multilingualism. 1(1), 60–70. https://doi.org/10.69760/aghel.024052

Baethge-Kinsky, V. (2020). Digitized Industrial Work: Requirements, Opportunities, and Problems of Competence Development. Frontiers in Sociology, 5. https://doi.org/10.3389/fsoc.2020.00033

Bahari, A., Barrot, J., & Sarkhosh, M. (2022). Current state of research on the use of technology in language teacher education and professional development. TESOL Journal, 13(4). https://doi.org/10.1002/tesj.672

Balanov, A. (2021). Assessing the readiness of the vocational education system for digitalization. Obshchestvo i Ekonomika, 11, 108. https://doi.org/10.31857/s020736760017490-8

Beer, P., & Mulder, R. H. (2020). The Effects of Technological Developments on Work and Their Implications for Continuous Vocational Education and Training: A Systematic Review. Frontiers in Psychology, 11. https://doi.org/10.3389/fpsyg.2020.00918

Bengsch, G. (2024). Redefining Traditional Pedagogy (pp. 195–221). IGI Global. https://doi.org/10.4018/979-8-3693-0872-1.ch010

Bhuvaneswari, G., Arumugam, T., & Aravind, B. (2023). The digital edge: examining the relationship between digital competency and language learning outcomes. Frontiers in Psychology, 14. https://doi.org/10.3389/fpsyg.2023.1187909

Calero López, I., & Rodríguez-López, B. (2020). The relevance of transversal competences in vocational education and training: a bibliometric analysis. Empirical Research in Vocational Education and Training, 12(1). https://doi.org/10.1186/s40461-020-00100-0

Çela, E., Vajjhala, N. R., Eappen, P., & Vedishchev, A. (2024). Artificial Intelligence in Vocational Education and Training. Advances in Educational Technologies and Instructional Design Book Series, 1–16. https://doi.org/10.4018/979-8-3693-8252-3.ch001

Chernikova, O., Heitzmann, N., Stadler, M., Holzberger, D., Seidel, T., & Fischer, F. (2020). Simulation-Based Learning in Higher Education: A Meta-Analysis. Review of Educational Research, 90(4), 499–541. https://doi.org/10.3102/0034654320933544

Cohen, S., Mompelat, L., Mann, A. M., & Connors, L. J. (2024). The linguistic leap: Understanding, evaluating, and integrating AI in language education. Journal of Language Teaching, 4(2), 23–31. https://doi.org/10.54475/jlt.2024.012

Cummins, J. (2024). How can emerging technologies advance the creation of language-friendly and literacy-friendly schools? Language, Culture and Curriculum, 37(1), 106–119. https://doi.org/10.1080/07908318.2024.2306286

Dai, W. (2024). Digital Literacy Education: A New Approach to Cultivating 21st Century Key Competencies. Deleted Journal, 30(5), 48–57. https://doi.org/10.56557/jobari/2024/v30i58906

Delcker, J. (2022). Digitalisation in the Curricula of Vocational Schools: Text Mining as an Instrument of Curricula Analysis. Technology, Knowledge and Learning, 28(3), 999–1014. https://doi.org/10.1007/s10758-022-09591-0

Divekar, R. R., Drozdal, J., Chabot*, S., Zhou, Y., Su, H., Chen, Y., Zhu, H., Hendler, J. A., & Braasch, J. (2021). Foreign language acquisition via artificial intelligence and extended reality: design and evaluation. Computer Assisted Language Learning, 35(9), 2332–2360. https://doi.org/10.1080/09588221.2021.1879162

Djalilova, Z. O., & Azadov, A. R. (2024). The role of digital technologies in language education: tools, approaches, and implications. American Journal Of Philological Sciences, 4(11), 18–22. https://doi.org/10.37547/ajps/volume04issue11-05

Dorner, L. M., & Cervantes-Soon, C. G. (2020). Equity for Students Learning English in Dual Language Bilingual Education: Persistent Challenges and Promising Practices. TESOL Quarterly, 54(3), 535–547. https://doi.org/10.1002/tesq.599

Duarte, T. O., & Coelho, L. A. (2022). Políticas públicas e formação docente para o uso das tecnologias digitais: contribuições do NTM de Itabuna/BA / Public policies and teacher training for the use of digital technologies: contributions from the NTM of Itabuna/BA. Brazilian Journal of Development, 8(4), 28789–28801. https://doi.org/10.34117/bjdv8n4-394

Dubiel, A., Kamińska, D., Zwoliński, G., Ramić-Brkić, B., Agostini, D., & Zancanaro, M. (2025). Virtual reality for the training of soft skills for professional education: trends and opportunities. Interactive Learning Environments, 1–21. https://doi.org/10.1080/10494820.2025.2450634

Ejjami, R. (2024). AI'S Impact on Vocational Training and Employability: Innovation, Challenges, and Perspectives. International Journal For Multidisciplinary Research, 6(4). https://doi.org/10.36948/ijfmr.2024.v06i04.24967

Erdocia, I., Migge, B., & Schneider, B. (2024). Language is not a data set—Why overcoming ideologies of dataism is more important than ever in the age of AI. Journal of Sociolinguistics, 28(5), 20–25. https://doi.org/10.1111/josl.12680

Eswaran, U., Eswaran, V., Murali, K., & Eswaran, V. (2024). AI-Powered Language Teaching and Learning. Advances in Educational Technologies and Instructional Design Book Series, 55–92. https://doi.org/10.4018/979-8-3693-4310-4.ch002

Gałan, B. (2021). La classe de langue à l'ère du digital. Quelques réflexions sur l'intégration des compétences numériques en didactique des langues étrangères. 169–184. https://doi.org/10.14746/N.2021.56.2.2

Guillén, G., Sawin, T., & Avineri, N. (2020). Zooming out of the crisis: Language and human collaboration. Foreign Language Annals, 53(2), 320–328. https://doi.org/10.1111/flan.12459

Hafner, C. A., & Pun, J. (2020). Editorial: Introduction to this Special Issue: English for Academic and Professional Purposes in the Digital Era. RELC Journal, 51(1), 3–13. https://doi.org/10.1177/0033688220917472

Hanesová, D. (2022). Development of Transversal Competences: A Current Challenge in Teacher Education. Kwartalnik Pedagogiczny, 66/4, 71–91. https://doi.org/10.31338/2657-6007.kp.2021-4.4

Harangus, K., & Kovacs, G. (2022). Digital Competence of Language Teacher Trainees. A Comparative Study. Acta Universitatis Sapientiae, 14(2), 1–14. https://doi.org/10.2478/ausp-2022-0012

Haroun, Z. (2023). Restructuring university language programs for the integration of digital literacy competence. XLinguae, 16(4), 2–21. https://doi.org/10.18355/xl.2023.16.04.01

Hellne-Halvorsen, E. B., Lahn, L. C., & Nore, H. (2021). Writing Competences in Norwegian Vocational Education and Training: - How Students and Apprentices Express their Professional Competences. Vocations and Learning, 14(2), 243–264. https://doi.org/10.1007/s12186-020-09262-0

Jia, W., & Huang, X. (2023). Digital Literacy and Vocational Education: Essential Skills for the Modern Workforce. International Journal of Academic Research in Business and Social Sciences, 13(5), 2227 – 2234.

Jiang, M. (2023). The Impact and Potential of Educational Technology: A Comprehensive Review. Research and Advances in Education. https://doi.org/10.56397/rae.2023.07.05

Jones, R. H. (2022). Digital literacies and language learning. In Handbook of practical second language teaching and learning. Routledge.

Kandel, G. K. (2022). Integration of Information and Communication Technology in Education: The Opportunities and Challenges. Marsyangdi Journal, 3(1), 82–90. https://doi.org/10.3126/mj.v3i1.47954

Klös, H.-P., Seyda, S., & Werner, D. (2020). Berufliche Qualifizierung und Digitalisierung: Eine empirische Bestandsaufnahme. https://www.econstor.eu/handle/10419/223203

Kovalchuk, V., Maslich, S., & Movchan, L. (2023). Digitalization of vocational education under crisis conditions. 2023(1), 1–17. https://doi.org/10.55056/etq.49

Langenfeld, T., Burstein, J., & von Davier, A. A. (2022). Digital-First Learning and Assessment Systems for the 21st Century. Frontiers in Education, 7. https://doi.org/10.3389/feduc.2022.857604

Lantolf, J. P., & Xi, J. (2023). Digital Language Learning: A Sociocultural Theory Perspective. TESOL Quarterly, 57(2), 702–715. https://doi.org/10.1002/tesq.3218

Liang, J.-C., Hwang, G.-J., Chen, M.-R. A., & Darmawansah, D. (2021). Roles and research foci of artificial intelligence in language education: an integrated bibliographic analysis and systematic review approach. Interactive Learning Environments, 31(7), 4270–4296. https://doi.org/10.1080/10494820.2021.1958348

Lisbet, Z. T., & Gonzales, S. (2025). Analysis of the Effect of Virtual Reality Training on Improving Employee Soft Skills in the Digital Era. Journal of Multidisciplinary Sustainability Asean, 2(2), 87–97. https://doi.org/10.70177/ijmsa.v2i2.2242

Luo, X. C. (2022). Practice of Artificial Intelligence and Virtual Reality Technology in College English Dialogue Scene Simulation. Wireless Communications and Mobile Computing, 2022, 1–9. https://doi.org/10.1155/2022/4922675

Maiboroda, R. (2024). Learning Languages in the 21st Century: the Digital and Ai Transformation. International Journal of Social Science Humanity & Management Research, 03(11). https://doi.org/10.58806/ijsshmr.2024.v3i11n06

Menegale, M. (2024). Global Challenges in Language Education: Rethinking Curricula for Foreign Language Classrooms in the Digital Era. Educazione Linguistica Language Education, 3. https://doi.org/10.30687/elle/2280-6792/2024/03/001

Meniado, J. C. (2023). Digital Language Teaching 5.0: Technologies, Trends and Competencies. RELC Journal, 54(2), 461–473. https://doi.org/10.1177/00336882231160610

Nagy, T. (2021). Using Technology for Foreign Language Learning: The Teacher's Role. 3(2), 23–28. https://doi.org/10.37441/CEJER/2021/3/2/9347

Nissi, R., Blåsjö, M., & Jonsson, C. (2021). Workplace communication in flux: from discrete languages, text genres and conversations to complex communicative situations. Applied Linguistics Review, 14(4), 679–695. https://doi.org/10.1515/applirev-2021-0052

Oksana, P., Galstyan-Sargsyan, R., López-Jiménez, P. A., & Pérez-Sánchez, M. (2020). Transversal Competences in Engineering Degrees: Integrating Content and Foreign Language Teaching. Education Sciences, 10(11), 296. https://doi.org/10.3390/educsci10110296

Parmaxi, A. (2020). Virtual reality in language learning: a systematic review and implications for research and practice. Interactive Learning Environments, 1–13. https://doi.org/10.1080/10494820.2020.1765392

Peiró, J. M., & Martínez-Tur, V. (2022). 'Digitalized' Competences. A Crucial Challenge beyond Digital Competences. Journal of Work and Organizational Psychology, 38(3), 189–199. https://doi.org/10.5093/jwop2022a22

Ravichandran, R., & Mahapatra, J. (2023). Virtual Reality in Vocational Education and Training: Challenges and Possibilities. Journal Of Digital Learning And Education, 3(1), 25–31. https://doi.org/10.52562/jdle.v3i1.602

Rodríguez-Abitia, G., Martínez-Pérez, S., Ramirez-Montoya, M. S., & Lopez-Caudana, E. (2020). Digital Gap in Universities and Challenges for Quality Education: A Diagnostic Study in Mexico and Spain. Sustainability, 12(21), 9069. https://doi.org/10.3390/su12219069

Septiandri, A. A., Constantinides, M., & Quercia, D. (2024). The potential impact of AI innovations on US occupations. PNAS Nexus, 3(9). https://doi.org/10.1093/pnasnexus/pgae320

Spöttl, G., & Windelband, L. (2020). The 4thindustrial revolution – its impact on vocational skills. Journal of Education and Work, 34(1), 29–52. https://doi.org/10.1080/13639080.2020.1858230

Srivastava, R. (2021). Unlocking Technology for Language Learning: A Viability at the Time of Transition from Traditional to Online Teaching and Learning. Arab World English Journal, 2, 96–110. https://doi.org/10.24093/AWEJ/MEC2.7

Tomita, Y. (2023). Digital Technology and Language Learning (pp. 108–129). IGI Global. https://doi.org/10.4018/978-1-6684-8761-7.ch006

Walter, Y. (2024). Embracing the future of Artificial Intelligence in the classroom: the relevance of AI literacy, prompt engineering, and critical thinking in modern education. International Journal of Educational Technology in Higher Education, 21(1). https://doi.org/10.1186/s41239-024-00448-3

Wang, Y. (2024). Digital Transformation of Vocational Education: Connotation, Challenges and Pathways. Region - Educational Research and Reviews, 6(12), 43. https://doi.org/10.32629/rerr.v6i12.2996

Wibawanto, H., Roemintoyo, R., & Rejekiningsih, T. (2022). Simulation-based interactive multimedia to improve vocational students' learning outcomes. World Journal on Educational Technology, 14(6), 1927–1942. https://doi.org/10.18844/wjet.v14i6.8363

Xu J, Jiang T, Wei M, Qing Z. The digital transformation of vocational education: Experience and reflections of Shenzhen Polytechnic University. Vocat Tech Edu. 2024;1(1). doi:10.54844/vte.2024.0522

Yang, H., & Kyun, S. (2022). The current research trend of artificial intelligence in language learning: A systematic empirical literature review from an activity theory perspective. Australasian Journal of Educational Technology, 180–210. https://doi.org/10.14742/ajet.7492

Zheng, C., Yu, M., Guo, Z., Liu, H., Gao, M., & Chai, C. S. (2022). Review of the application of virtual reality in language education from 2010 to 2020. Journal of China Computer-Assisted Language Learning, 2(2), 299–335. https://doi.org/10.1515/jccall-2022-0014

Chapter 2

Evaluating DaF Textbooks: Structure, Teaching Practice and CEFR

Yaşar Ali SARKİLER[1]

Abstract

In the context of developing a learning environment, the evaluation of coursebooks in German as a foreign language (DaF) plays an important role. What the CEFR and its language levels secure is that books are pegged to levels aimed at students. That the book is organized, the content is sequenced and the directions are no-brainers makes it easy to use for both student and teacher. Reading material of all styles: stories, songs, biographies. Books used in a variety of applications is providing context for learning language in use.

The competence of the teacher also influences the effectiveness use of textbooks and as such teacher training and re-training is a necessity. In order to motivate students, cultural stimulating, interesting and visually supportive instructional materials should be provided to students in the form of books. In addition to textbooks, the resources also come with a digital platform and interactive contents to support learning. When evaluating books the following are some of the things which need to be taken into consideration; content accuracy and educational validity. Workbooks with feedback result in success in foreign language teaching.

Keywords: CEFR alignment, cultural integration, learner motivation, teacher qualification, textbook evaluation

[1] Res. Assist., Anadolu University/ Faculty of Education/ Department of Foreign Language, Eskişehir/Türkiye, yasaralisarkiler@anadolu.edu.tr, ORCID: 0009-0002-3028-0368

Introduction

The evaluation of textbooks in the curriculum for DaF instruction is very important for ensuring that the materials used are of value and improve learning. One of the most important considerations is the extent to which such textbooks align with the CEFR guidelines, which provide an all-round framework for classifying the language skills in the light of different proficiency levels. Such alignment ensures that the textbooks used correspond with learners at different stages of language learning.

The analysis of structural issues in educational textbooks is an important area that needs greater scrutiny. Such issues could include the organization of matter, clarity in teaching narratives, and the organizational progression of subject matter. Good textbooks should share clearly identified structure that makes it easier for instructors and students alike to navigate and interpret them. In addition, the presence of multiple forms of text, including narratives, poetry, and biographies, can augment the process of teaching through the provision of multiple contexts for the application of language.

The effective use of textbooks is greatly affected by the qualifications of teachers (Cincioğlu, 2016). Teachers need training that will equip them with the skills to use these materials and adapt them according to the unique needs of their learners. Participation in professional development exercises and ongoing learning activities can help teachers stay updated on modern teaching methods and approaches.

Student motivation plays a crucial role in determining the success of textbooks. Textbook design needs to focus on motivating students while maintaining their interest in learning language skills. The achievement of this goal can be reached by using culturally suitable content alongside interactive activities and visually attractive elements. In this regard, the integration of cultural elements of the target language and opportunities for reflection — aspects that were often neglected in the past — have also been emphasized as essential components in recent literature (Aksöz, 2021). Students who are motivated show better learning outcomes and higher activity levels in the educational process (İlğan, 2020).

Teaching resources extend past traditional textbooks to include audio-visual aids as well as digital media and interactive exercises. These resources enable learners to receive additional educational help while accommodating different learning preferences and personal interests. The implementation of technology in language education improves both the accessibility and flexibility of the learning experience.

The evaluation of textbooks requires assessment of accurate information alongside multicultural appropriateness and educational achievement impact. The use of comparative analysis methods enables the evaluation of positive and negative aspects between different textbooks which leads to valuable recommendations for

selecting optimal resources for particular learning settings. The process of improving textbook design should include learner and educator feedback while updating content to match modern language usage and maintaining alignment with educational standards.

The analysis of DaF textbooks for teaching frameworks demonstrates that effective educational materials require multiple factors to be integrated into their design. Teachers who follow established standards and improve textbook quality and structure will enhance foreign language teaching quality and student achievement of linguistic competence.

1. Alignment with the Common European Framework of Reference (CEFR)

The Common European Framework of Reference for Languages (CEFR) is a detailed framework used for the assessment and comparison of language proficiency among different languages (Trim et al., 2001). The CEFR is widely recognized and used in the field of language teaching, particularly in the teaching of the German foreign language (DaF). The CEFR describes six language levels, ranging from A1 (Beginner) to C2 (Proficient) and gives detailed descriptions of the language skills for every level (Council of Europe, 2020).

The previously mentioned levels have been designed to cover the whole area of language learning, including the listening, reading, speaking, and writing skills. By outlining the competences expected of learners at each level, the CEFR enables structured progression in language teaching. This orderly scheme makes the CEFR particularly significant in the assessment of teaching materials in the DaF scenario, as it provides clear and consistent benchmarks that can be used to determine the appropriateness of teaching resources for students at different proficiency levels (Council of Europe, 2020).

In addition, the CEFR offers a common foundation for language teaching, including learning, teaching, and assessment. It specifies certain competencies and proficiency levels that teaching materials should aim to develop in learners. This clarity makes it easier for teachers and curriculum designers to align their teaching practices and materials with internationally accepted learning goals. The CEFR's emphasis on communicative competence is also reflected in pedagogical tenets underlying textbook design. Textbooks adhering to these tenets are more likely to engage and motivate learners, a crucial factor in successful language learning.

For Turkey, the Common European Framework of Reference for Languages (CEFR) forms the necessary foundation for evaluating educational resources. It helps determine whether textbooks comply with predetermined standards and can lead learners towards the target language proficiency levels. With language teaching

in Turkey moving in the direction of global standards, the CEFR acts as an intermediary bridging national educational systems with international criteria (Ministry of National Education [MEB], 2018). The influence of the CEFR extends to the development of new textbooks as well. By providing clear guidelines and criteria, it encourages the creation of pedagogically sound and internatio-nally relevant materials. Publishers and educators should rely on CEFR descriptors not only to structure content but also to design assessment tools and learning outcomes. One of the theoretical foundations of didactic textbook analysis is, in fact, the alignment with CEFR standards.

In summary, the CEFR is an internationally recognized framework specifying a set of standards for language competence at different levels (A1–C2), covers all language abilities, and lays down an inter-comparable framework for learning, teaching, and assessment. It is applied as a reference point in the grading and development of learning resources, ensuring conformity with pedagogical norms and the goal of communicative competence. In addition, it supports the quality assurance, coherence, and consistency in language teaching in different educational systems and settings.

1.1 Relevance of level-appropriate objectives

Determining goals related to different degrees of proficiency, and coherence with these goals, is an essential component of evaluating and developing textbooks for the teaching of German as a Foreign Language (DaF). If textbooks are to be consistent with CEFR levels, this means that they have been designed such that learners at different degrees of language ability, using the internationally recognized scales, will be able to use the CEFR levels as a reference. For example, local language testing may provide some indication of learner difficulties and contexts that may be important (Başaran, 2024). The CEFR levels, through CEFR guidelines, provide a great deal of guidance for developing goals and learning outcomes. If textbooks are designed to reflect the CEFR levels, learners have a superior opportunity to develop in a structured and coherent way. A better way to think of coherence is to develop their abilities as communicative competence, with a degree of transparency in language education.

As a standardized and foundational reference of language learning, teaching, and assessment, the CEFR plays an important part in ensuring the quality and consistency of educational materials. In this setting, CEFR levels are an essential criterion to be considered in evaluating textbooks, in order to ensure the content of a text is "age-appropriate", consistent with the use of language in various contexts, appropriate models of use are provided, and usable and/or integrate to establish a model of good pedagogical action at the target proficiency.

The more explicitly defined ultimate goals through learning objectives organized within CEFR levels, the easier it will be for authors or teachers to make the right choices of a text type of reference and plan the related activities with incremental items that can build on previous existing knowledge and skills. The range of activities will also need to be organized to be relevant to the needs of learners and the teaching goals identified in the language curriculum.

Also, the transition of these goals into learning should be organized, where structured to ensure that learners effectively develop linguistic competencies over this time period. This strategy for language learning minimizes and/or prevents random and chance interference into key learning situations deliberately utilizing a structured an incremental pathway deemed appropriate based on internationally recognized educational activities.

To summarize, the CEFR defines level-appropriate learning objectives through the A1–C2 levels and scales, which can serve potentially, as a central reference point in ensuring the language learning materials are attained through these well-defined descriptors concepts and thus processes. Although the CEFR levels define learning objectives, learners may have adherence with their learning pathways meeting defined targets enabling a systematic attainment of their goals and learning within defined, explicit common legislative levels targeting internationally comparable levels of language proficiency.

2 Structural Features of Textbooks

Apart from the need for convergence with CEFR-based learning goals, the organizational features of the textbook act as essential elements that determine the effectiveness of teaching in the area of German as a Foreign Language (DaF). Like the features mentioned should be analyzed in the light of pedagogical methods and universally accepted standards, especially those laid down by the CEFR. Properly framed organization not only supports delivering cohesive learning sequences, but it also has an important function in facilitating learners in gradually advancing in language abilities in an ordered manner.

One basic structural element is related to the order and organization of the contents. Successful textbooks build grammar, vocabulary, and other cultural elements methodically in an intelligible and consistent order. With such an organized approach, incremental learning is promoted, as students build step by step on existing knowledge. Thematic and structural consistency in lesson sequences for which each lesson is built on the next in succession greatly enhances learning outcomes and knowledge retention.

As an example, placing grammatical instruction in appropriate communicative contexts (e.g., introducing modal verbs in the context of shopping) supports language

learning in an integrated, rather than disjointed, manner. Incremental activities in rising order of difficulty encourage sustained motivation, while poor structural organization can result in redundancy of content and low motivation. Therefore, an integrated organization of activities and topics is the hallmark for successful, goal-oriented learning.

2.1 Clarity of instructions and tasks

Another major aspect of structure is task type and the instructions associated with it. For learners to comprehend and engage in the lessons, it is essential that they are worded in a way to directly relay the teacher's intentions.

Tasks should contain task types that mirror those found in normal communicative contexts in interpersonal, societal, educational, and work-related circumstances. Sadly, in reality, most textbooks normally have only trivial task types that engage the students in the least invasive and least amount of work needed. In order to build communicative competence, the task types should be original and tied to the broader educational goals, which would give students a chance to engage in their own speaking, writing, and reflection, independently.

The principles of didactic design included: working with tasks that go beyond comprehension-checking questions. By giving task types and other than comprehension-checking types and structure will provide more possibilities to develop students' individual needs. Also, particularly relevant are how to adapt the coherence, checks, questions, tasks, and activities to their different cognitive styles and methodological orientations.

2.2 Variety of text types

The diversity and incorporation of text types—such as short stories, songs, biographies, and expository writings—enrich the learning process considerably. Such texts give learners authentic linguistic experience and expose them to varied communicative and cultural constructs. As much as pragmatic and informative resources in initial DaF textbooks usually prevail, the presence of literary writings is important. If chosen in an astute manner, literary writings can allow learners to enlarge their vocabulary, expose them to stylistic variation, and increase insight into other cultures. Moreover, the readability of texts has long been regarded as an important indicator of textbook quality in DaF research (Başaran, 2023). In textbook evaluation, the originality of the materials, the diversity of sources, and their relevance to learners' experiences are the core quality measures. The large pool of resources not only supports the development of both receptive and productive skills, but it also engages learners' interest and stimulates deeper engagement with the target language.

2.3 Use of visuals and layout design

The visual elements and overall layout design other important aspects of the learning environment. Well chosen images, diagrams and illustrations can help promote understandings as they present learners with visual stimulus and encourage memory retention. Visual elements should not just be visual decoration but should serve a pedagogic function. They should provide cues that may aid meaning-making, particularly when learners are acquiring language for the first time.

Moreover, visual elements should be culturally representative and significant, should reflect diversity, contexts and experiences that opened intercultural possibilities. Using multimedia elements and interactive images, where possible, will contribute to further enriching the pedagogical effectiveness of the textbook and promote a more engaging, dynamic learning experience.

The structure of textbooks—such as their layout, headings, icons, and visual organization—has important impacts on usability and readability. A well-ordered and user-friendly design supports the interaction between learners and teachers with the content, enhancing the overall learning experience.

Overall, the structural features of textbooks—such as systemic content organization, task clarity, variance in text types, and visual design—impact language learning quality and effectiveness considerably. Their alignment with education standards and CEFR ensures that teaching tools satisfy learning objectives while, at the same time, motivating students, engaging them, and improving skills incrementally. A well-planned textbook is the foundation for substantial language learning and successful application in the classroom.

3. Teacher Qualifications and Effective Use of Textbooks

In combination with the structural properties of textbooks, educators' qualifications and the effective pedagogical implementation of textbooks in the DaF curriculum represent the fundamental requirements for successful language teaching. Research in education highlights teachers' necessary competencies in the use of textbooks, the need for ongoing in-service training and development, and the use of textbooks as tools that can support teacher-centered and student-centered teaching approaches. The following parts summarize the most important points regarding these fields.

3.1 Teacher Competencies for Effective Textbook Use

Effective application of textbooks requires teachers to have an in-depth knowledge of the methodological framework and structure of the contents. Control of these elements allows teachers to better facilitate learning and provide explanations and background information tailored to the specific needs of their

students. In such an instance, compliance with guidelines like the CEFR (Common European Framework of Reference for Languages) is critical, and the ability to integrate its methods into teaching in the classroom is an important competence for language teachers.

In addition, the ability to critically analyze both the didactic and methodological aspects of textbooks makes it possible for teachers to use textbook materials in an efficient manner and, if necessary, adjust them according to the special features of the students and the learning conditions in the classroom. Such flexibility is particularly important for the pedagogical effectiveness of educational resources.

In modern language learning, digital competence, along with data-driven learning (DDL) (Boulton, 2010) and corpus-based learning (CBL) competence, is increasingly important (Ma, 2022). Such approaches enable data-driven, learner-centered, and inquiring learning environments, moving away from conventional instructional practices. In addition, teachers need to be trained in order to incorporate visual materials and culturally responsive resources in teaching methods in an intentional and meaningful manner.

3.2 In-Service Training and Continuous Professional Development

The quality with which teachers use textbooks depends not just on individual competence but also on access to systematic and comprehensive professional development. Continuing professional development allows teachers to stay abreast of modern pedagogical approaches, make sure their teaching approaches align with CEFR levels, and integrate digital technology into their teaching practices. Numerous studies have also examined the importance of teacher training (e.g., Lamichhane, 2024; Asim, 2024; Gebel, 2022; Bayrak, 2021).

Teacher professional development programs should provide teachers not just with strategies for using already available resources, but also with the ability to critically evaluate and adapt these resources. Topics like textbook evaluation criteria, comparative studies of instructional texts, didactic design principles, and adapting educational materials should be fundamental parts of teacher training programs.

Ineffective preparation of teachers can limit their ability to fill gaps in learning resources and hamper the successful delivery of curricula. In particular, lack of educational psychology knowledge can pose major challenges for teachers in being able to manage the varied needs of learners. It is, therefore, important that teacher professional development activities incorporate an integrated model including pedagogical knowledge, language skills, and intercultural awareness.

3.3 The Role of Textbooks in Teacher- and Learner-Centered Approaches

It has often been stated that, for a long time in education, teaching was primarily based on the teacher and the textbook (Şahin, 2015). Textbooks act as the core tools for teachers and students in the language learning process (Başaran, 2023). Their effectiveness, however, depends not only on the quality of the material provided, but also on the teaching methods adopted in educational institutions. Carefully planned textbooks attempt to foster learner-centered teaching practices that instill active engagement, critical thinking, cooperation, and participation among students—beyond the literal imparting of linguistic concepts.

Instructors' manuals and supporting materials can help teachers in the flexible use of textbooks, thus making them more effective as teaching tools. Further, the range of activities offered by textbooks is crucial in provoking students' interest and addressing different learning styles.

However, some educational materials lack opportunities for meaningful interaction and fail to enable the development of critical skills like writing and speech. Such learning resources predominantly support traditional, teacher-based approaches. As such, textbook design should be planned in order to support learning when the teacher is not present—such an approach is especially pertinent in distance learning, for example, or independent learning. Inadequately thought out textbooks often fail in this regard.

There is a direct correlation between teacher preparation and the efficient use of teaching resources. In this context, pre-service teachers have emphasized that using instructional materials is important for enhancing lesson retention and student motivation (Aksoy Tokgöz, 2015). Continuous professional education prepares educators not only to apply existing resources, but it also prepares them to adjust them in line with the needs of their students and the developments in teaching methods. Instructional resources form the core of the teaching process, furnishing the teachers with structural support and being the source for the provision of interesting and relevant information for learners. Therefore, an interconnected approach combining teacher training and the preparation of instructional resources is vital for thorough development in the sphere of foreign language teaching.

4 Conclusion

Pedagogical analysis of instruction resources used in teaching German as a Foreign Language (DaF) is a complex and dynamic field influenced by global standards, design methods, teacher qualifications, and learner participation. The following discussion is an analysis and identifies that successful language teaching depends not merely on the curriculum covered in the textbooks, but the extent the content is aligned with learning standards, including the Common European

Framework of Reference for Languages (CEFR), structure, and competence in applying these resources demonstrated by teachers.

The CEFR plays a foundational role in textbook evaluation and development, offering a standardized and internationally recognized framework that ensures consistency, transparency, and coherence in language education - a view that has also been supported in several studies (Bakir & Aziz, 2022). By defining clear learning objectives across six proficiency levels, the CEFR allows textbook authors and curriculum developers to structure content systematically and support learners' progressive development in all language skills—listening, speaking, reading, and writing. The CEFR also emphasizes communicative competence, making it a crucial benchmark for designing tasks and exercises that reflect real-world language use. In contexts such as Turkey, where fore-ign language teaching is increasingly aligned with global bench-marks, CEFR compliance ensures that educational materials are relevant, high-quality, and pedagogically sound.

Besides CEFR compliance, structural features in textbooks determine their effectiveness in the classroom. Well-structured textbooks ensure an efficient learning progression, facilitate comprehension, and increase students' motivation. Significant structural features include topic organization, clear instructions, and the balance between productive and receptive activities. Organized design that gradually increases in complexity allows students to consolidate already gained knowledge, while disorganizing and too much repetition might trap students in hesitation and stifle learning outcomes. Furthermore, varying quantities of text types—ranging from dialogues and information texts to literary and biographic writings—acquaint learners with an equally diverse group of communicative and cultural contexts. Such variance promotes linguistic flexibility, cultural awareness, and deeper understanding of the authentic usage of the German language.

The visual composition and design of educational resources form an important set of determinants that impact the usability and instructional effectiveness of textbooks. They are also used in different forms in textbooks, such as cartoons and other types (Zhu, 2023). Visual elements, such as images, diagrams, and icons, should go beyond merely being ornamental in function; instead, they should be tools that enable comprehension and support memory retention. In addition, the visual presentation of educational information needs to be culturally responsive and aligned with the principles of intercultural competence. Especially for introductory courses, visual supports can go some distance in bridging the gap between novel terminology and conceptual comprehension. Likewise, digital elements, such as online platforms and interactive media, can help augment the learning process, making it more flexible, inclusive, and responsive to the needs of 21st-century learning.

However, even the best-prepared textbooks require the active involvement of knowledgeable and reflective teachers in order to reach their potential. As elaborated in this research, teacher qualifications—namely, their grasp of pedagogical concepts, familiarity with CEFR schemes, and competence in evaluating and adapting teaching materials—lie at the root of successful textbook implementation. Ongoing preparation and training enable teachers to go beyond the textbook constraints, applying discerning judgment as for when and how to augment, adapt, or possibly replace particular activities. Competencies in digital literacy, corpus-based learning, and task-based education increasingly impact the language learning landscape.

Furthermore, the educator's role in creating balance among teacher-centered and learner-centered approaches in teaching activities is crucial for maximizing the effectiveness of textbooks. While textbooks yield the basic framework and information for delivery, their actual value lies in their ability to foster learner autonomy, creativity, and active participation. Teacher guides, support materials, and flexible methods enable teachers to tailor lessons according to diverse learner profiles, hence maximizing learning outcomes and rates of retention. Textbooks that fail to integrate methods for the cultivation of productive skills, as well as those that rely too much on traditional methods, discourage learner involvement and limit communicative competence.

As such, an in-depth analysis of textbooks requires an integral approach, considering not only the internal properties of the materials, but also the environmental variables influencing the use of the materials in real classroom contexts. Such variables include the training opportunities provided for teachers, institutional policies, availability of supplementary materials, and systems providing for students' and teachers' active participation in the ongoing elaboration of the materials. It is not enough for textbooks to be theoretically aligned with the CEFR, or structurally consistent; they should illustrate practicality, flexibility, and responsiveness towards the language learning and teaching necessities.

In short, high-quality textbooks for DaF courses are marked by the incorporation of CEFR-aligned goals, clear and consistent structural design, diversity in the type of authentic text, and support for teacher effectiveness and learner autonomy. Such resources should be seen not as containers for linguistic information, but as dynamic tools for promoting interaction, reflection, and language learning development. Toward that aim, an integrated model would be necessary, one linking textbook design with teacher training, incorporating ongoing feedback from teaching scenarios, and responding to the changing world of teaching standards and learner needs. In adopting such an approach, teachers and schools can greatly enhance the quality of the teaching of German, resulting in better, motivated, and culture-capable learners.

REFERENCES

Aksoy Tokgöz, İ., & Şahin Taşkın, Ç. (2015). Sınıf Öğretmenlerinin Öğrenme-Öğretme Sürecinde Materyal Kullanımlarının Öğretmen Adaylarının Görüşlerine Dayalı Olarak İncelenmesi. *Ege Eğitim Dergisi, 16(2),* 422-440. https://doi.org/10.12984/eed.98839

Aksöz, A. S. (2021). Soziokulturelles Wissen und dessen Vermittlung im Rahmen des Gemeinsamen europäischen Referenzrahmens für Sprachen im DaF Lehrbuch „Wie bitte? A1.1“. Dokuz Eylül Üniversitesi Buca Eğitim Fakültesi Dergisi(51), 160-179. https://doi.org/10.53444/deubefd.791050

Asim, F. (2024). Examining the impact of teacher's training programs on the role of teachers in the implementation and development of curriculum. *Journal of Education and Educational Development*. https://doi.org/10.22555/joeed.v11i2.1093

Bakir, A., & Aziz, A. (2022). Primary school teachers' perceptions on the effectiveness of CEFR textbooks in Malaysia: A systematic literature review. *International Journal of Academic Research in Progressive Education and Development, 11*(3). https://doi.org/10.6007/ijarped/v11-i3/14800

Başaran, B. (2023). Die Lesbarkeit; noch ein weiterer Indikator für DaF-Lehrwerke?. Diyalog Interkulturelle Zeitschrift Für Germanistik590-609. https://doi.org/10.37583/diyalog.1407754

Başaran, B. (2024). Rethinking AI in Education: A Comparative Study of Custom and External Systems. 2024 6th International Workshop on Artificial Intelligence and Education (WAIE), 16-28.

Bayrak, N., & Bayrak, G. (2021). Eğitimde teknoloji kullanımı içerikli hizmet içi eğitim kurslarının öğretmenlerin teknolojik pedagojik alan bilgisi özgüvenine etkileri. *Van Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi, 18*(1), 1009–1041.

Blau, I., Shamir-Inbal, T., & Avdiel, O. (2020). How does the pedagogical design of a technology-enhanced collaborative academic course promote digital literacies, self-regulation, and perceived learning of students? *The Internet and Higher Education, 45*, 100722. https://doi.org/10.1016/j.iheduc.2019.100722

Boulton, A. (2010). Data-driven learning: Taking the computer out of the equation. *Language Learning, 60*, 534–572. https://doi.org/10.1111/j.1467-9922.2010.00566.x

Cincioğlu, A. (2016). Why to involve teachers in the process of language curriculum development? *Turkophone, 1*(1), 26–39.

Council of Europe. (2020). *Common European framework of reference for languages: Learning, teaching, assessment – Companion volume*. Council of Europe Publishing. https://www.coe.int/lang-cefr

Gebel, S., & Bozkurt, A. T. (2022). Öğretmenlerin Milli Eğitim Bakanlığı tarafından yürütülen uzaktan hizmet içi eğitim faaliyetleri hakkındaki görüşleri. *Gaziantep Üniversitesi Eğitim Bilimleri Dergisi, 6*(1), 42–62.

İlğan, A. (2020). A proposed model and implementation guideline for effective professional development approaches for teachers. *Eğitim ve İnsani Bilimler Dergisi: Teori ve Uygulama, 11*(21), 171–197.

Lamichhane, B., Lama, P., & Karki, M. (2024). Factors associated with teacher's professional development for classroom delivery: An evidence from community school in Kathmandu, Nepal. *International Journal of Religion*. https://doi.org/10.61707/dvthwr42

Ma, Q., Yuan, R. (Eric), Cheung, L. M. E., & Yang, J. (2022). Teacher paths for developing corpus-based language pedagogy: A case study. *Computer Assisted Language Learning, 37*(3), 461–492. https://doi.org/10.1080/09588221.2022.2040537

Ministry of National Education (MEB). (2018). Secondary education German curriculum (Preparatory, grades 9, 10, 11, and 12). Retrieved December 19, 2021, from https://mufredat.meb.gov.tr/ProgramDetay.aspx?PID=333

Şahin, M. (2015). The Analysis of the Views of Teachers Related to the Functions of Teaching Materials During the Teaching-Learning Process. Kastamonu Education Journal, 23(3), 995-1012.

Trim, J. L. M., Coste, D., North, B., & Sheils, J. (2001). *Common European framework of reference for languages: Learning, teaching, assessment*. Council of Europe. https://www.coe.int/en/web/common-european-framework-reference-languages

Zhu, Y., & Yang, N. (2023). Visual images and image-text relations in ELT textbooks for young learners. *Language Teaching for Young Learners*. https://doi.org/10.1075/ltyl.00035.zhu

Chapter 3

Investigation Of Academic Procrastination Behaviours Of 8th Grade Secondary School Students[1]

Özkan ÖZÇELİK[2]
Semra DEMİR BAŞARAN[3]

Abstract: Academic procrastination is a critical factor influencing students' academic development processes. Middle school represents a pivotal stage in students' academic development. During middle school, students face critical developmental tasks such as establishing effective study habits, acquiring the ability to prioritize and plan tasks, and taking on academic responsibilities. At this stage, the tendency for academic procrastination appears as a critical variable potentially affecting students' motivation and long-term academic achievement. In this regard, investigating the academic procrastination behaviors of eighth-grade middle school students, analyzing these behaviors across various variables, and suggesting evidence-based solutions are of considerable importance. The present study aims to examine the academic procrastination behaviors and levels of eighth-grade middle school students. The study employed a survey design as a quantitative research method. Data were obtained through the Academic Procrastination Behavior Scale for Middle School Students and a Personal Information Form developed to gather demographic variables. This research was carried out in the 2023-2024 academic year with a sample of 855 eighth-grade students from middle schools located in Kayseri, Turkey. In the data analysis process, descriptive statistics, independent samples t-test, and one-way analysis of variance (ANOVA) were employed. Furthermore, the factor structure previously identified for the scale was evaluated through confirmatory factor

[1] This study was derived from a section of the first author's master's thesis.
[2] Teacher, Ministry of National Education, Kayseri, Türkiye, ozkanozcelik07@hotmail.com, ORCID ID: 0009-0009-0477-2271
[3] Prof. Dr., Erciyes University, Faculty of Education, Department of Educational Sciences, Kayseri, Türkiye, sdemir@erciyes.edu.tr, ORCID ID: 0000-0002-5245-7657

analysis (CFA) to assess its validity. According to the results of the study, the academic procrastination levels of eighth-grade middle school students were found to be low. Academic procrastination was found to differ significantly based on gender, level of academic achievement, preferred time of day for studying, whether the student had an individual study plan, daily duration of internet and technology use, and the number of technological devices available at home. The findings indicated that academic procrastination did not differ significantly with respect to family income level or the educational levels of the parents.

Keywords: *Academic procrastination, Behavior, Eighth grade, Middle school, Procrastination*

1. Introduction

Academic procrastination is one of the fundamental factors that shape an individual's academic performance and plays a decisive role in academic success or failure (Gayary & Kalita, 2025). Academic procrastination hinders students' academic achievement and prevents them from fully realizing their potential. The postponement of academic tasks to a later time rather than completing them within the designated time frame is defined as academic procrastination (Lay, 1986, as cited in Uzun Özer, 2009). Academic procrastination is the voluntary delay of an intended academic action despite knowing that the negative consequences of the delay are likely to outweigh the potential benefits (Baulke et al., 2019). The concept of academic procrastination, frequently used in the field of education, refers to students' tendency to avoid or deliberately delay the timely completion of academic tasks (Gayary & Kalita, 2025). Academic procrastination results in a decrease in students' academic performance (Kim & Seo, 2015).

The procrastination of academic assignments is a widespread phenomenon among students (Ackerman & Gross, 2005; Doruk Aslan, 2024; Svartdal et al., 2020). Nearly half of the student population perceives academic procrastination as problematic and acknowledges its detrimental nature (Rozental & Carlbring, 2014). Studies conducted among students have demonstrated a high prevalence of academic procrastination (Balkıs, 2007). Gupta et al. (2024) reported that 64.3% of middle and high school students engage in academic procrastination. Wu et al. (2024) found that middle school students exhibited an increasing tendency toward procrastination over the course of one year. The researchers concluded that the percentage of procrastination rose within profiles categorized as moderate and severe procrastinators. Ulukaya (2012) indicated that 53% of students display academic procrastination. In his study conducted with high school students, Uzun Özer (2009) revealed that the prevalence of academic procrastination was 54%. He (2017), investigating a university student sample,

reported that 48% of participants stated they “always” or “very often” procrastinate on academic assignments. Tekin (2022), in research involving medical faculty students, found that 52.2% exhibited academic procrastination. Collectively, these findings reveal that the tendency to postpone academic tasks is highly widespread among students.

Students are required to fulfill various tasks and responsibilities throughout their academic careers. During this process, they may encounter difficulties that lead them to postpone tasks or fail to complete them altogether (Yaycı & Düşmez, 2016). Academic procrastination manifests when students leave assigned work until the last moment, begin studying for exams only in the final days, miss or delay assignment submission deadlines, or fail to carry out their academic obligations on time (e.g., forgetting to return library books, missing course registration deadlines) (Yaycı & Düşmez, 2007). According to research examining the causes of academic procrastination, students’ reasons for delaying academic tasks are rooted in various factors. These include fear of failure, deficiencies in time-management skills, a weak sense of responsibility, difficulties in maintaining focus, and challenges in decision making. Moreover, erroneous cognitive attributions about the self and either low or excessively high expectations regarding one’s academic performance are viewed as significant contributors to academic procrastination (Kim & Seo, 2015; Malla, 2021; Svartdal et al., 2020).

Academic procrastination disrupts students’ academic development and leads to declines in their academic achievement (Kim & Seo, 2015; Sparfeldt & Schwabe, 2024; Steel, 2007). It causes anxiety and stress in students, lowers their quality of life, and negatively affects their academic competence. Academic success is determined by the completion of assigned academic tasks. A frequently encountered problem in fulfilling these tasks is academic procrastination. This behavior, which hinders the successful completion of academic tasks, profoundly affects an individual's academic life due to its consequences (Wu et al., 2024). Education ultimately prepares individuals for their place in life, determines their future profession, provides them with social status, and even shapes their personal lives. Given the critical importance of education in human life, it becomes essential to understand the behavior of academic procrastination-which fundamentally affects academic life-by identifying its causes and consequences, and developing potential solutions.

Academic procrastination is a dynamic phenomenon sensitive to transformation over time. However, research on the dynamic nature of academic procrastination among middle school students remains relatively limited (Wu et al., 2024, p. 2). Literature reviews reveal that studies on academic procrastination

behavior are generally concentrated at the high school and university levels. The number of studies investigating the prevalence of academic procrastination behaviors among middle school students is quite limited. To gain a deeper understanding of academic procrastination, it is essential to examine this behavior specifically within the middle school population. In our country, the middle school level can be considered the cornerstone of academic life. Middle school represents a critical stage in which students lay the foundation for their future learning and development, develop learning awareness to establish effective learning habits, and acquire self-regulated learning skills (Lin et al., 2021). Middle school students range in age from 11 to 14 years. As an age cohort, these students are in the transitional phase from childhood to adolescence. Students entering adolescence undergo cognitive, affective, and behavioral development and change. These developmental changes shape a student's interests, abilities, and achievement. By examining academic procrastination behaviors, the extent of their prevalence among middle school students can be determined, thereby facilitating a clearer understanding of the significance of this issue. When examined in terms of variables such as gender, parental education level, family income level, academic achievement level, preferred time period for studying, presence of an individualized study plan, number of technological devices at home, and daily internet and technology usage duration, it becomes possible to identify which of these factors constitute a risk. This information can support all stakeholders in making data-driven decisions.

This study was conducted to examine academic procrastination behavior among eighth-grade middle school students.

To achieve this aim, the questions to be addressed are as follows:

1. What are the levels of academic procrastination among eighth-grade middle school students?
2. Do the academic procrastination behaviors of eighth-grade middle school students differ significantly by gender?
3. Do eighth-grade middle school students' academic procrastination behaviors differ significantly according to their academic achievement levels?
4. Do eighth-grade middle school students' academic procrastination behaviors differ significantly based on their preferred time periods for studying?
5. Do eighth-grade middle school students' academic procrastination behaviors differ significantly based on whether they have an individualized study plan?

6. Do eighth-grade middle school students' academic procrastination behaviors differ significantly according to the duration of their daily internet and technology use?
7. Do eighth-grade middle school students' academic procrastination behaviors differ significantly based on the number of technological devices (e.g., phone, tablet, computer, gaming console, television) available at home?
8. Do eighth-grade middle school students' academic procrastination behaviors differ significantly according to family income level?
9. Do eighth-grade middle school students' academic procrastination behaviors differ significantly based on maternal education level?
10. Do eighth-grade middle school students' academic procrastination behaviors differ significantly based on paternal education level?

2. Method

2.1. Research Model

This study was conducted to analyze the academic procrastination behaviors and levels of eighth-grade middle school students. The research employed a descriptive survey model. In line with the quantitative paradigm, it investigated whether students' academic procrastination behaviors differed significantly according to gender, parental education level, family income level, academic achievement level, preferred time period for studying, existence of an individualized study plan, number of technological devices at home, and daily internet and technology usage duration.

2.2. Population and Sample of the Study

The population of this study comprises eighth-grade students enrolled in Ministry of National Education state middle schools across all districts of Kayseri province during the 2023-2024 academic year. A simple random sampling method was employed to select the sample. The sample consists of 855 eighth-grade students attending Ministry of National Education state middle schools, selected from the Kayseri population using a simple random sampling method.

Table 1. Descriptive Statistics Results for the Sample

Variables	N	%	Variables	N	%
Maternal education level			Gender		
Primary school	266	31.1	Female	511	59.8
Middle school	213	24.9	Male	344	40.2
High school	261	30.5	Family income level		
University	103	12.0	Low	108	12.6
Graduate school	12	1.4	Medium	697	81.5
Paternal education level			High	50	5.8
Primary school	202	23.6	Having an individualized study plan		
Middle school	182	21.3	Yes	462	54.0
High school	300	35.1	No	393	46.0
University	146	17.1	Daily duration of internet and technology use		
Graduate school	25	2.9	0	23	2.7
Number of technological devices in the home			1	125	14.6
1	64	7.5	2	225	26.3
2	121	14.2	3	217	25.4
3	148	17.3	4	121	14.2
4	131	15.3	5	144	16.8
5	107	12.5	Preferred time period for studying		
Over 5	284	33.2	Morning	62	7.3
Academic achievement level			Noon	98	11.5
Low	80	9.4	Afternoon	206	24.1
Medium	607	7.0	Evening	422	49.4
High	168	19.6	Night	67	7.8
Total	855	100		855	100

According to Table 1, female students comprise 59.8% of the sample, while male students comprise 40.2%. The majority of mothers (31.1%) have attained a primary school education, whereas the majority of fathers (35.1%) have completed high school. Most students demonstrate a medium level of academic achievement (71%) and come from a medium income background (81.5%). In terms of preferred study times, students most frequently choose evening hours (49.4%) and least frequently choose morning hours (7.3%). Finally, within the sample, the largest proportion of students uses the internet for up to two hours per

day (26.3%), and the most common number of technological devices at home is greater than five (33.2%).

2.3. Data Collection Process

In this study, the Academic Procrastination Scale for Middle School Students, developed by Ocak and Karataş (2019), was employed. In addition, a parental consent form and participation agreement documents were prepared and transferred to a digital platform along with the scale. The process was conducted in collaboration with the school administrations and guidance services of the participating schools. The researcher visited each school to introduce the forms and the scale to the students, provided detailed information about the scale, addressed students' questions, and informed them that parental consent was required for participation. Subsequently, the scale was distributed via class communication groups, and students were asked to complete it voluntarily, sincerely, and honestly. Data collection took place between March 1, 2024, and April 30, 2024. Both ethical approvals and scale permissions were obtained.

2.4. Instruments

The Personal Information Form, developed by the researcher, was designed to obtain profile data for the participating students. It was used to ascertain students' personal data regarding gender, parental education levels, family income level, academic achievement level, preferred time period for studying, presence of an individualized study plan, number of technological devices at home, and daily duration of internet and technology use.

The Academic Procrastination Behavior Scale for Middle School Students, developed by Ocak and Karataş (2019), was employed as the measurement instrument in this study. The scale is a 19-item, two-factor instrument formatted on a five-point Likert scale. Responses to each item are rated as follows: "1 = never," "2 = rarely," "3 = sometimes," "4 = often," and "5 = always." Higher scores on the scale indicate greater levels of academic procrastination. The first factor, labeled "Irresponsibility and Prioritization," comprises six items. The second factor, labeled "Environment and Emotions," comprises thirteen items.

In the factor analysis conducted to determine the construct validity of the scale, the KMO (Kaiser-Meyer-Olkin) value was measured at 0.950, and Bartlett's test of sphericity yielded a significant result. The variance explained by the first factor ("Irresponsibility and Prioritization") was 23.95%, while the second factor ("Environment and Emotions") accounted for 34.08% of the total variance. As a result of the factor analysis, two factors explain 58.03% of the total variance. The factor loadings for the first factor range from 0.564 to 0.780,

whereas those for the second factor range from 0.596 to 0.743. As a result of the factor analysis, it can be stated that the scale's loading values are high. In the conducted measurements, the scale's Cronbach's alpha coefficient was found to be 0.946, indicating that the scale is a reliable instrument. Confirmatory factor analysis was applied to assess the validity of the scale's defined factor structure. The χ^2/df value for model fit was 1.926, indicating excellent fit (1.926<3), and the RMSEA was 0.056, indicating good fit (0.056<0.08). Finally, the mean scores and correlation coefficients for the scale's subfactors were calculated, and it was reported that the correlation coefficients among the factors indicated a high and significant relationship (Ocak & Karataş, 2019).

2.5. Data Analysis

In this study, data were organized using Microsoft Excel 2019, and the research questions were tested with IBM SPSS 26.0 (IBM Corp., 2019). Prior to addressing the research questions, the previously established factor structures of the scales used in the study were examined with AMOS 24.0 (IBM Corp., 2016). The validity of the pre-determined factor structure was tested via confirmatory factor analysis (CFA) (Raykov & Marcoulides, 2000). The fit index values for the Academic Procrastination Scale and the criteria for excellent and acceptable fit are presented in Table 2. The diagram corresponding to the scale, obtained from the CFA, is reported in Appendix 1.

Table 2. Fit Index Values for the Academic Procrastination Scale for Middle School Students and the Criteria for Excellent and Acceptable Fit

Fit criteria	Excellent fit	Acceptable fit	Value in the current study
χ^2/sd	$0 \leq \chi^2/sd \leq 4$	$0 \leq \chi^2/sd \leq 5$	5.67
RMSEA	$0 \leq RMSEA \leq 0.05$	$0.05 < RMSEA \leq 0.08$	0.07
NFI	$0.95 \leq NFI \leq 1.00$	$0.90 \leq NFI < 0.95$	0.87
CFI	$0.95 \leq CFI \leq 1.00$	$0.90 \leq CFI < 0.95$	0.90
GFI	$0.95 \leq GFI \leq 1.00$	$0.90 \leq GFI < 0.95$	0.90

References: Bentler and Bonett (1980); Hu and Bentler (1999); Tabachnick and Fidell (2012, pp. 721-724).

In Table 2, the RMSEA, CFI, and GFI values for the Academic Procrastination Scale fall within acceptable limits, whereas the χ^2/df and NFI values lie slightly outside these thresholds yet remain close to the boundaries. Additionally, the SRMR value of the scale was calculated as 0.05, which, being below 0.08, indicates acceptable model fit. In the literature, alternative criteria exist for evaluating the NFI index. For instance, Hooper et al. (2008) suggest that values up to 0.80 are acceptable. Therefore, the NFI value of the scale can be considered within acceptable limits. In conclusion, it can be stated that the

previously established factor structure of the scale has been confirmed with acceptable fit indices.

The reliability coefficient for the first factor of the Academic Procrastination Scale was found to be 0.79; for the second factor, 0.88; and the overall reliability of the scale was 0.91. In the literature, instruments with reliability coefficients of 0.70 and above are considered reliable (Tezbaşaran, 1997). Consequently, the data obtained using this scale can be regarded as reliable.

After confirmatory factor analysis (CFA), the extent to which the data met the assumptions required for parametric analyses-such as ANOVA and t-tests-was examined. In this study, scores obtained from the Academic Procrastination Scale served as the dependent variable, while students' demographic characteristics functioned as independent variables. Because each student completed the scale independently, the assumption of observational independence was satisfied. Total scale scores (the dependent variable) are continuous, whereas the demographic variables (the independent variables) are categorical. Graphical methods are preferred for examining the distributions of large datasets (Çokluk et al., 2025). The dependent variable demonstrates an acceptable level of normal distribution. Moreover, the kurtosis and skewness values of the dependent variable are 1.66 and 1.38, respectively. These values, being within ±2, indicate that the variable exhibits a normal distribution (Hahs-Vaughn & Lomax, 2013; Kline, 2011).

The homogeneity of variances assumption was examined using Levene's test. In the ANOVA analysis, when homogeneity of variance was satisfied, Scheffé's post hoc test was used to determine which groups differed significantly; when homogeneity of variance was not satisfied, Tamhane's T2 test was employed. After confirming that the assumptions were met, data analysis proceeded. Because there was only one participant with a doctoral degree in the maternal education category and two participants with doctoral degrees in the paternal education category, these cases were recoded as "postgraduate" and merged with the "master's degree" category.

2.6. Ethics Committee Statement

This study was derived from a section of the first author's master's thesis. The research was conducted with the approval of the Erciyes University Social and Human Sciences Research and Publication Ethics Committee (Decision No. 401, 31 October 2023).

3. Findings

The academic procrastination levels of eighth-grade middle school students are presented in Table 3.

Table 3. Descriptive Statistics of the Academic Procrastination Scale

Dimensions	*N*	Minimum	Maximum	Mean	Standard deviation
Irresponsibility and prioritization	855	6.00	30.00	11.13	4.79
Environment and emotions	855	13.00	58.00	21.77	8.69
Total	855	20.00	86.00	32.91	12.67

Scores on the Academic Procrastination Scale range from a minimum of 19 to a maximum of 95. According to Table 3, students' scores ranged from 20 to 86, with a mean score of 32.91. Because the mean score is close to the lowest possible score on the scale, it can be concluded that students exhibit low levels of academic procrastination. A similar interpretation applies to the two subdimensions.

The results of the independent-samples t-test examining differences in students' academic procrastination scores by gender are presented in Table 4.

Table 4. Independent-samples t-test Results for Academic Procrastination Scores by Students' Gender

Gender	*N*	Mean	Standard deviation (SD)	Degrees of freedom	*t*	*p*
Female	511	32.01	12.05	681.05	-2.48	0.01
Male	344	34.24	13.43			

According to the data presented in Table 4, a statistically significant difference was found between the academic procrastination levels of male and female students ($t_{(681.05)} = -2.48$; $p<0.05$). This significant difference favors male students; in other words, male students ($\bar{X}=34.24$) exhibit higher levels of academic procrastination than female students ($\bar{X}=32.01$)

The ANOVA results regarding students' academic procrastination scores based on their academic achievement levels are presented in Table 5.

Table 5. ANOVA Results for Academic Procrastination Scores by Students' Academic Achievement Levels

Achievement	*N*	Mean	*SD*	Source of Variance	Sum of Squares	Degrees of Freedom	Mean Squares	*F*	*p*	Significant Difference
(1)Low	80	41.31	15.35	Between groups	6913.67	2	3456.83	22.63	.000	(1)-(2) (1)-(3)
(2)Medium	607	32.53	12.12	Within groups	130122.85	852	152.73			
(3)High	168	30.26	11.58	Total	137036.51	854				

The results of the ANOVA analysis indicate that there is a statistically significant difference in academic procrastination levels among students with different academic achievement levels ($F_{(2.852)} = 22.63$; $p<0.05$). According to Table 5, students with low academic achievement exhibit a higher tendency to procrastinate than those with medium and high achievement levels.

The ANOVA results for students' academic procrastination scores based on their preferred time periods for studying are reported in Table 6.

Table 6. ANOVA Results for Academic Procrastination Scores by Preferred Study Time Periods

Preferred time	*N*	Mean	*SD*	Source of Variance	Sum of Squares	Degrees of Freedom	Mean Squares	*F*	*p*	Significant Difference
(1)Morning	62	29.90	10.21	Between groups	4585.15	4	1146.29	7.36	.000	(5)-(1) (5)-(2)
(2)Noon	98	33.57	12.48	Within groups	132451.36	850	155.83			(5)-(3) (5)-(4)
(3)Afternoon	206	32.38	11.44	Total	137036.52	854				
(4)Evening	422	32.26	12.64							
(5)Night	67	40.39	15.98							

According to the analysis of Table 6, a statistically significant difference was observed in academic procrastination levels based on students' preferred study time periods ($F_{(4.850)} = 7.36$; $p<0.05$). Students who prefer to study at night exhibit higher levels of academic procrastination than those who prefer to study in the morning, midday, afternoon, or evening.

The results of the independent-samples t-test examining students' academic procrastination scores based on the presence of an individualized study plan are presented in Table 7.

Table 7. Independent-samples t-test Results for Academic Procrastination Scores by Presence of an Individualized Study Plan

Plan	*N*	Mean	Standard deviation	Degrees of freedom	*t*	*p*
No	462	35.99	13.51	846.40	8.17	0.00
Yes	393	29.28	10.51			

According to Table 7, a statistically significant difference was identified between the academic procrastination levels of students with and without an individualized study plan ($t_{(846.40)}$ = 8.17; p<0.05). This significant difference favors students without an individualized study plan; in other words, students without an individualized study plan ($\bar{X}$=35.99) exhibit higher levels of academic procrastination than those with a study plan ($\bar{X}$=29.28).

The ANOVA results for students' academic procrastination scores based on the duration of their daily internet and technology use are reported in Table 8.

Table 8. ANOVA Results for Academic Procrastination Scores by Internet and Technology Usage Duration

Internet and technology usage duration	*N*	Mean	*SD*	Source of Variance	Sum of Squares	Degrees of Freedom	Mean Squares	*F*	*p*	Significant Difference
(0) None	23	31.00	9.98	Between groups	15929.84	5	3185.97	22.34	.000	(4)-(1) (4)-(2)
(1) 1	125	28.43	10.57	Within groups	121106.67	849	142.65			(4)-(3) (5)-(0)
(2) 2	225	30.56	11.03	Total	137036.52	854				(5)-(1)
(3) 3	217	30.73	9.84							(5)-(2)
(4) 4	121	36.48	13.30							(5)-(3)
(5) 5	144	41.04	15.78							

According to Table 8, a statistically significant difference was found in academic procrastination levels among students with differing daily durations of internet and technology use ($F_{(5.849)}$ = 22.34; p<0.05). Students who use the internet for four hours or more per day exhibit higher academic procrastination levels than their peers.

The ANOVA results for students' academic procrastination scores according to the number of technological devices at home are presented in Table 9.

Table 9. ANOVA Results for Academic Procrastination Scores by Number of Technological Devices at Home

Number of technological devices	*N*	Mean	*SD*	Source of Variance	Sum of Squares	Degrees of Freedom	Mean Squares	*F*	*p*	Significant Difference
(1) 1	64	34.08	12.99	Between groups	2000.83	5	400.17	2.52	.03	(6)-(2)
(2) 2	121	30.37	11.07	Within groups	135035.68	849	159.05			
(3) 3	148	31.37	11.98	Total	137036.51	854				
(4) 4	131	32.46	12.69							
(5) 5	107	33.51	12.82							
(6) Over 5	284	34.50	13.32							

According to Table 9, a statistically significant difference was found in academic procrastination levels among students with different numbers of technological devices at home ($F_{(5.849)} = 2.52$; $p<0.05$). Students with 5 and above technological devices at home exhibit higher academic procrastination levels than those with two technological devices at home.

The ANOVA results for students' academic procrastination scores by family income level are reported in Table 10.

Table 10. ANOVA Results for Academic Procrastination Scores by Family Income Level

Family income level	*N*	Mean	*SD*	Source of Variance	Sum of Squares	Degrees of Freedom	Mean Squares	*F*	*p*
(1)Low	108	33.94	13.50	Between groups	336.20	2	168.10	1.05	.35
(2)Medium	697	32.90	12.67	Within groups	136700.31	852	160.45		
(3)High	50	30.80	10.55	Total	137036.52	854			

According to Table 10, no statistically significant difference was found in academic procrastination levels among students from different socio-economic backgrounds ($F_{(2.852)} = 1.05$; $p=0.35$). In other words, students across varying socio-economic levels exhibit comparable academic procrastination levels.

The ANOVA results for students' academic procrastination scores by maternal education level are presented in Table 11.

Table 11. ANOVA Results for Academic Procrastination Scores by Maternal Education Level

Maternal education level	*N*	Mean	*SD*	Source of Variance	Sum of Squares	Degrees of Freedom	Mean Squares	*F*	*p*
(1)Primary school	266	33.55	12.46	Between groups	856.93	4	214.23	1.34	.25
(2)Middle school	213	32.62	12.11	Within groups	136179.59	850	160.21		
(3)High school	261	31.71	12.68	Total	137036.52	854			
(4)University	103	34.63	14.31						
(5)Graduate school	12	35.00	10.58						

According to Table 11, having mothers with differing educational levels does not yield a statistically significant difference in students' academic procrastination levels ($F_{(4.850)} = 1.34$; p=0.25)students' academic procrastination levels are comparable.

The ANOVA results for students' academic procrastination scores by paternal education level are presented in Table 12.

Table 12. ANOVA Results for Academic Procrastination Scores by Paternal Education Level

Paternal education level	*N*	Mean	*SD*	Source of Variance	Sum of Squares	Degrees of Freedom	Mean Squares	*F*	*p*
(1))Primary school	202	34.00	13.26	Between groups	586.99	4	146.75	.91	.46
(2)Middle school	182	32.29	11.90	Within groups	136449.52	850	160.53		
(3)High school	300	32.74	12.38	Total	137036.52	854			
(4)University	146	32.05	13.29						
(5)Graduate school	25	35.44	12.96						

According to Table 12, the presence of fathers with varying educational levels does not result in a statistically significant difference in students' academic procrastination levels ($F_{(4.850)} = 0.91$; p=0.46). Students' academic procrastination levels are comparable.

4. Conclusion and Discussion

This study aims to analyze the academic procrastination behaviors of eighth-grade middle school students. According to the research findings, eighth-grade students exhibit low levels of academic procrastination. This outcome also holds for the scale's two subdimensions, "irresponsibility and prioritization" and

“environment and emotions.” These findings are consistent with those reported in the literature (Çavdar, 2024; Durdu, 2019; Eravcı Özcan, 2020; Özzorlu, 2018; Uysal, 2024). Low levels of academic procrastination among eighth-grade middle school students may be attributable to their preparation for the high-stakes Liselere Geçiş Sistemi (LGS) examination. Additionally, because middle school grades contribute to the address-based placement system -another component of high school admission- students may place greater importance on in-school exams and assessments, thereby motivating them to engage consistently with their studies.

The findings of the study indicate that eighth-grade middle school students’ tendencies to postpone academic tasks differ significantly by gender. Specifically, male students were found to exhibit higher levels of academic procrastination compared to female students. This result is consistent with those reported in previous research (Ada, 2023; Durdu, 2019; Li, 2023; Malla, 2021; Ören, 2024; Özzorlu, 2018). Research findings from studies involving high school and university students yield similar outcomes (Çetin, 2016; Demir, 2024; Gürültü & Deniz, 2017; Koçer, 2024). It is posited that this phenomenon arises due to the influence of societal environment and culture on gender roles (Çetin, 2016; Özzorlu, 2018; Uzun Özer et al., 2009). Male students may engage in academic procrastination because they perceive academic tasks as more ‘‘feminine’’ (Özzorlu, 2018). Additionally, female students’ socialization within traditional cultural norms, which emphasizes responsibility, may account for their lower propensity to procrastinate academically (Yalçın, 2023). Motivated by the desire to transcend societal gender-role constraints, construct their own identities, and achieve self-actualization, female students prioritize academic success and exhibit less academic procrastination (Balkıs et al., 2006). However, some studies report no significant gender differences in academic procrastination behaviors (Gupta et al., 2024; Yalçın, 2023). Therefore, the relationship between academic procrastination and gender warrants further in-depth investigation.

Students’ academic procrastination behaviors differ significantly by academic achievement level. The findings indicate that students with low academic achievement exhibit a higher tendency to procrastinate academically compared to peers with medium and high achievement levels. These results align with the research conducted by Ada (2023). Furthermore, a study by Ak Yıldız (2024) involving high school students revealed that as academic procrastination levels increase, academic achievement decreases. As academic procrastination increases, a significant decline in academic achievement is observed (Ekinci, 2011; Yaycı & Düşmez, 2016). Students who exhibit procrastinatory behaviors are more likely to experience decreased academic performance due to delayed or

uncompleted tasks. Conversely, students with low academic achievement tend to hold negative attitudes toward academic assignments and consistently display a propensity to postpone them.

Eighth-grade middle school students' levels of academic procrastination differ significantly based on their preferred study time. Specifically, students who prefer to study at night exhibit higher levels of academic procrastination compared to their peers who study in the morning, at midday, in the afternoon, or in the evening. A review of the existing academic literature reveals no studies examining the relationship between preferred study time and academic procrastination. In this context, the present study is anticipated to make a significant contribution to the academic literature.

Eighth-grade middle school students without an individualized study plan exhibit higher levels of academic procrastination compared to those who have a study plan. A review of the literature reveals no studies investigating the relationship between possessing an individualized study plan and academic procrastination. In this regard, the present study is expected to make a valuable contribution to the literature. Academic achievement can be attained through planned and consistent study; for this, students must have a study plan. Students who engage with their courses according to a structured study plan will experience improvements in their academic performance.

Students who use the internet and technology for four hours or more per day exhibit higher levels of academic procrastination compared to those who use them for less than four hours daily. This finding is consistent with other research in the literature (Caratiquit & Caratiquit, 2023; Çavdar, 2024; Doruk Aslan, 2024; Uysal, 2024). As daily internet and technology use increases, time devoted to studying decreases (Gupta et al., 2024). Consequently, academic procrastination behaviors emerge. Studies in the literature indicate that academic procrastination is significantly and positively associated with daily internet usage duration, as well as with internet and social media addiction (Ada, 2023; Gupta et al., 2024). Students delay their academic tasks in favor of internet and technology usage - such as digital games and social media- which they perceive as more enjoyable (Li et al., 2020; Ören, 2024; Yalçın, 2023). Among high school students (Demir, 2024) and university students (Gülseven Duman, 2022; Güngör & Koçak, 2020), increased daily internet and technology use is associated with heightened academic procrastination. With the proliferation of online learning platforms in recent years, students increasingly rely on internet resources. However, students may give the appearance of studying while actually engaging in other online activities (e.g., browsing social media, playing games, shopping). To prevent such behavior, parental monitoring is considered essential.

The findings indicate that students with varying numbers of technological devices at home exhibit statistically significant differences in academic procrastination levels. Specifically, students possessing more than five technological devices at home demonstrate higher levels of academic procrastination compared to those who have only two devices. To date, no study in the academic literature has examined the impact of the number of technological devices owned by students on their academic procrastination. In this respect, the present study is expected to make a valuable contribution to the literature. Moreover, an abundance of technological devices may facilitate academic procrastination behaviors among students with weaker self-regulation skills.

There is no statistically significant difference in academic procrastination levels among students from different socio-economic backgrounds. This finding is supported by previous research (Ada, 2023; Doğan, 2023; Durdu, 2019). Studies involving high school and university students have yielded similar results (Gülseven Duman, 2022; Özüt, 2024; Yüzakı, 2024).

Students' levels of academic procrastination are not statistically affected by differences in their parents' educational levels; rather, students exhibit comparable levels of academic procrastination. This finding aligns with previous research in the field (Ada, 2023; Durdu, 2019; Ören, 2024; Yalçın, 2023). Studies conducted at the high school and university levels also parallel the present study's result (Arslan, 2013; Can, 2018; Kandemir, 2010).

5. Recommendations

Based on the findings of the present study, the following recommendations are offered.

- Academic procrastination negatively impacts students' academic achievement. To prevent and reduce academic procrastination behaviors, school psychological counselors can organize student seminars and offer individual counseling services.
- Academic procrastination behaviors can be examined in greater depth, and studies can be conducted on methods for coping with academic procrastination. Targeted intervention strategies for academic procrastination can be developed, applied to students early in their academic life, and their outcomes investigated.
- Academic procrastination behaviors differ by gender; therefore, gender-specific support programs may be developed.
- Academic procrastination is a dynamic process; individuals' procrastination behaviors and frequencies may change over time. Students exhibiting academic procrastination, across different groups and levels,

may transition between groups over time. Therefore, academic procrastination behaviors in students can be investigated longitudinally.

- The study was conducted with eighth-grade middle school students. To obtain a more comprehensive understanding of academic procrastination, the levels and behaviors of academic procrastination among fifth-, sixth-, and seventh-grade middle school students can be investigated.
- School psychological counselors can offer seminars to students and parents on conscientious internet and technology use. The importance of healthy, beneficial, and restricted usage of technology and the internet can be communicated to both students and parents. By providing this information, parents and students can be made aware of strategies to prevent internet and technology use from precipitating academic procrastination behaviors.
- Parents and students should negotiate the amount of time allocated to internet and technological device usage and develop a schedule specifying when the student is permitted to use these technologies.
- School psychological counselors can conduct seminars for students on effective study techniques. In these seminars, they can provide information on the importance of having an individualized study plan and on selecting optimal time periods for studying.
- A peer-mentoring program may be implemented for students exhibiting academic procrastination behaviors. Through positive academic role models, students can regulate and reduce their procrastination behaviors.
- School psychological counselors can provide students with training on time management and cognitive-behavioral interventions.
- To effectively combat academic procrastination, it is essential for students, parents, and policymakers to collaborate closely.

REFERENCES

Ackerman, D. S., & Gross, B. L. (2005). My instructor made me do it: Task characteristics of procrastination. *Journal of Marketing Education, 27*(1), 5-13. https://doi.org/10.1177/0273475304273842

Ada, F. N. (2023). *Ortaokul ve lise öğrencilerinde internet ve sosyal medya bağımlılığının belirsizliğe tahammülsüzlük ve akademik erteleme davranışı üzerine etkisi* [Master`s thesis, Nişantaşı University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Ak Yıldız, E. (2024). *Lise öğrencilerinde akademik erteleme davranışı ile duygu düzenleme becerileri arasındaki ilişkinin incelenmesi* [Master`s thesis, Sakarya University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Arslan, A. (2013). *Lise öğrencilerinin akademik erteleme davranışlarının karar verme stilleri ile ilişkisi* [Master`s thesis, Gaziantep University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Balkıs, M., Duru, E., Buluş, M., & Duru, S. (2006). Üniversite öğrencilerinde akademik erteleme eğiliminin çeşitli değişkenler açısından incelenmesi. *Ege Eğitim Dergisi, 7*(2), 57-73.

Balkıs, M. (2007). Öğretmen adaylarının davranışlarındaki erteleme eğiliminin karar verme stilleri ile ilişkisi. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi, 1*(21), 67-83.

Baulke, L., Daumiller, M., & Dresel, M. (2019). How conscientiousness and neuroticism affect academic procrastination: Mediated by motivational regulation? *Zeitschrift für Entwicklungspsychologie und Padagogische Psychologie, 51,* 216-227. https://doi.org/10.1026/0049-8637/a000225

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin, 88*(3), 588-606.

Can, S. (2018). *Ergenlerin akademik erteleme davranışları, internet bağımlılığı ve temel psikolojik ihtiyaçları: Bir model önerisi* [Master`s thesis, Yıldız Teknik University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Caratiquit, K. D. & Caratiquit, L. J. C. (2023). Influence of social media addiction on academic achievement in distance learning: Intervening role of academic procrastination. *Turkish Online Journal of Distance Education, 24*(1), 1-19. https://doi.org/10.17718/tojde.1060563

Çavdar, A. O. (2024). *Ortaokul öğrencilerinin akademik erteleme davranışları ve yapılandırmacı öğrenme ortamları arasındaki ilişkinin incelenmesi*

[Master`s thesis, Pamukkale University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Çetin, N. (2016). *Lise öğrencilerinin akademik erteleme davranışlarının incelenmesi* [Master`s thesis, Anadolu University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Çokluk, Ö., Şekercioğlu, G., & Büyüköztürk, Ş. (2025). *Sosyal Bilimler İçin Çok Değişkenli İstatistik: SPSS ve LISREL Uygulamaları* (8. Baskı). Pegem.

Demir, S. (2024). *Lise öğrencilerinde akıllı telefon bağımlılığı ile akademik erteleme davranışı ve akademik öz yeterlilik arasındaki ilişkinin incelenmesi* (Tez No. 864180) [Yüksek Lisans, Bursa Uludağ Üniversitesi]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Doğan, A. (2023). *İlköğretim II. kademe öğrencilerinde dijital oyun bağımlılığı, akademik erteleme ve özerk öğrenmenin incelenmesi (Konya örneği)* [Master`s thesis, Gazi University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Doruk Aslan, M. (2024). *Ortaokul öğrencilerinin dijital oyun bağımlılıklarının akademik güdülenme ve akademik erteleme davranışlarına etkisi* [Master`s thesis, Atatürk University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Durdu, A. (2019). *Ortaokul 7. ve 8. sınıf öğrencilerinin sosyal medya bağımlılıkları ve akademik erteleme davranışlarının incelenmesi* [Master`s thesis, Toros University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Ekinci, E. (2011). *Ortaöğretim öğrencilerinin akademik özyeterlik düzeyleri ve akademik erteleme davranışlarının öğrenilmiş çaresizlik düzeylerini yordama gücü* [Master`s thesis, Gaziosmanpaşa University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Eravcı Özcan, T. (2020). *Ortaokul öğrencilerinde algılanan anne-baba ve öğretmen akademik katılımı ile akademik erteleme davranışı arasındaki ilişkide akıllı telefon bağımlılığının rolü* [Master`s thesis, Anadolu University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Gayary, M., & Kalita, S. (2025). Relationship between academic procrastination and academic achievement of postgraduate students. *Journal of Education and Health Promotion*, *14*(1), 8. doi: 10.4103/jehp.jehp_435_24

Gupta, S., Gupta, S. & Kumar, S. (2024). Influence of internet addiction and academic procrastination on academic achievement of secondary & senior secondary school students. *International Journal of Indian Psychology, 12*(2), 1293-1308. doi: 10.25215/1202.115

Gülseven Duman, S. (2022). *Akademik erteleme, akademik güdülenme ve zaman yönetimi ilişkisi: Beden eğitimi öğretmeni adayları örneği* [Master`s thesis, Erzincan Binali Yıldırım University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Güngör, A. B., & Koçak, O. (2020). Üniversite öğrencilerinin akıllı telefon bağımlılığı ve akademik erteleme davranışı arasındaki ilişkinin incelenmesi. *Eğitim ve Toplum Araştırmaları Dergisi, 7*(2), 397-419.

Gürültü, E. & Deniz, L. (2017). Lise öğrencilerinin akademik erteleme davranışları ve sosyal medya kullanımları arasındaki ilişkilerin incelenmesi. *Journal of Human Sciences, 14* (1), 772-778. doi: 10.14687/jhs.v14i1.4322

Hahs-Vaughn, D. L., & Lomax, R. G. (2013). *An introduction to statistical concepts.* London: Routledge.

He, S. (2017). A multivariate investigation into academic procrastination of university students. *Open Journal of Social Sciences, 5*(10), 12-24. https://doi.org/10.4236/jss.2017.510002

Hooper, D., Coughlan, J. & Mullen, M. (2008). Structural equation modelling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods, 6*(1), 53-60.

Hu L.T., & Bentler P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1-55.

IBM Corp. (2019). *IBM SPSS Statistics for Windows.* (Version 26.0) [Computer Program]. Armonk, IBM Corp.

IBM Corp (2016). Amos (Version 24.0) [Computer Program]. Armonk, IBM Corp.

Kandemir, M. (2010). *Akademik erteleme davranışını açıklayacı bir model* [Doctoral thesis, Gazi University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Kim, K. R., & Seo, E. H. (2015). The relationship between procrastination and academic performance: A meta-analysis. *Personality and Individual Differences, 82*, 26-33. https://doi.org/10.1016/j.paid.2015.02.038

Kline, R. B. (2011). *Principles and practice of structural equation modeling.* London: Guilford publications.

Koçer, N. (2024). *Üniversite öğrencilerinde akademik ertelemenin yordayıcıları: Akademik güdülenme, umut ve kişilik özellikleri* [Master`s thesis, Niğde Ömer Halisdemir University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Li, L., Gao, H., & Xu, Y. (2020). The mediating and buffering effect of academic self-efficacy on the relationship between smartphone addiction and academic procrastination. *Computers & Education, 159*, 104001. https://doi.org/10.1016/j.compedu.2020.104001

Li, M. (2023). A study on the relationship between social support and academic procrastination among junior high school students. *The Educational Review, USA, 7*(8), 1178-1183. doi: 10.26855/er.2023.08.025

Lin, Y., Chen, Y., & Zhang, Y. (2021). A study of the relationship between achievement goal orientation on online academic procrastination among junior high school students: Multiple mediation analysis of task value and motivational regulation. In *Proceedings of the 6th International Conference on Distance Education and Learning* (ICDEL '21) (pp. 218-226). Association for Computing Machinery. https://doi.org/10.1145/3474995.3475032

Malla, H. A. (2021). Academic procrastination among secondary school students: exploring the role of smartphone addiction. A mixed method approach. *The Online Journal of Distance Education and e-Learning*, *9*(3), 334-340.

Ocak, G., & Karataş, S. (2019). Ortaokul öğrencilerinin akademik erteleme davranışı ölçeği: Geçerlilik ve güvenirlilik çalışması. *Nevşehir Hacı Bektaş Veli Üniversitesi SBE Dergisi, 9*(1), 93-113.

Ören, İ. (2024). *Ortaokul öğrencilerinin sosyal medya bağımlılığı ile akademik erteleme davranışı arasındaki ilişkinin incelenmesi* [Master`s thesis, Niğde Ömer Halisdemir University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Özüt, M. (2024). *Ergenlerde dijital oyun bağımlılığı ile akademik erteleme davranışı arasındaki ilişkinin incelenmesi* [Master`s thesis, İstanbul Nişantaşı University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Özzorlu, E. (2018). *Ortaokul öğrencilerinin akademik erteleme davranışlarının algıladıkları anne-baba tutumları ve denetim odağı açısından incelenmesi* [Master`s thesis, İstanbul University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Raykov, T., & Marcoulides, G. A. (2000). *A first course in structural equation modeling. Mahwah*. Lawrence Erlbaum Associates.

Rozental, A., & Carlbring, P. (2014). Understanding and treating Procrastination: A review of a common self-regulatory failure. *Psychology, 5*(13), 1488-1502. https://doi.org/10.4236/psych.2014.513160

Sparfeldt J. R., Schwabe, S. (2024). Academic procrastination mediates the relation between conscientiousness and academic achievement. *Personality and Individual Differences, 218*, 112466. https://doi.org/10.1016/j.paid.2023.112466

Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin, 133*(1), 65-94. doi: 10.1037/0033-2909.133.1.65

Svartdal F., Dahl T. I., Gamst-Klaussen T., Koppenborg M. & Klingsieck K. B. (2020). How study environments foster academic procrastination: Overview and recommendations. *Frontiers in Psychology, 11,* 540910. doi: 10.3389/fpsyg.2020.540910

Tabachnick. B., & Fidell. L. (2012). *Using Multivariate Statistics*. Allyn and Bacon.

Tekin, B. (2022). *Tıp fakültesi öğrencilerinde akademik erteleme sıklığı ve yordayıcıları* [Specialty degree thesis, Ondokuz Mayıs University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Tezbaşaran, A. (1997). *Likert Tipi Ölçek Hazırlama Kılavuzu.* Türk Psikologlar Derneği.

Ulukaya, S. (2012). *Üniversite öğrencilerinde akademik ertelemenin yordayıcıları olarak aile bağlamında benlik ve anababa tutumları* [Master`s thesis, Hacettepe University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Uysal, E. (2024). *Dijital oyun bağımlılığı ve akademik erteleme davranışı arasındaki ilişkide akademik öz yeterliğin aracılık etkisi* [Master`s thesis, Kocaeli University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Uzun Özer, B. (2009). Bir grup lise öğrencisinde akademik erteleme davranışı: Sıklığı, olası nedenleri ve umudun rolü. *Türk Psikolojik Danışma ve Rehberlik Dergisi, 4*(32), 12-19.

Uzun Özer, B., Demir, A. & Ferrari, J. R. (2009). Exploring academic procrastination among Turkish students: Possible gender differences in prevalence and reasons. *The Journal of Social Psychology, 149*(2), 241-257. https://doi.org/10.3200/SOCP.149.2.241-257

Yalçın, Ş. (2023). *Ortaokul öğrencilerinde akademik erteleme davranışı ile dijital oyun bağımlılığı arasındaki ilişkide akademik motivasyonsuzluğun aracı rolü* [Master`s thesis, Selçuk University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Yaycı, L., & Düşmez, İ. (2016). Adolesanların akademik erteleme davranışlarının bazı değişkenler açısından incelenmesi. *Uluslararası Toplum Araştırmaları Dergisi, 6*(10), 80-101.

Yüzakı, E. (2024). *Akademik erteleme ile sürekli kaygı arasındaki ilişkide davranışsal duygu düzenleme stratejilerinin aracı rolü* [Master`s thesis, Bahçeşehir University]. Ulusal Tez Merkezi. https://tez.yok.gov.tr/UlusalTezMerkezi/

Wu, D., Li, J., Yang, Q., & Ye, B. (2024). Exploring the dynamics of academic procrastination in junior high school students: Examining predictors using latent transition analysis. *Personality and Individual Differences*, *229*, 112750. https://doi.org/10.1016/j.paid.2024.112750

Appendices

Appendix 1. CFA diagram of the Academic Procrastination Scale.

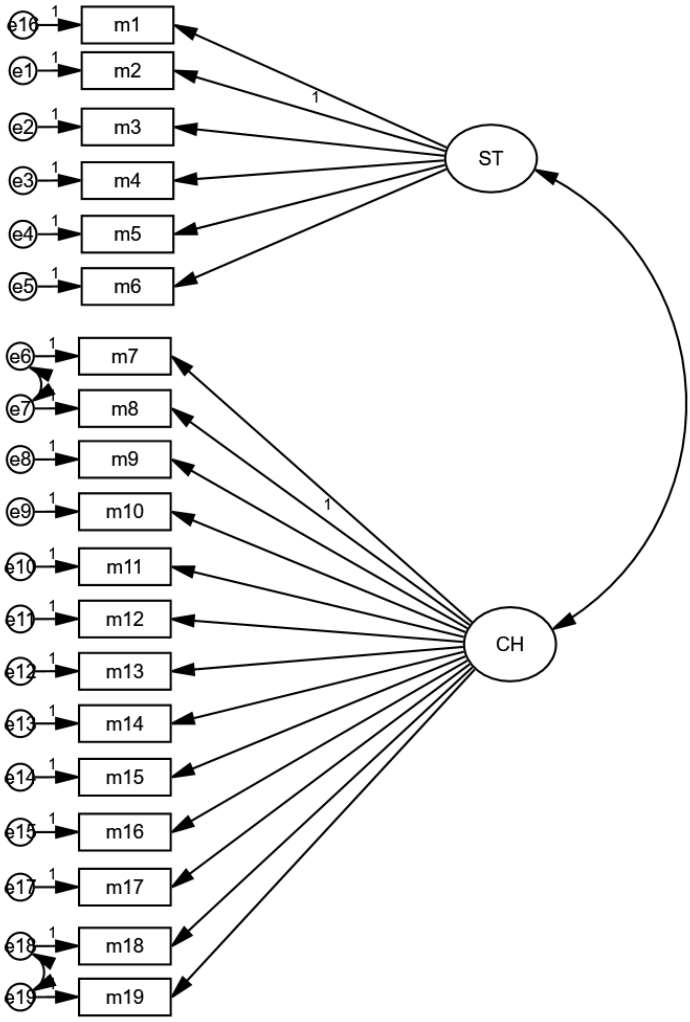


Figure 1. Two-factor measurement model of the Academic Procrastination Scale derived from confirmatory factor analysis.