



Technology Integration in English Language Teacher Education Programs in Türkiye: A Curriculum-Based Analysis through the DigCompEdu Framework

Türkiye’deki İngiliz Dili Öğretmen Eğitimi Programlarında Teknoloji Entegrasyonu: DigCompEdu Çerçevesi Kapsamında Bir Müfredat Analizi

Neris Taymaz Demirok^{a1}

^aBaşkent University, Ankara, Türkiye

Abstract

This study aimed to examine how digital competences are conceptualized and operationalized in the curricula of selected English Language Teacher Education (ELTE) programs in Türkiye through the lens of the DigCompEdu Framework (Redecker, 2017). Given the recent decision of The Council of Higher Education (CoHE) to grant universities the authority to design their own curricula (Council of Higher Education, 2020), ELTE programs in Türkiye have continued program development and improvement efforts. This shift has made it necessary to investigate how technology integration is implemented at different institutions, especially in their official curriculum documents. A qualitative document analysis was conducted on program documents of selected ELTE programs in Türkiye. Program descriptions, program outcomes, course descriptions, and course contents were analyzed using DigCompEdu. The findings revealed varying degrees of technology integration in ELTE curricula. While few programs explicitly mentioned digital competences, the majority offered limited or implicit references to technology-supported instruction. Areas such as digital assessment, technology-enhanced feedback, and responsible technology use were found to be underemphasized. A holistic curricular vision for digital pedagogy is called for. Offering insights into the current state of technology integration in ELTE programs in Türkiye, this research could contribute to various stakeholders in the field aiming to enhance future teachers’ digital pedagogical readiness.

Keywords: English language teacher education, DigCompEdu, curriculum analysis, technology integration.

Öz

Bu çalışma, Türkiye’deki İngiliz Dili Öğretmen Eğitimi (İDÖE) programlarının müfredatlarında dijital yeterliklerin nasıl kavramsallaştırıldığını ve uygulamaya geçirildiğini, DigCompEdu Çerçevesi (Redecker, 2017) doğrultusunda incelemeyi amaçlamaktadır. Yükseköğretim Kurulu’nun (YÖK, 2020) üniversitelere kendi müfredatlarını tasarlama yetkisi vermesiyle birlikte, İDÖE alanında program geliştirme ve iyileştirme çalışmaları sürdürülmektedir. Bu durum, farklı kurumlarda teknoloji entegrasyonunun özellikle resmi müfredat belgelerinde nasıl yansıtıldığını araştırmayı gerekli kılmıştır. Bu amaçla, seçili İDÖE programlarının program tanımları, program çıktıları, ders tanımları ve ders içeriklerine yönelik nitel bir doküman analizi gerçekleştirilmiştir. Analiz sürecinde DigCompEdu çerçevesi temel alınmıştır. Bulgular, İDÖE müfredatlarında teknoloji entegrasyonunun farklı düzeylerde gerçekleştiğini ortaya koymuştur. Az sayıda program dijital yeterliklere açıkça yer verirken, çoğu programda teknoloji destekli eğitime yalnızca sınırlı ya da dolaylı biçimde atıfta bulunulmuştur. Dijital değerlendirme, teknoloji destekli geri bildirim ve sorumlu teknoloji kullanımı gibi alanların ise yeterince vurgulanmadığı görülmüştür. Dijital pedagojiye yönelik bütüncül bir müfredat vizyonuna ihtiyaç duyulmaktadır. Türkiye’deki İngiliz Dili Öğretmen Eğitimi (İDÖE) programlarında teknoloji entegrasyonunun mevcut durumuna dair bakış açıları sunan bu araştırma, geleceğin öğretmenlerinin dijital pedagojik yeterliklerini geliştirmeyi hedefleyen alandaki çeşitli paydaşlara katkı sağlayabilir.

Anahtar Kelimeler: İngiliz dili öğretmen eğitimi, DigCompEdu, müfredat analizi, teknoloji entegrasyonu

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*ADDRESS FOR CORRESPONDENCE: Neris Taymaz Demirok, Department of Foreign Languages Education, Faculty of Education, Başkent University, Ankara, Türkiye. E-mail address: nerisstaymaz@gmail.com, ORCID ID: 0000-0001-6393-022X.

Received Date: August 1st, 2025. Acceptance Date: November 5th, 2025.

1. Introduction

Pre-service teacher education is a critical period during which the foundations of teachers' professional identity are laid (Darling-Hammond, 2006). Prospective teachers begin to gain a range of professional skills such as improving their subject matter knowledge, developing understandings about learners and related stakeholders, forming a repertoire of pedagogical reasoning and decision-making, as well as critically evaluating deep-rooted beliefs in teaching and forming new visions (Feiman-Nemser, 2001). These skills and knowledge they gain during initial teacher education have transformed with the advent of digital technologies. Re-conceptualizing teacher competencies in ways to meet the demands of today's digital age is central to the transformation of education systems (OECD, 2019). The 21st century teachers should not only be equipped with individual skills in technology use, but also the competences necessary to meaningfully integrate digital tools into pedagogical processes (Redecker, 2017; UNESCO, 2018).

While teacher education programs continue their technology integration endeavors, foreign language teacher education (FLTE) is also shaped in accordance with the advancements of the digital age. As Kessler (2018) suggests, opportunities brought by technology in language teaching are abundant, ranging from its facilitative use in learner-centered instruction to the promotion of collaboration and growing trends towards the use of augmented and virtual reality, corpora, and artificial intelligence. Consequently, there has been increasing interest in preparing language teachers in technology use in recent years (Kessler & Hubbard, 2017). Guikema and Menke (2014) emphasize the importance of providing teacher candidates with pedagogically grounded digital competencies to meet the needs of future generations. However, this process can face challenges, such as pre-service teachers' limited exposure to hands-on experiences with technology throughout the methodology courses and practicums (Park & Son, 2022), or unwillingness to use technology in language teaching (Kessler, 2018).

Echoing the technology integration issues on the global scale, English language teacher education (ELTE) in Türkiye also encounters a number of problems. Öztürk and Aydın (2018) point out that Turkish teacher education faces criticisms about their ability to equip pre-service teachers with skills required by the 21st century, with superficial and isolated Information and Communication Technology (ICT) training. Senior students and recent graduates from ELTE programs in Uzun's (2016) study expressed that they felt underprepared to use ICT skills in real classrooms. Similarly, Çebi and Reisoğlu (2020) uncovered the areas that pre-service English language teachers perceived themselves to be less digitally competent, such as creating digital content and solving technical problems. Exploring the technological pedagogical content knowledge (TPACK) level and needs of prospective English as a Foreign Language (EFL) teachers, Farhadi and Öztürk (2023) cited well-designed training and access to digital tools and devices as the prominent needs of the pre-service teachers in the Turkish ELTE context. Limited technological resources were also mentioned in Taşçı's (2023) research on the challenges experienced by pre-service English language teachers in Türkiye. Evaluating the current problems in ICT integration in ELTE, Aşık et al. (2020) recommend systemic change in the programs, incorporating institutional support and infrastructure, and integrating ICT throughout the curriculum rather than introducing necessary skills in single courses.

While previous research has addressed technology integration in the Turkish ELTE context, the majority of the studies focus on the perceived strengths and limitations of the programs or practices self-reported by various stakeholders such as pre-service teachers (e.g., Harmandaoğlu-Baz et al., 2018; Sert & Li, 2017), teacher educators (e.g., Aşık et al., 2020), and novice language teachers (e.g., Cukur, 2023). On the other hand, systematic investigation on the curricular design itself is limited. A need has emerged to examine the program structures, course contents, and technological vision embedded within the English Language Teaching (ELT) curriculum, since they are the ultimate institutional frameworks to shape what, when, and how to teach. This gap could be addressed through document-based analyses to reveal how official programs define and implement digital competence.

The Council of Higher Education (CoHE) plays a central role in planning, designing, and implementing curricula in the Turkish pre-service teacher education context. A major reform concerning undergraduate programs, including ELTE, occurred in May 2018 when the curricula of these programs were updated. Program elements such as course contents and credit structures were standardized to align with the Turkish Qualifications Framework (Council of Higher Education, 2018). However, through a significant shift in 2020, The CoHE transferred the authority over curriculum design and update to individual universities (Council of Higher Education, 2020). Therefore, ELT departments in Türkiye have started to carry out their own processes of curriculum development, adaptation, and revision, taking into account institutional dynamics and national qualifications.

Development of digital competencies of pre-service teachers can be actualized through systematic technology vision and well-designed instructional practices of teacher education programs (Tondeur et al., 2012). Instefjord and Munthe (2017) emphasize the need for developing a clear understanding of how to integrate these competencies into teacher education curricula. In the Turkish teacher education context, while discussions on which technologies, technical

skills, digital tools, or methods should be integrated in curricula continue (Uzun, 2016), there has been a greater need, especially following the CoHE's decision, to investigate how various aspects of digital pedagogy can be meaningfully embedded into the curriculum.

1.1. The Current Study

Informed by the need for systematic curriculum-focused ELT-specific research into pre-service teacher education, the current research aims to explore how the official curricula of selected Turkish ELTE programs conceptualize and operationalize digital competence. As ELTE program development efforts continue in the Turkish teacher education context after national delegation of authority, this research is both timely and significant in offering insights into current institutional approaches and practices in curriculum design. The study could contribute to research on digital pedagogy in language teacher education and inform curriculum developers and policymakers in their efforts to develop, revise, and improve future ELTE curricula.

1.2. The Conceptual Framework

The concept of digital competence has been widely discussed in the literature (Calvani et al., 2008; Røkenes & Krumsvik, 2014). Combining the definitions proposed by existing frameworks for digital competence, Ferrari (2012, p. 30) provides a comprehensive summary as follows:

Digital Competence is the set of knowledge, skills, attitudes, abilities, strategies, and awareness that are required when using ICT and digital media to perform tasks; solve problems; communicate; manage information; collaborate; create and share content; and build knowledge effectively, efficiently, appropriately, critically, creatively, autonomously, flexibly, ethically, reflectively for work, leisure, participation, learning, and socialising.

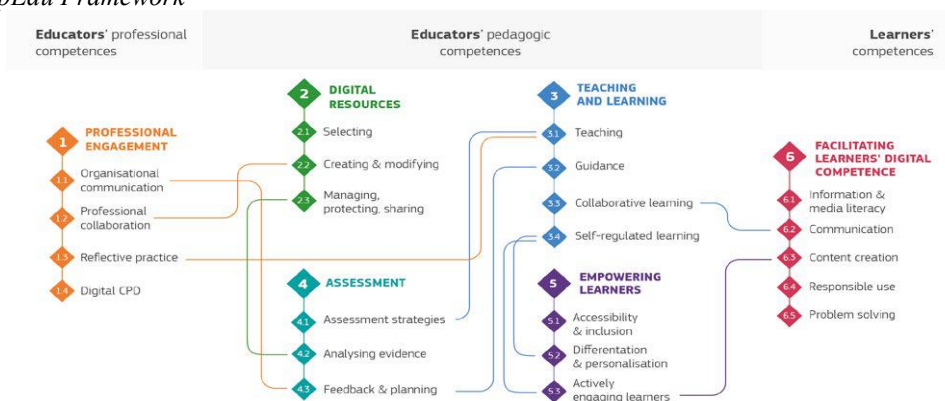
The current research builds on this broad conceptualization of digital competence defined within the scope of Digital Competence Framework for Citizens (DigComp), which is widely used to describe digital competences needed by all citizens to participate in digital spaces effectively (Ferrari, 2012).

As the analytical lens, the study employs the European Digital Competence Framework for Educators (DigCompEdu) proposed by Redecker (2017). In response to the growing need of educators all around the world to adapt their teaching practices in accordance with technological advancements (OECD, 2019), the European Commission developed the DigCompEdu framework (Redecker, 2017), which was used in this study as the conceptual framework to guide the curriculum analysis. Curricular components such as program outcomes, course descriptions, and course contents were analyzed using the competences specified in DigCompEdu across six areas: Professional Engagement, Digital Resources, Teaching and Learning, Assessment, Empowering Learners, and Facilitating Learners' Digital Competence.

DigCompEdu serves as a common European reference, which guides policy and implementation, and informs frameworks, tools, or training programs designed to develop educators' digital competence (Redecker, 2017). The framework functions as a foundation for policymaking and a common ground for practices concerning educators at all levels, from early childhood to higher education (Redecker, 2017).

Figure 1

The DigCompEdu Framework



Taken from *European Framework for the Digital Competence of Educators: DigCompEdu* (p. 8), by C. Redecker, 2017, Publications Office of the European Union. <https://doi.org/10.2760/159770>. © European Union, 2017.

As shown in Figure 1, DigCompEdu describes six key areas and 22 elementary components that collectively characterize educator-specific digital competences. Area 1 (Professional Engagement) addresses educators' use of digital technologies for professional communication and collaboration among colleagues, parents, learners, or other stakeholders. Area 2 (Digital Resources) focuses on the skills required to source, create, adapt, and share digital sources and materials for learning. Area 3 (Teaching and Learning) is concerned with designing, planning, and conducting digitally supported teaching and learning. Area 4 (Assessment) addresses the place of technology in assessment strategies and feedback mechanisms. It includes monitoring the learning process and adapting teaching accordingly. Area 5 (Empowering Learners) covers the processes of learners' active engagement, personalization, and inclusion using digital tools. Lastly, Area 6 (Facilitating Learners' Digital Competence) focuses on digitally competent teachers' support for their students' digital skills, such as navigating digital environments, using technology responsibly, and effective communication using digital tools.

DigCompEdu has gained increasing global recognition as a reference framework for teacher digital competence (see Cabero-Almenara et al., 2021). It has guided efforts to adapt and validate instruments related to teachers' digital competence (e.g., Quast et al., 2023; Karacan & Can, 2025). Beyond its use in scale development, the framework has also served as a comprehensive analytical tool in empirical research on in-service and pre-service teachers' and teacher educators' development and application of digital competences. For instance, Haşlamam et al. (2023) implemented a course design based on the framework and evaluated student work according to its indicators within a teacher education context. Similarly, Reisoğlu and Çebi (2020) aimed to explore pre-service teachers' reflections on a training program designed to develop their digital competences based on five competence areas defined in DigCompEdu. They concluded that the areas of communication and collaboration, digital content creation, and safety required special attention. In the higher education context, Bayrak Karsli et al. (2023) used the framework for examining the digital competence levels of teacher educators from various fields, as well as gathering their experiences in digital technology use. The findings showed that teacher educators generally demonstrated medium-level (B1) digital competence according to the levels defined in DigCompEdu. They generally utilized basic tools and features and required support in higher-level pedagogical uses. Kapucu et al. (2025) explored the digital competencies of university faculty in an online course context using DigCompEdu. Results indicated varied levels of competence. Faculty members demonstrated proficiency in areas such as communication through digital platforms, and selecting and presenting digital materials, while weaknesses were observed in areas related to creating interactive materials, conducting complex digital assessments, and facilitating digital competences of students. Informed by the framework's theoretical validity and analytical versatility, it was adopted in the current study to examine ELTE curricula in Türkiye in terms of the extent to which different programs incorporate digital competences.

2. Methodology

2.1. Research Design

This research was designed as a qualitative document analysis in order to explore how digital competences are framed in ELTE curricula of selected universities in Türkiye. Document analysis is defined as a systematic procedure for reviewing or evaluating documents, both printed and electronic, -data that have been recorded with no intervention (Bowen, 2009). By analyzing institutional curriculum documents through the lens of the DigCompEdu framework (Redecker, 2017), this study sought to examine how technology was embedded in ELTE curricula in Türkiye.

2.2. Data Collection

A purposeful sampling strategy (Patton, 2020) was adopted for the selection of ELTE programs that met the inclusion criteria relevant for the purpose of the study. The data consisted of curriculum documents of eight ELT undergraduate-level programs of different universities in Türkiye. The selection of institutions was based on the following criteria. First, the analysis concentrated on documents that were up-to-date and publicly accessible in the official websites of universities. Selected documents also had to include core components relevant to curriculum such as program outcomes, course descriptions, and course content. Besides, only programs that had been updated after CoHE's decision of authority delegation (Council of Higher Education, 2020) were included in the analysis. The rationale behind this approach was to capture the current curricular approaches to technology integration by analyzing curricula that reflect the most recent institutional practices under the new decentralized system. In addition, a sample of ELTE programs offered by both state and foundation universities across different geographical regions of Türkiye

was selected to reflect the variety of institutional practices within Turkish higher education. In order to illustrate the diversity of the sampled programs, an overview of the eight ELTE programs is presented in Table 1 below:

Table 1

An Overview of the Sampled Programs

Program	Region	Institution Type	Notes on Program Context
P1	Black Sea Region	State	Newly established state university (early 2010s), mid-sized ELTE program with conventional practicum-based structure
P2	Central Anatolia	State	Long-established state university (mid-20th century), extensive academic staff, strong methodology and practicum tradition
P3	Central Anatolia	State	Highly established, research-intensive state university (mid-20th century), academically oriented ELTE program
P4	Aegean Region	State	Well-established state university (early 1980s), comprehensive ELTE program emphasizing contemporary teaching approaches
P5	Central Anatolia	Foundation	Established foundation university (late 20th century), ELTE program emphasizing technology-enhanced instruction
P6	Central Anatolia	Foundation	A mid-sized foundation university established in the early 21st century, a balanced emphasis on language skills and teacher education
P7	Southeastern Anatolia	Foundation	Relatively new foundation university (late 2000s), ELTE program with explicit aims to enhance technological literacy and interdisciplinary thinking
P8	Marmara Region	Foundation	Established foundation university (late 20th century), ELTE program with an extensive elective pool

The following components of the selected ELT curricula were analyzed:

- program descriptions
- program outcomes
- course titles and descriptions
- course syllabi including learning outcomes and weekly course content

2.3. Data Analysis

A qualitative content analysis was employed to systematically analyze how digital competences were embedded in relevant components of the curricula. Qualitative content analysis is “a method for systematically describing the meaning of qualitative material” by assigning parts of the material to categories of a coding frame (Schreier, 2012, p. 1).

The collected documents were analyzed through a deductive coding approach, using the six areas and 22 elementary competences defined in the DigCompEdu framework. Each unit of analysis (e.g., program outcomes, course contents) were analyzed separately to examine whether, or how, it addressed the digital competences described in the framework. A statement was evaluated as an explicit, implicit, or partially related cue when it reflected digital competence by referring to the pedagogical use of digital technologies, digital tools, or digitally enhanced teaching and assessment methods and techniques. Examples of cues and corresponding sub-competences are presented in Table 2 below.

Table 2*Example Cues*

Example Cue in Curriculum Text	DigCompEdu Area	Interpretation
“Uses tools, materials, and educational technologies effectively in accordance with the subject area and students’ readiness levels.”	2.1 Selecting digital resources 2.2 Creating and modifying digital resources	Direct reference to the educator’s ability to select, adapt, and use digital resources according to the context and learner needs (Explicit)
“The department aims to train qualified teachers who are familiar with modern assessment and evaluation approaches.”	4.1 Assessment strategies	No explicit mention of digital technologies in assessment, but reference to up-to-date and practices aligned with current trends in digital pedagogy (Implicit)
“Attends relevant professional organizations and follows advanced resources in the field of foreign language teaching”	1.4 Digital continuous professional development	Professional learning through with possibly digital resources, which reflects technology-supported professional growth (Partially related)

The coding proceeded in three stages. First, a process of familiarization and pre-coding was carried out. In this stage, all selected documents were read in full, meticulously. Any textual cues that potentially indicated technology integration and addressed digital competences or sources were highlighted. A preliminary scanning was also conducted on course titles to identify courses explicitly related to digital technologies (e.g., Instructional Technologies) and courses that did not directly make a reference to technology in their titles. Courses were separated into several different categories in the pre-coding stage. This two-tiered categorization enabled a more nuanced and focused analysis.

The second stage involved framework-based coding, in which the highlighted segments were coded according to the six main areas and 22 competence descriptors of the DigCompEdu framework. Each data excerpt was placed under one or more relevant competences. Selected data excerpts were triangulated across institutions to identify consistent or divergent patterns in conceptualizing digital competences. This allowed for forming a broader perspective about how technology integration is approached in ELTE in Türkiye.

At the last stage, a peer debriefing session was held with a fellow researcher with expertise in teacher education and educational technology research, who reviewed a subset of the coded documents and provided feedback on framework alignment. Accordingly, minor changes were applied to the findings prior to the final interpretation.

2.4. Trustworthiness

In qualitative research, trustworthiness is established through attention to key issues of credibility, dependability, confirmability, and transferability (Lincoln & Guba, 1985; Miles et al., 2014). The current study employed several strategies to ensure rigor and trustworthiness. To begin with, peer debriefing was conducted to enhance credibility and dependability. A fellow researcher experienced in teacher education and educational technology research was invited to review the data analysis process and interpretation of the documents. A subset of coded documents and corresponding code definitions were reviewed by this researcher. Minor revisions suggested on framework alignment strengthened interpretive consistency. In addition, adopting an established framework (see Redecker, 2017) as the main coding framework contributed to confirmability, as the categories used in the current study had already been defined and validated in prior research. This approach also ensured consistency in coding across different programs. Lastly, transferability was aimed through thick contextual descriptions about the selected programs, document types, and the Turkish higher education context (e.g., CoHE policies).

3. Findings

3.1. Program Descriptions

Varying degrees of emphasis on technology and digital competences were found in program descriptions. Some institutions explicitly mentioned the aim to integrate digital tools and pedagogies into their program, whereas others made indirect references to technology or no mention at all. Only a few programs indicated high alignment with the DigCompEdu framework, focusing on training teachers skilled at designing educational activities in accordance with technological advancements or using technology effectively in general. Using the principles of computer-assisted language learning and the importance of 21st century skills were explicitly referenced in these programs. Some institutions moderately reflected on technology in their program descriptions by mentioning the necessities of the information age we are living in, and the need to embrace contemporary methods and techniques in language teaching. Although not clearly outlined, these statements suggest alignment with DigCompEdu, particularly in areas such as Professional Engagement and Teaching and Learning. Slight references to technology included the issues of teachers' transformative mindsets and taking into account the socio-cultural dynamics embedded in teaching. Some institutions demonstrated no identifiable digital component in their program descriptions. A notable finding was the absence of any reference that could be evaluated under Area 4, the Assessment component within DigCompEdu. None of the institutions addressed assessment processes as areas of technology integration, which may indicate a gap in acknowledging the potential of digital technologies in the assessment and evaluation of student learning. Overall, most programs were found to focus on subject matter knowledge and methodological training of pre-service teachers, with relatively limited institutional emphasis on educator-specific digital competences.

3.2. Program Outcomes

The analysis of the program outcomes of 8 ELTE curricula revealed varied levels of alignment with DigCompEdu across institutions. Table 3 outlines the statements related to technology in program outcomes, which areas of the framework they corresponded to, and the extent to which digital competences were reflected.

Table 3
Technology Integration in Program Outcomes

Program	Program Outcomes	DigCompEdu Areas	Alignment
1	Using technology and technological resources for pedagogical purposes and development of language skills	Area 2 Area 3	Explicit reference to technology for pedagogy
1	Developing and evaluating original course materials	Area 2	Partially related, with digital materials implied
1	Using assessment and evaluation tools effectively	Area 4	No explicit mention of digital devices
2	Evaluating information in relation to its nature, origin, accuracy, reliability and validity	Area 6	Evaluating information in relation to its nature, origin, accuracy, reliability and validity
3	Choosing and applying suitable instructional technologies and information literacy skills for effective foreign language teaching	Area 2 Area 3 Area 6	Explicit reference to instructional technologies and digital literacy
3	Reflective teaching and continuous professional development	Area 1.3	Implicit reference to digital tools within the scope of reflective practice

Table 3 - continued

Program	Program Outcomes	DigCompEdu Areas	Alignment
4	Collaboration with fellow English teachers, engaging in conferences and professional organizations, and keeping up with advanced resources in foreign language education	Area 1.2 Area 1.4	Partially related, with advanced resources incorporating digital tools
4	Pursuing life-long learning and encouraging students for the same mindset	Area 1.4 Area 6	Partially related, with life-long learning mindset requiring digital literacy
5	Ensuring effective communication through technology and language	Area 6.2	Explicit reference to effective use of digital technologies for communication
5	Developing suitable assessment tools and deliver constructive feedback	Area 4 Area 6.5	Partially related, with suitable assessment tools requiring digital technologies
	Analyzing research and formulating solutions based on findings		Implicit reference to using digital tools in solving problems
6	Using technology in accordance with student needs and characteristics in both face-to-face and online learning environments	Area 2.2 Area 5.1	Explicit reference to technology integration according to context and learner characteristics
6	Acquiring life-long learning skills and developing perspectives through interdisciplinary and intercultural contexts	Area 1.4	Partially related, with life-long learning mindset requiring digital literacy
6	Having knowledge about the education system and develops educational plans based on regulations by keeping up with current developments	Area 1.4	Implicit reference to digital competences within current developments
6	Using contemporary methods and techniques in designing the language teaching process	Area 3	Partially related, with contemporary methods and techniques requiring digital technologies and tools
7	Using and developing tools, materials, and educational technologies suitable for students' readiness levels	Area 2.2 Area 5.1	Explicit reference to technology integration and adaptation according to learner characteristics
7	Using information and communication technologies effectively	Area 2	Explicit reference to technology integration and adaptation
8	Designing multimedia learning environments that promote meaningful interaction	Area 3.3	Explicit reference to digital technologies to enhance collaboration
8	Using information and communication technologies in at least one foreign language.	Area 2 Area 1.4	Explicit reference to technology integration and adaptation through multilingual sources

Table 3 - continued

Program	Program Outcomes	DigCompEdu Areas	Alignment
8	Applying contemporary instructional strategies, methods, and techniques	Area 3	Partially related with contemporary methods and techniques requiring digital technologies and tools
8	Evaluating and selecting instructional materials based on their usability and relevance	Area 2	Partially related with up-to-date materials requiring technology use

As seen in Table 3, clear references to the use of instructional technologies and digital competences were present in the majority of the programs, although they were limited in number. Issues of material development, communication, and multimedia learning environments were prominent in the analysis, which particularly align with Area 2 (Digital Resources), Area 3 (Teaching and Learning), and Area 6 (Facilitating Learners' Digital Competence) of DigCompEdu. It was also found important to account for learning characteristics while selecting and applying digital technologies. Therefore, accessibility and inclusion were given a place, which corresponds to Area 5 (Empowering Learners).

Several programs mention life-long learning and continuous professional development, which could be placed under Area 1 (Professional Engagement). However, they did not connect these processes directly to technology use. Other areas partially related to digital literacy included developing and evaluating contemporary methods, techniques or materials in the teaching process. These expectations were primarily connected to Area 3 (Teaching and Learning) and Area 2 (Digital Resources).

Implicit references to digital competences were also spotted in the data. Statements such as evaluating the validity of data, reflective teaching, and keeping up with the current developments in the field were associated with Area 1 (Professional Engagement) and Area 6 (Facilitating Learners' Digital Competence).

A consistent pattern uncovered across curricula is the limited visibility of digital technologies for assessment and feedback practices. Similar to program descriptions, program outcomes also had little or no references to digital competences defined in Area 4 (Assessment), underemphasizing the use of digital tools in designing and conducting assessments.

All in all, an uneven approach to addressing digital pedagogy in program-level expectations was detected in the analysis. While some programs showed relatively strong alignment with the DigCompEdu framework, others focused more on general educational objectives, with partial or implicit references to technology integration. More systematic and explicit integration of DigCompEdu components is needed in ELTE programs in Türkiye.

3.3. Courses

For a clearer understanding of how technology is embedded into course contents, courses were categorized based on whether they are directly related to instructional technology and their thematic focus. The main categories are as follows:

1) Instructional Technology Courses, 2) Teaching Methodology Courses, 3) Assessment and Evaluation Courses, 4) Educational Sciences Courses, 5) Other Content-Based Courses such as Linguistics, Literature, or Culture, 6) Research Method Courses

Instructional technology courses include university and department compulsory courses like Computer Literacy, field electives such as Computer-Assisted Language Learning, or professional electives such as Innovative and Contemporary Technologies in Education, which were commonly found in all programs analyzed. These courses were focused on training teachers in integrating technology into teaching practices, and they demonstrated strong alignment with the DigCompEdu framework. Learning outcomes in the course syllabi emphasize planning and conducting technology-integrated lessons and designing technology-enhanced materials, in alignment with especially Area 2 (Digital Resources) and Area 3 (Teaching and Learning). Designing and using digital tools for assessment was also mentioned, as addressed in Area 4 (Assessment). Design and implementation in accordance with learner needs and characteristics were frequently given place in programs, aligning well with Area 5.1 (Accessibility and Inclusion) and 5.2 (Differentiation and Personalization). Learning management systems, e-mail systems, and other digital learning environments were introduced in weekly course schedules, promoting digital communication and collaboration among stakeholders (Area 1.1. Organizational Communication). On the other hand, digital competences defined in Area 1.3. (Reflective Practice) were lacking in the programs. Few courses explicitly encouraged students to reflect on their own

digital pedagogical practice. Similarly, Responsible Use within Area 6 (Facilitating Learners' Digital Competence) was infrequently touched upon. Issues of protecting personal data in digital learning environments and understanding possible risks and threats were covered to a limited extent, although some courses vaguely mentioned ethical and safe use.

Within the category of Teaching Methodology Courses, compulsory courses such as Teaching English to Young Learners or electives like Teaching Integrated Language Skills were analyzed. References to digital competences were extremely limited in these courses. Practices such as video-based micro-teaching, use of audios and authentic materials, and planning lessons using up-to-date sources could be associated with Area 2 (Digital Resources) and Area 3 (Teaching and Learning). However, very few courses made explicit references to digital technologies, tools, or platforms in shaping the planning and implementation of lessons and material development.

Focus on digital competences in Assessment and Evaluation Courses was limited, as well. However, several programs included courses that mentioned the importance of following recent developments in testing and assessment. Although not explicitly, integration of up-to-date digital sources in assessment procedures was implied. Many courses mentioned alternative assessments, which usually require utilizing various digital tools, aligning with Area 4.1 (Assessment Strategies). Enhancing alternative and formative assessment strategies through classroom response systems, online games or quizzes can be evaluated within this area. Use of digital tools in statistical tests was also addressed by many courses. Findings revealed that certain learning outcomes and course activities could correspond to Areas 4.1. (Assessment Strategies) and 4.2 (Analyzing Evidence). However, using digital technologies for providing constructive feedback is largely neglected. Digital competences described in Area 4.3. (Feedback and Planning) were not encountered in the data.

The fourth category, Educational Science Courses, included the courses generally offered by the faculty. There was little to no reference to digital competences in these courses. Classroom tasks that students were required to complete usually involved searching for various sources for weekly readings. This could have relations to Area 6 (Facilitating Learners' Digital Competence), as Information and media literacy (Area 6.1.) are emphasized. Digital content creation (Area 6.3.) may also be considered to be relevant, since learners were expected to synthesize information from different sources and present their original work through the use of multimedia platforms.

Other content-based courses such as Linguistics, Literature, or Culture were analyzed and evaluated together. Skill-based courses (e.g., Oral Communication Skills, Reading and Writing Skills) often focused on collecting information, preparing presentations, and formatting, which can be associated with Area 5.2 (Digital Communication) and (6.3 Digital Content Creation). Authentic listening materials also required students to get in touch with various digital platforms. Emphasis on empathy in communication, cultural differences, and persuasion in various courses are related to 21st century skills and can be categorized under Area 5.1 (Accessibility and Inclusion) and Area (5.2 Active Engagement). In others, comparative analyses of languages, literary text analysis, and interpreting subtext may be related to Information and Media Literacy (Area 6.1), although their use of technology was not explicated thoroughly in the course contents.

Lastly, research method courses moderately incorporated technological opportunities. Some of the courses explicitly stated in their learning outcomes that students will be introduced to instructional technologies and various software programs for their research projects. Technology use was emphasized for source management, formatting, referencing, or data analysis. Hence, the most frequently addressed framework areas were Area 2 (Digital Resources) and Area 6 (Facilitating Learners' Digital Competence). Issues related to research and publication ethics, plagiarism, copyright, and licensing were frequently encountered; however, they were rarely associated with digital technologies.

4. Discussion

This research sought to investigate how digital competences are embedded in ELTE curricula in Türkiye using the DigCompEdu framework. Core components of curricula such as program descriptions, program outcomes, course descriptions, and course syllabi including learning outcomes and weekly course content were analyzed. The findings have important implications for technology integration in Turkish ELTE contexts, revealing strengths and critical gaps.

The analysis of program descriptions uncovered varying degrees of alignment with DigCompEdu, with only a few institutions explicitly referring to digital pedagogies as part of their curricular vision. On the other hand, explicit mentions of technology integration into instructional practices are promising, indicating an appreciation of the significance of digital competences in today's digital age. The discrepancy among programs indicates differing institutional understandings concerning the role of technology in language teaching. Some universities might attach greater importance to digital transformation and innovation in their strategic plan, which affects how digital

competences are embedded in teacher education programs. Redecker (2017) highlights that institutional policy decisions and governance structures guide the design and implementation of teacher training programs and professional development efforts.

Defining program outcomes clearly is central to the educational effectiveness and quality (Kennedy, 2006). The findings demonstrated that digital pedagogy is addressed unevenly across the programs, similar to program descriptions. Some institutions effectively embedded specific competences such as Digital Resources (Area 2) and Teaching and Learning (Area 3) into their program outcomes, while others referred to digital competences only implicitly. Several contextual factors can be considered in explaining this discrepancy. To begin with, the limited number of ELT faculty members with strong expertise in digital pedagogy may cause digital competence to be underemphasized in the curricula. Results of the study conducted by Bayrak Karsli et al. (2023), which focused on teacher educators' digital competence levels, showed that although faculty members were open to innovations, they needed support in transferring their technology knowledge into their teaching practice. They also expressed their desire to receive formal training special to developing digital technologies through professional development programs. Another possible contributing factor is uneven infrastructure across institutions. Universities may differ in the access they provide to digital tools and support services. Examining ICT integration in ELTE in different contexts, Aşık et al. (2020) uncovered that teacher educators pointed to limited access to resources and a lack of faculty facilities as reasons for limited integration of technology in their teaching. Inadequate encouragement and support from the university administration were cited, as well. Pre-service teachers in Farhadi and Öztürk's (2023) study also mentioned access to digital tools and devices as one of their primary needs in an ELTE context. Overall, it can be said that institutional capacity and support in digital technology use are likely to influence curriculum design and implementation.

A remarkable finding was that Assessment (Area 4) was underrepresented across all programs. Little to no references to technology-supported assessment or data-informed evaluation were present, suggesting that institutions might not recognize the potential of digital technologies in assessment practices. This finding aligns with that of Kapucu et al. (2025), who found that although some faculty members use digital tools for assessment, others find it difficult to embrace technology-enhanced assessment tools and hesitate to use advanced features. This convergence indicates that digital assessment might be receiving less emphasis both in curricular design and instructional practice. Neglecting digital assessment practices might lead to missed opportunities, particularly for alternative and formative assessments. Moreover, attention is needed on technology-supported feedback mechanisms. These findings are in line with those of Aşık et al. (2020), who advocated the holistic curriculum integration of digital competences into all aspects of instructional design, including assessment and feedback. To better support pre-service teachers in their endeavors to design assessment practices that are compatible with the demands of current digital learning ecosystems, future curriculum revisions could focus on incorporating more explicit and clear references to data-informed decision making, digital assessment strategies, and digital evaluation tools.

Course-specific technology integration was also tackled in the current research. Instructional technology courses were found to be in strong alignment with the DigCompEdu framework. Institutional efforts were observed to provide pre-service ELT teachers with digital pedagogical skills. However, a lack of an explicit focus on digital pedagogical integration was realized in other course categories. Digital competences are neglected when the focus of the courses is not directly on instructional technologies. This finding echoes Instefjord and Munthe's (2017) observation that teacher education curricula rarely emphasize digital pedagogy. Institutions perceive technology as a complementary element rather than an integral part of the pre-service teacher education, which may aggravate the underpreparedness in technology experienced by ELT graduates (Çebi & Reisoğlu, 2020; Uzun, 2016) since their exposure to technology has been in isolated courses. As Krumsvik (2014) emphasizes, digital competence should not be reduced to technical skills alone; it must be embedded into pedagogical processes for pre-service teachers to integrate digital tools meaningfully into their teaching practice.

Another important finding was the insufficient emphasis placed on the responsible use of digital technologies (Area 6). This involves issues around digital ethics, data security, and privacy policies in educational settings (Redecker, 2017). Recognizing potential risks and threats, such as privacy violations and cyberbullying, and guiding future teachers accordingly are crucial for effective management of such challenges. The limited number of curricular cues focusing on responsible use may hinder the development of teacher candidates' awareness of digital wellbeing, online safety, and academic integrity. These prominent concerns in digital learning environments should be addressed more explicitly in ELTE programs, given the growing importance attached to the ethical use of technologies in recent international research. In their study focusing on artificial intelligence use in higher education context through the DigCompEdu framework, Jantos et al. (2024) also emphasized that higher education institutions should establish and implement clear policy guidelines and provide training for educators on ethical risks, misuse, and safety considerations.

This study points to a need for more consistent and strategic integration of technology-related competences and clearer curricular guidance on digital pedagogies. Digital literacy should be given a greater place in ELTE curricula in Türkiye in order for pre-service English language teachers to meet the demands of contemporary educational contexts.

5. Conclusion

The present research investigated the extent to which digital competences are integrated into ELTE curricula in Türkiye. Key curriculum components were analyzed through the lens of the DigCompEdu framework. Findings revealed that some programs explicitly incorporate digital competencies, whereas there is a lack of systematic emphasis on instructional technologies across programs. Instructional technologies are usually integrated into programs in isolated courses. Moreover, areas such as digital assessment, technology-enhanced feedback, and responsible use of technology are underemphasized in program outcomes and course contents. This suggests that certain sub-competences outlined in DigCompEdu are not fully covered in curricula in the ELTE context of Türkiye.

Variation among programs in their alignment with DigCompEdu sub-competences could be explained by considering the contextual dynamics of the institutions, such as the limited number of faculty members with expertise in digital pedagogy, infrastructure problems, including access to tools and sources, and inadequate support from the university governance. Considering local conditions is significant as they may shape how digital competences are reflected in the curriculum.

Informed by the status quo of technology integration efforts in pre-service teacher education programs in Türkiye, the study calls for a holistic curricular vision for digital pedagogy. Pre-service teachers should graduate with adequate exposure to contemporary, technology-supported approaches to teaching and evaluation, as well as sufficient awareness of ethical and responsible digital practices. Considering the increasing integration of digital technologies into educational settings, it is crucial to equip pre-service teachers with the ability to create safe, fair, and equitable learning environments.

Although the research is limited to selected institutions' stated objectives in their official program documents, results could offer valuable insights for ELT program designers, teacher educators, teachers, and policymakers aiming for program development and improvement in Türkiye. First, ELTE programs could consider conducting comprehensive program evaluations to identify program-specific needs regarding technology integration. Within this scope, input from pre-service teachers, faculty members, university administrators, and alumni could be gathered to inform data-driven decisions about curricular revisions. Second, teacher educators should be provided curriculum development training on how to integrate digital competences into program outcomes, course content, learning outcomes, and assessments. Faculty digital pedagogical development could also be strengthened through research-informed training programs using validated frameworks such as DigCompEdu. These programs could be delivered through university-level support units such as teaching and learning centers. Support from institutions should also include the provision of digital infrastructure that is reliable and accessible. In addition, for a more holistic view of technology integration, faculty members could integrate digital tools into existing methodology courses rather than treating digital skills as isolated course content. More curricular and course content on digital assessments and feedback practices can be added to ELTE programs, such as tools to monitor learner progress, digital portfolios, or automated feedback systems. Explicit attention should also be paid in curricular documents to the issues of data privacy, technology misuse, and academic integrity.

Future research could focus on the lived experiences of different stakeholders, which might provide deeper understandings of their actual practices about technology integration. Longitudinal studies could shed light on how curricular revisions influence digital competence levels and perceptions of ELTE faculty members and pre-service teachers.

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