

**The relationship between English language educators' digital literacy and their sense
of self-efficacy**

Ayazhan Zhakupova

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Abstract

This quantitative study analyzes the relationship between English language educators' digital literacy and their sense of self-efficacy in higher education institutions in Astana, Kazakhstan. The research aims to examine whether digital literacy is correlated with and predictive of English language educators' self-efficacy. An online survey incorporating modified versions of the Digital Literacy Scale and the Teachers' Sense of Efficacy Scale (TSES) was used to collect data. Participants included 52 in-service English language educators at higher educational institutions in Astana. The data were analyzed through Pearson correlation and multiple linear regression analysis. The results showed statistically significant, moderate-to-strong positive relationship between the two variables. Digital literacy further was demonstrated to be a significant predictor of self-efficacy by multiple linear regression analysis, even after controlling for sociodemographic factors such as age and teaching experience. The results suggest that encouraging digital competence may contribute to increased instructional confidence among university educators. While the study offers valuable insights into a relatively under-researched population, it is geographically limited to Astana. Future research with larger and more diverse samples across Kazakhstan is recommended. The study contributes to ongoing efforts to enhance digital integration and professional development in higher education.

Keywords: digital literacy, self-efficacy, English language educators, higher education.

Аңдатпа

Бұл сандық зерттеу Астана қаласындағы жоғары оқу орындарында жұмыс істейтін ағылшын тілі оқытушыларының цифрлық сауаттылығы мен өз тиімділігіне сенімділігі арасындағы байланысты зерттейді. Зерттеудің мақсаты – цифрлық сауаттылықтың оқытушылардың өзін-өзі тиімді сезінуімен байланысын және оны болжау мүмкіндігін анықтау. Деректер цифрлық сауаттылық шкаласы мен мұғалімдердің өзін-өзі тиімділік шкаласының (TSES) бейімделген нұсқалары енгізілген онлайн сауалнама арқылы жиналды. Қатысушылар қызметтегі Астанадағы жоғары оқу орындарының 52 ағылшын тілі оқытушысынан тұрды. Пирсон корреляциясы және көптік сызықтық регрессия әдістері арқылы талдау жүргізілді. Нәтижелер екі айнымалы арасында статистикалық тұрғыдан маңызды, орташа және күшті оң байланыс бар екенін көрсетті. Жас және педагогикалық тәжірибе сияқты социодемографиялық факторларды есепке алғаннан кейін де, цифрлық сауаттылық өзіндік тиімділікке елеулі болжаушы ретінде танылды. Бұл нәтижелер университет оқытушылары арасында цифрлық құзыреттілікті арттырудың кәсіби сенімділікке ықпал ететінін көрсетеді. Алайда зерттеу тек Астана қаласымен шектелген. Қазақстан бойынша кеңірек және әртүрлі үлгілермен болашақ зерттеулер жүргізу ұсынылады. Зерттеу жоғары білім беру жүйесінде цифрлық интеграция мен кәсіби дамуды қолдауға үлес қосады.

Түйінді сөздер: цифрлық сауаттылық, өзіндік тиімділік, ағылшын тілі оқытушылары, жоғары білім.

Аннотация

В данном количественном исследовании изучается связь между цифровой грамотностью и чувством самоэффективности преподавателей английского языка, работающих в высших учебных заведениях города Астаны, Казахстан. Цель исследования – выяснить, существует ли корреляция между цифровой грамотностью и самоэффективностью, а также может ли первая выступать предиктором второй. Для сбора данных был использован онлайн-опрос, включавший адаптированные версии шкалы цифровой грамотности и шкалы самоэффективности преподавателей (TSES). В опросе приняли участие 52 действующих преподавателя английского языка в высших учебных заведениях города Астаны. Данные были проанализированы с использованием корреляционного анализа Пирсона и множественной линейной регрессии. Результаты показали статистически значимую, умеренно сильную положительную связь между двумя переменными. Даже с учётом таких социально-демографических факторов, как возраст и стаж преподавания, цифровая грамотность осталась значимым предиктором самоэффективности. Это говорит о том, что развитие цифровых навыков может способствовать укреплению уверенности преподавателей в своей профессиональной компетентности. Несмотря на свою ценность, исследование ограничено географически – только городом Астана. Будущие исследования с более широкими и разнообразными выборками по Казахстану рекомендованы. Работа вносит вклад в развитие цифровой интеграции и повышения квалификации в системе высшего образования.

Ключевые слова: цифровая грамотность, самоэффективность, преподаватели английского языка, высшее образование.

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Introduction

The Introduction chapter provides a research topic that examines the relationship between university teachers' digital competence and their sense of self-efficacy. It outlines the background information, research problem, and research hypotheses and question and underscores the significance of the study considering the dynamics in modern educational context.

In the first section, the background to the study, with the focus on global and local trends in educational technology and their relevance to English language instruction is described. This creates the broader context in which the study is carried out.

The second section presents the problem statement, drawing attention to the existing gap regarding the relationship between educators' digital literacy and their sense of self-efficacy in Kazakhstani higher education. Clarifying this gap helps to frame the study's focus.

The third section provides the purpose of the study and explains the rationale for examining digital literacy and self-efficacy among in-service English language educators. This section clarifies the aim of the paper and why the topic is worth studying.

In the fourth section, I introduce the research question and hypotheses, which serve as a foundation for data analysis and guide the methodological direction of the research.

The final section highlights the significance of the study, outlining its contribution to the academic literature, educational practice, and institutional policy. This underscores the relevance and potential impact of the research in the field of digital education.

Together, these components lay the foundation for understanding how digital competence and professional confidence intersect in the context of English language teaching in a digitally evolving academic landscape.

Background Information

The modern world has reached a burgeoning digital age where information and communication through digital mediums dominate almost every facet of society, as well as education. Previously limited to physical classrooms and printed materials, education is now closely associated with digital technologies. According to Reddy et al. (2020) and Vodă et al. (2022), these technologies present new chances for cooperation, creativity, and involvement in the educational process. As a result, teachers must modify their methods, acquire new skills, and reconsider conventional teaching strategies (Spante et al., 2018). Learning management systems, online assessment platforms, video conferencing tools, and multimedia content delivery have all become common in higher education, and teachers are expected to be proficient and creative in using these tools (Chiu et al., 2022).

Digital literacy is especially important for English language teachers. Digital tools have the potential to improve language instruction by facilitating communication, fostering interactivity, and providing access to a variety of authentic resources. Digitally competent educators can use technology to support differentiated instruction, promote autonomous learning, and create dynamic, learner-centred environments in addition to facilitating language acquisition (Hidalgo et al., 2020; Tafazoli et al., 2017).

Coinciding with the rise of digitalization in education, self-efficacy is becoming increasingly recognized as a critical factor in determining teacher effectiveness. Self-efficacy, which has its roots in Bandura's (1995) social cognitive theory, is a belief that one can achieve particular goals or succeed in particular situations. Classroom management, instructional strategies, student engagement, and the adoption of innovative teaching practices are all impacted by teacher self-efficacy in the educational setting (Toropova et al., 2020; Täschner et al., 2024). While low self-efficacy can prevent teachers from

adopting new approaches or overcoming challenges in the classroom, high levels of self-efficacy are linked to resilience, motivation, and openness to professional development.

Given the growing pressure on educators to incorporate digital tools into their teaching, it is critical to understand the relationship between teachers' confidence in their ability to teach and digital literacy. Lack of expertise, training, or institutional support may have the opposite effect, resulting in frustration and decreased efficacy, even though digital tools have the potential to empower educators (Özdemir & Önal, 2022). Thus, it is both necessary and timely to study the relationship between self-efficacy and digital literacy among English language educators at the university level.

Problem Statement

Despite widespread technological advancements and increased attention to digital integration in higher education, not all educators feel equally prepared or confident in utilizing digital tools effectively. While some embrace technology enthusiastically, others struggle with its demands or fail to see its pedagogical value. These disparities are particularly important in English language teaching, where digital tools can significantly enhance language exposure, practice, and feedback. Yet, the ability to use such tools confidently and meaningfully depends on both digital competence and self-belief (Hatlevik, 2016).

In Kazakhstan, higher education institutions have made notable strides in adopting digital technologies, especially in response to the global shift toward online and hybrid learning models. Recent studies highlight the growing importance of digital technologies in Kazakhstan's higher education system. Universities are adopting digital tools to enhance management quality, improve student access to resources, and enable distance learning (Nurtayeva et al., 2024). Digital educational interventions, including interactive online classes and massive open online courses (MOOCs), have shown significant improvements

in students' cognitive abilities, creativity, and professional orientation (Kurakbayeva & Xembayeva, 2025). The digitalization of education offers advantages such as adaptability and rapid skill acquisition, though challenges like security issues and reduced communication persist (Khamza et al., 2024). Kazakhstan's higher education institutions are transitioning towards "smart universities" with digital ecosystems, implementing artificial intelligence and interactive platforms to enhance theoretical and practical learning (Musina, 2024). These developments align with the country's Concept of Development of Higher Education and Science, aiming to transform traditional management methods and improve educational outcomes in the increasingly competitive international educational landscape.

However, there remains a gap in understanding how digital literacy affects educators' professional confidence, particularly in the field of English language teaching. Although various studies have explored either digital literacy or self-efficacy, few have examined the intersection of these constructs within the Kazakhstani higher education context. Moreover, much of the existing research focuses on school-level or pre-service teachers, leaving in-service university educators underrepresented in the literature (Chen, 2019; Culp-Roche et al., 2021; Gbemu et al., 2020; Gomez & Munger, 2023; Künsting et al., 2016).

This study aims to address this gap by investigating the relationship between English language educators' digital literacy and their sense of self-efficacy in higher education institutions in Astana. The findings will contribute to a more nuanced understanding of how technological competencies support (or hinder) teacher confidence, thereby informing teacher training, institutional policy, and pedagogical practice.

Purpose of the Study

The purpose of this survey-based study is to test the theory of self-efficacy, that relates English language educators' digital literacy to their sense of self-efficacy, controlling for sociodemographic factors such as age and teaching experience. The independent variable, digital literacy, will be defined as the educators' ability to effectively use digital tools, platforms, and resources to enhance teaching and learning processes. The dependent variable, self-efficacy, will be defined as educators' confidence in their ability to plan, manage, and deliver effective instruction.

The control variables such as age and teaching experience will be defined as factors that may influence the relationship between digital literacy and self-efficacy but are not the primary focus of this study. This study's main focus is the relationship between educators' digital literacy and their sense of self-efficacy.

Research Hypotheses

In order to explore a relationship between the digital competence of university teachers and sense of self-efficacy of English language educators in the context of Higher Educational Institutions in Astana, the following research hypotheses and question are formulated:

Research hypotheses:

H1: There is a positive correlation between English language educators' digital literacy and their sense of self-efficacy.

H0: There is no relationship between English language educators' digital literacy and their sense of self-efficacy.

Research question:

To what extent does digital literacy predict English language educators' self-efficacy?

Significance of the Study

The results of this study hold significant implications for both academia and educational practice, particularly within the Kazakhstani higher education context. By examining the relationship between English language educators' digital literacy and their sense of self-efficacy, this research provides valuable insights into how digital technologies impact teaching confidence and instructional effectiveness in a rapidly evolving educational landscape. Conducted in the context of higher education institutions in Astana, Kazakhstan, the study reflects local conditions, challenges, and opportunities, offering context-specific insights for improving teacher professional development and educational policies.

The findings are especially relevant for educators, policymakers, and curriculum designers in Kazakhstan who aim to enhance teaching effectiveness and learning outcomes by integrating digital literacy into teacher training programs and institutional strategies. Additionally, the study offers broader perspectives for stakeholders interested in the interplay between technology and education, addressing the challenges and potential of digital tools in English language instruction. By contributing to scholarly discourse and grounding its insights in the Kazakhstani educational environment, the research supports the development of evidence-based strategies to improve teaching practices and foster effective learning in diverse, technology-driven contexts.

Literature Review

This literature review systematically evaluates current research and scholarly works to identify any indications or evidence of a relationship between university educators' digital literacy and their sense of self-efficacy. The chapter includes such sections as (1) definition of digital literacy, (2) language educators' digital literacy, (3) the general concept of self-efficacy, (4) teachers' self-efficacy, and (5) the relationship between educators' digital literacy and their self-efficacy.

Major Concepts of Digital Literacy

In multiple studies, researchers debate the concept of digital literacy, sometimes referring to it as digital competence (Sánchez-Caballé et al., 2020), while others prefer terms like e-skills or computer literacy (Spante et al., 2018), drawing attention to differing perspectives on this topic (Punie et al., 2013). In the academic field, many educators frequently use digital literacy as a common synonym for digital competence, depicting the important connection between these two concepts (Punie et al., 2013). The term digital literacy is used in this research. This subsection will provide a brief overview of definitions that are associated with digital literacy.

Different authors offer various definitions of digital literacy concept considering new technologies and advances alter how people use this technology. Consequently, "the concept of 'digital literacy' is a multidimensional concept entailing a complex integration of technical skills, cognitive skills and meta-cognitive processes as well as civic engagement and ethical awareness" (Reddy et al., 2020, p. 19) and "considering the deep penetration of digital technologies in everyday life, digital literacy offers a set of transversal skills that could improve a whole area of activities, from banking operations to civic participation" (Vodă et al., 2022, p. 1). For this reason, Reddy et al. (2020) states that "digital literacy is an umbrella for a number of complex and integrated sub-disciplines or

‘literacies’” (p. 20). Guess and Munger (2023) went through numerous pieces of literature from several disciplines as well and brought out a conceptualization of digital literacy which is “online information discernment combined with the basic digital skills necessary to attain it” (p. 2). This also resonates in the paper of European Commission (Punie et al., 2013) as they define digital literacy as “the skills required to achieve digital competence. It is underpinned by basic skills in ICT and the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet” (p. 4).

Twenty years ago, Glister (1997) was the one who provided the very first concept of digital literacy and it was defined as “the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers” (p. 1) which can be too general today. But Chiu et al. (2022) who also refer digital literacy to “the multiplicity of literacies associated with the use of digital technologies” (p. 3) explain digital literacy as “the awareness, attitude and ability of individuals to appropriately use technologies to identify, access, manage, analyze, evaluate, and synthesize digital resources, and to create, make and share meaning, and collaborate and communicate effectively with others in different modes and formats” (p. 3) and has expanded the definition of the concept. According to Reddy et al. (2020) “the European Commission defined digital literacy as the ability to use ICT and the Internet for creativity, innovation and entrepreneurship and acquiring the skills and knowledge necessary to live in the 21st Century” (p. 18).

A nuanced understanding of digital competencies is necessary for the effective integration of technology and language acquisition in distance learning of English, as we navigate through the different definitions of digital literacy. These multifaceted skills play a pivotal role in shaping this landscape.

Language Educators' Digital Literacy

Digital literacy now plays an important role for many language educators, as multiple technologies rapidly integrate into everyday life and education. Many language teachers now actively develop digital literacy skills and they effectively use ICT in their teaching (Tafazoli et al., 2017). The range of available digital resources – such as videos, MOOCs, online gaming tools, websites, podcasts, and social media – offers significant advantages for language learning, particularly due to the inherently communicative nature of language education (Hidalgo et al., 2020). These tools can foster engagement, enhance language acquisition, and support diverse learning preferences. This integration of technology into language teaching has been shown to improve classroom quality and positively impact English as a Second/Foreign Language (ESL/EFL) education (Hidalgo et al., 2020). This approach aligns with a constructionist paradigm, where students are placed at the center of the learning process, actively engaging with digital tools to construct knowledge. For this paradigm to succeed, ESL/EFL teachers must demonstrate digital and media competencies, ensuring that technology is used effectively to support student-centered learning.

In higher education, the integration of technology into curriculum design is not merely a trend but a global imperative. Research consistently highlights its effectiveness in enhancing the teaching-learning process (Chen, 2019; Gomez et al., 2021; Spante et al., 2018). However, two considerations are worth mentioning when using technology for pedagogical purposes. First, while learners may be familiar with digital tools for personal use, educators must train them to apply these technologies in meaningful, academic contexts (Chen, 2019). This addresses potential gaps between casual use and principled application for learning. Second, technology offers innovative opportunities for assessment. For example, Automated Writing Evaluation (AWE) tools can provide

immediate, constructive feedback on learners' writing, facilitating improvement in research and academic writing skills (Cotos, 2011).

Recent literature also highlights the increasing significance of digital technologies in Kazakhstan's higher education sector. Higher education institutions are actively adopting digital tools to improve administrative processes, broaden student access to learning materials, and support distance learning modalities (Nurtayeva et al., 2024). There have been measurable improvements in learners' cognitive engagement, creativity, and vocational readiness associated to the use of digital educational interventions, such as interactive online courses and massive open online courses (MOOCs) (Kurakbayeva & Xembayeva, 2025). Furthermore, it has been recognized that the digitalization of education has several important advantages, such as increased skill development and pedagogical adaptability.

It does, however, have certain limitations, such as concerns about data security and the possible decline in interpersonal communication in educational settings (Khamza et al., 2024). In response to these changing demands, Kazakhstani universities are gradually shifting towards "smart university" models that use interactive learning platforms and artificial intelligence to support both theoretical and practical instruction (Musina, 2024). These advancements are in line with the national Concept of Development of Higher Education and Science, which seeks to improve academic quality and modernize educational governance to meet global competitiveness standards.

Overall, digital literacy equips language educators to meet the demands of modern classrooms, transforming teaching and assessment practices while fostering more effective and engaging learning experiences. As technology continues to evolve, the development and application of digital competencies among educators remain critical to enhancing language education.

The General Concept of Self-Efficacy

Self-efficacy, a concept introduced and extensively developed by Bandura (1995), has been a foundational construct in many studies in the field of education, psychology, and social science (Culp-Roche et al., 2021; Hatlevik, 2016; Krause et al., 2017; Poulou et al., 2018; Saienko et al., 2020). The Cambridge Dictionary (n.d.) defines self-efficacy as “a person's belief that they can be successful when carrying out a particular task” (par. 1). Bandura (1995) similarly defined self-efficacy, referring it to how strongly individuals believe they can succeed or achieve their desired goals. This belief is not static but dynamic, influencing how individuals adapt to and perform in varying situations, even when confronted with identical challenges. Furthermore, Bandura (1995) emphasized that self-efficacy greatly affects individuals' cognitive abilities, their feelings, behaviour, and motivation; for instance, individuals with high self-efficacy tend to demonstrate resilience, confidence, and determination when faced with complex tasks, viewing challenges as opportunities for growth rather than threats. Conversely, those with low self-efficacy often experience doubt, worry, and feelings of inadequacy, which can lead to avoidance behaviors or diminished performance in the face of difficulties.

The importance of self-efficacy extends beyond individual actions to influence broader life decisions and professional outcomes. Research has shown that self-efficacy beliefs significantly shape how individuals approach, interpret, and respond to their environment, particularly in professional settings (Gbemu et al., 2020; Mannila et al., 2018; Šabić et al., 2022). Successful individuals possess strong positive efficacy beliefs, which manifest through various processes such as cognitive, motivational, emotional, and selection (Bandura et al., 1999). These processes enable individuals to navigate adverse situations with a balanced perspective and positive approach. Cognitive processes, for example, involve setting realistic goals and strategizing effectively, while motivational

processes drive persistence and effort. Emotional processes help individuals manage stress and maintain optimism, and selection processes influence their choices and willingness to accept challenges. Moreover, self-efficacy has been identified as a psychological buffer against negative experiences and emotions (Bandura et al., 1999). It can mitigate the impact of adversity, promote mental well-being, and foster adaptability during transitions or under changing circumstances. This protective role makes self-efficacy particularly relevant in professional contexts, where individuals are frequently required to cope with evolving demands and expectations.

Teachers' Self-Efficacy

Over the past four decades, researchers have extensively explored teacher self-efficacy and its related psychological dimensions, highlighting its pivotal role in teaching and learning (Hussain et al., 2022; Täschner et al., 2024; Zee & Koomen, 2016). In the context of education, self-efficacy reflects teachers' perceived ability to positively impact students' learning outcomes, including academic achievement and personal growth. This belief is critical not only for shaping teaching practices but also for influencing broader educational outcomes.

Studies have shown that teachers with higher self-efficacy report greater job satisfaction, stronger professional commitment, reduced emotional exhaustion, and fewer stress-related symptoms (Toropova et al., 2020). These findings underscore the role of self-efficacy as a psychological buffer, enabling teachers to navigate the challenges of the profession with resilience and motivation. Furthermore, teacher self-efficacy is linked to innovative teaching practices and differentiated instruction, as educators with greater confidence are more willing to experiment with novel approaches to meet diverse student needs (Täschner et al., 2024). The longitudinal impact of teacher self-efficacy is particularly noteworthy. For instance, Künsting et al. (2016) found that teachers' self-

efficacy levels in their first year of teaching were predictive of their instructional quality a decade later. Specifically, teachers with higher initial self-efficacy demonstrated superior classroom management, established more positive classroom climates, and engaged students in cognitively stimulating activities. This long-term perspective highlights the enduring significance of fostering self-efficacy early in teachers' careers.

The effects of teacher self-efficacy extend beyond educators, significantly shaping student experiences and outcomes. Teachers with higher self-efficacy are better equipped to motivate students, including those facing educational challenges, fostering greater engagement and interest in learning (Hussain et al., 2022; Zee & Koomen, 2020). These teachers also tend to build stronger relationships with their students, creating a supportive and collaborative classroom environment. Research has consistently shown that students taught by teachers with higher self-efficacy demonstrate better academic achievement (Kim & Seo, 2018), suggesting that teacher self-efficacy is a critical factor in promoting student success.

Relationship Between Language Educators' Digital Literacy and Their Self-Efficacy

The link between digital literacy and self-efficacy has been investigated in recent studies involving teachers. According to available data, teachers who are more digitally competent are more confident in using information and communication technologies (ICT) in their teaching and learning practices (Hatlevik, 2016). Using multiple regression analysis with a sample of 312 teachers, this study found that 41% of the variance in digital competence was explained by self-efficacy in basic ICT and strategies for information evaluation, while digital competence and self-efficacy in online collaboration explained 36% of the variance in ICT use. Moreover, the teachers who used ICT tools for teaching more than six hours per week accounted for merely 30.4% of the sample, while ICT tools usage for administrative tasks amounted to 66.9% of the sample. These results indicate

that, aside from technical skill, digital literacy appears to play an important, and under-recognized, role in educators' feeling confident, and subsequent ability, to embed ICT in their teaching practice effectively.

In spite of these findings, English as a Foreign Language (EFL) teacher self-efficacy is often reported to be lower when technology knowledge is at stake; all while their content and pedagogical knowledge is strong (Özdemir & Önal, 2022). This discrepancy highlights a critical challenge in aligning teachers' technological skills with their overall professional competencies. Several factors have been identified as influencing teachers' technological pedagogical content knowledge (TPACK) self-efficacy, including their educational background, the type of school where they teach, their perceived digital literacy levels, and the training opportunities they have previously accessed (Özdemir & Önal, 2022). Moreover, there was a strong positive correlation between teachers' TPACK self-efficacy and Web 2.0 competence, highlighting the importance of targeted professional development (Özdemir & Önal, 2022). In vocational school settings, teachers demonstrate medium levels of self-efficacy in designing and utilizing digital materials for e-learning. Pertiwi et al. (2022) emphasize that ICT knowledge and competence significantly affect these teachers' abilities to create and implement digital content. This indicates that targeted professional development programs focused on digital content creation could substantially enhance educators' self-efficacy in these contexts.

Conclusion

Overall, while these studies provide valuable insights, notable gaps remain. Much of the existing research has been conducted at the school level, focusing on primary and secondary educators, leaving university educators' experiences underexplored. Given that higher education presents distinct pedagogical and technological challenges, further research is needed to understand how digital literacy impacts university educators' self-

efficacy. Additionally, recent reviews indicate that the perspectives of in-service teachers toward the pedagogical use of technology are significantly less researched compared to those of pre-service teachers (Chen, 2019). This gap underscores the need for studies that prioritize the lived experiences of practicing educators, particularly in understanding how their digital competencies and self-efficacy evolve within dynamic teaching environments.

Methodology

The purpose of this quantitative research is to empirically explore the relationship between English language educators' digital literacy and their sense of self-efficacy in the context of Higher Educational Institutions (HEI) in Astana, Kazakhstan. This section will provide a description of the methods and procedures employed to conduct research. It includes such parts as research design, sample, data collection, data analysis, and ethical consideration.

Research Design

This study will use a quantitative survey-based research approach, specifically employing correlation analysis. According to Creswell (2018), quantitative research uses systematic data collection and analyses numerical data in order to describe phenomena and examine relationships between variables. This approach is appropriate for the current study as it allows to measure both educators' digital literacy and their sense of self-efficacy, facilitating statistical analysis to explore the relationship between these variables.

Measures of the direction and strength of the relationship between two or more variables will be made using correlation analysis. Correlation analysis will be used in this study to examine the extent to which English language educators' digital literacy and their sense of self-efficacy are connected. This method gives information about whether and how much changes in one variable correspond to changes in the other by determining correlation coefficients – specifically, Pearson's product-moment correlation and Spearman's rank-order correlation coefficients.

In keeping with the quantitative approach, this research is also survey-based. Quantitative data collection from a sample population can be accomplished effectively through the use of surveys, an established technique for data collection and analysis. According to Creswell (2018), surveys are especially helpful for examining correlations

between variables because they can measure respondents' opinions, attitudes, or actions by using standardized questionnaires for investigation the relationships that have been hypothesized.

Hypotheses

The hypotheses tested in this research are as follows:

H1: There is a positive correlation between English language educators' digital literacy and their sense of self-efficacy.

H0: There is no relationship between English language educators' digital literacy and their sense of self-efficacy.

Research question:

To what extent does digital literacy predict English language educators' self-efficacy?

Sampling

This study employs a random sampling to select participants ensuring the collection of unbiased data and enhancing the generalizability of the findings. Random sampling will help to select participants from the target population. The target population consists of English language educators at higher education institutions (HEIs) in Astana, estimated to be approximately over 160 educators. Random sampling allows for a broad, representative selection of educators from this population, minimizing bias. This approach ensures the feasibility of the study and that the findings are relevant and applicable to the research objectives.

Data Collection Instruments

This study employs a survey-based research method to collect quantitative data using two established scales: Teachers' Sense of Efficacy Scale (TSES) by Tschannen-Moran and Hoy (2001) and the Digital Literacy Scale by Ng (2012). The first instrument

(see Appendix A) evaluates teachers' self-efficacy and consists of 12 items rated on a five-point Likert scale, 1 (nothing), 2 (very little), 3 (some influence), 4 (quite a bit), 5 (a great deal), focusing on student engagement, instructional strategies, and classroom management.

The second instrument, the Digital Literacy Scale (Appendix B) (Ng, 2012), assesses educators' digital literacy across technical, cognitive, and social-emotional dimensions. This scale includes 17 items rated on a four-point Likert scale from 1 (not proficient) to 4 (very proficient) and has been validated by two experts in ICT education (Ng, 2012).

Both scales were integrated into a single questionnaire to guarantee consistency and respondent convenience (Appendix C). The Likert scales were modified to have six points: (1) strongly disagree, (2) disagree, (3) somewhat disagree, (4) somewhat agree, (5) agree, (6) strongly agree. This modification preserved the original instruments' integrity while guaranteeing consistency in response options.

Reliability for the TSES was verified by Tschannen-Moran and Hoy (2001): the Cronbach alpha coefficient of TSES has been determined as 0.90 showing high reliability. The Cronbach's alpha reliability coefficient for the scale was calculated as 0.86, indicating high reliability (Ng, 2012). Cronbach's Alpha values above 0.80 indicate strong reliability, while those above 0.70 are deemed acceptable (George & Mallery, 2016). Additionally, the minimum acceptable threshold for internal consistency in research is 0.70, according to Nunnally and Bernstein (1994). Since both instruments are above these limits, further reliability analysis was considered unnecessary.

The questionnaire was administered electronically to ensure accessibility and include clear instructions to guarantee anonymity and confidentiality, encouraging honest responses. Pilot testing was not necessary due to scales to be validated in previous research

(Ng, 2012; Tschannen-Moran & Hoy, 2001). The questionnaire also includes questions about demographic information, such as age, gender, years of teaching experience, educational qualifications, and familiarity with digital tools and technologies. The questionnaire is brief and easy to use, with a suggested completion time of 10 to 15 minutes, in order to maximize participant engagement while minimizing the burden of responses. The time has been decided on to achieve a balance between obtaining comprehensive data and respecting the time constraints of participants.

Data Collection Procedure

The data for this study was gathered from mid-February to mid-March with a total of 52 responses obtained. The target population of 161 English language educators was estimated to be from 11 of 17 universities in Astana, based on open-access sources such as official university websites, as well as direct inquiries during in-person visits. With 161 educators as the target population, the response rate was 32%. Respondents were informed their participation was voluntary, and in order to encourage honest and objective feedback, their answers were kept anonymous. Clear instructions were included in the survey to make sure participants understood the purpose of the study.

The data was collected with a survey-making program. Specifically, survey-making program such as Google Forms was used for data collection and initial organization. The questionnaire was distributed online by means of email and messaging apps in order to reach as many participants as possible. Then, the data collected from the surveys was managed, organized, and analyzed using a statistical analysis software, particularly Jamovi was employed for in depth data analysis.

Data Analysis

Following survey completion, the data collected from surveys was exported and converted into spreadsheet software, such as Google Sheets, for initial data management

and organization. In order to ensure accuracy and consistency across responses, this process involved collecting and organizing the raw data into a format that could be used for statistical analysis.

The organized data was then imported into Jamovi, an open-source statistical analysis software program, for comprehensive data analysis. Jamovi offers a user-friendly interface and a wide range of statistical tests and procedures, making it suitable for analyzing survey data and testing research hypotheses.

In order to summarize respondent characteristics and key variables, such as digital literacy and self-efficacy scores, the analysis started with descriptive statistics. A Shapiro-Wilk test was next conducted to evaluate normal distribution as it was particularly used due to its suitability for small to medium sample sizes (Razali & Wah, 2011). While both digital literacy and self-efficacy were measured as composite scores derived from multiple Likert-type items, the results showed a deviation from the normal distribution for both variables. When sample sizes are adequate and deviations from normality are not extreme, such composite variables can be regarded as continuous and analyzed using parametric inferential methods in accordance with established guidelines despite the non-normal distribution (Field, 2009; Norman, 2010). Therefore, the relationship between educators' sense of self-efficacy and their digital literacy was studied using Pearson correlation analysis. Furthermore, multiple regression analyses with a series of regression models were conducted controlling for socio-demographic variables such as age and years of teaching experience. The Findings section provides a detailed presentation of these analyses' results.

Ethical Consideration

Following ethical guidelines, the privacy and well-being of the participants are given top priority. Prior to the beginning the questionnaire, participants were given a detailed explanation of the study's purpose, data usage, and confidentiality assurances in

the description box on Google Forms. Then they were required to provide consent by proceeding with the questionnaire. The data collected were safely kept in a Google Drive folder that only the researcher could access. Throughout the research process, every attempt was made to reduce any possible harm or discomfort to participants. There were not any actions that cause psychological or physical distress. The survey was conducted online to minimize any possible psychological discomfort.

Lastly, the ethical guidelines set forth by Research Committee of School of Liberal Arts at Maqsut Narikbayev University followed in this study. Before beginning data collection, on February 5, 2025, ethical approval from the MNU School of Liberal Arts Research Committee was granted, and the study was carried out in compliance with all applicable ethical guidelines and regulations.

Summary

The Methodology section of this study outlines a comprehensive approach to investigating the relationship between English language educators' digital literacy and their sense of self-efficacy. It provides systematic information on research design, sampling methods, research methods, data analysis approaches, and ethical consideration of the thesis.

Results

In this section, key findings focusing on the relationship between English language educators' digital literacy and their sense of self-efficacy are reported. The findings are presented in the relation to the stated hypotheses and research question.

The hypotheses tested in this research are as follows:

H1: There is a positive correlation between English language educators' digital literacy and their sense of self-efficacy.

H0: There is no relationship between English language educators' digital literacy and their sense of self-efficacy.

Research question:

To what extent does digital literacy predict English language educators' self-efficacy?

Descriptive Statistics

The main variables and the key characteristics of the sample were analyzed using descriptive statistics (see Table 1). The data provided an overview of the respondents' demographic background, level of self-efficacy, and digital literacy. The age of the respondents ranges from 24 to 45, and they had an average of 12.4 years of teaching experience. On a six-point Likert scale, respondents reported relatively high levels of digital literacy ($M = 4.92$, $SD = 0.694$) and self-efficacy ($M = 4.86$, $SD = 0.561$). The majority of respondents rated themselves mostly high, according to the means, which reflects their generally high perceptions of their own digital competence and self-efficacy. The standard deviations indicate that these self-ratings show a moderate level of variability.

Table 1*Descriptive Statistics for Key Variables*

	Indicate your age.	How many years have you been teaching?	Digital Literacy Score	Self-Efficacy Score
N	51	52	52	52
Missing	1	0	0	0
Mean	33.2	12.4	4.92	4.86
Median	33.5	13.0	5.03	5.00
Standard deviation	5.55	5.30	0.694	0.561
Minimum	24	1	2.94	3.00
Maximum	45	26	5.82	5.75

Additionally, frequencies for categorical variables like gender and familiarity with digital tools were calculated. According to Table 2, 42 (80.8%) participants identified as female, 9 (17.3%) as male, and 1 (1.9%) as preferring not to reveal their gender.

Table 2*Frequencies of Gender*

Indicate your gender.	Counts	% of Total
Female	42	80.8%
Male	9	17.3%
Prefer not to say	1	1.9%

Participants' answers regarding their familiarity with digital tools are shown in Table 3: 29 (55.8%) stated they were "very familiar," 20 (38.5%) stated they were "familiar," and 3 (5.8%) stated they were "not at all familiar." These results align with the

high average digital literacy scores discovered and indicate that the majority of the sample are comfortable using technology.

Table 3

Frequencies of Familiarity with Using Digital Tools and Technologies

How familiar are you with using digital tools and technologies in your teaching?	Counts	% of Total
Familiar	20	38.5%
Not at all familiar	3	5.8%
Very familiar	29	55.8%

Normality Testing

The data was analyzed for a normal distribution in order to decide whether to conduct parametric or non-parametric tests using a Shapiro-Wilk test in Jamovi software. This particular test was used due to its suitability for small to medium sample sizes (Razali & Wah, 2011). The data for both Digital Literacy and Self-Efficacy Scales significantly deviated from a normal distribution, according to the results of a test: Digital Literacy: $W = 0.924$, $p = 0.003$; Self-Efficacy: $W = 0.902$, $p < .001$ (see Table 4).

However, given that both variables are composite scores derived from multiple items – which can be treated as continuous data in parametric testing (Field, 2009; Norman, 2010) – Pearson’s correlation and linear regression analyses were also conducted and interpreted with caution. Moreover, Pearson's correlation was determined to be suitable for this analysis given the sample size ($N = 52$) and the resilient nature of Pearson's correlation to violations of normality when using composite variables (Ghasemi & Zahediasl, 2012). Field (2009) offers additional support for this approach, suggesting out that when the scales have acceptable reliability, applying Pearson correlation to summated scales is adequate.

Table 4*Normality Distribution*

	Digital Literacy Score	Self-Efficacy Score
N	52	52
Shapiro-Wilk W	0.924	0.902
Shapiro-Wilk p	0.003	<.001

Correlation Analysis

A parametric Pearson's product-moment correlation analysis was first conducted in order to test the research hypotheses. The findings revealed that English language educators' digital literacy and their sense of self-efficacy had a moderate-to-strong positive, and statistically significant correlation ($r(50) = 0.573, p < .001$) (see Table 5). This result suggests that English educators who report higher levels of digital literacy also typically have higher levels of self-efficacy.

Table 5*Correlation Matrix*

		Digital Literacy Score	Self-Efficacy Score
Digital Literacy Score	Pearson's r	—	—
	df	—	—
	p -value	—	—
Self-Efficacy Score	Pearson's r	0.573***	—
	df	50	—
	p -value	<.001	—

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

The alternative hypothesis (H1) is considered accepted by this finding, confirming the positive relationship between English language educators' digital literacy and their

sense of self-efficacy. Consequently, the null hypothesis (H0), according to which there was no correlation between the two variables, was rejected.

Regression Analysis

A simple linear regression analysis with three multiple regression models was conducted in order to answer the research question: To what degree does digital literacy predict the self-efficacy of English language educators? These models included digital literacy as the primary predictor and controlled for two socio-demographic variables such as age and years teaching experience. In Model 1, the only predictor variable was digital literacy. This model tested the direct relationship between teachers' self-efficacy and their digital literacy scores. Model 2 included two control variables such as age and years of teaching experience along with digital literacy. This model allowed the analysis to test the unique contribution of digital literacy to self-efficacy while controlling for the possible effects of age and years of teaching experience. Model 3 tested the predictive power of age and teaching experience alone on self-efficacy excluding digital literacy in order to determine whether demographic traits alone could explain the variation in self-efficacy levels. All regression models were estimated using all 52 responses. The dependent variable, self-efficacy score, was the outcome variable in all three models.

The results of the Model 1 showed that self-efficacy was significantly predicted by digital literacy ($B = 0.464$, $SE = 0.093$, $t(50) = 4.95$, $p < .001$) (see Table 6). The adjusted R^2 value was 0.315, which indicates that the digital literacy alone could explain 31.5% of the variation in self-efficacy scores.

Table 6*Model Fit Measures*

Model	Adjusted R²
1	0.315

Note. Models estimated using sample size of $N = 52$

Model Coefficients - Self-Efficacy Score

Predictor	Estimate	SE	<i>t</i>	<i>p</i>
Intercept	2.576	0.4656	5.53	<.001
Digital Literacy Score	0.464	0.0937	4.95	<.001

According to the results of the Model 2, digital literacy remained a statistically significant predictor ($B = 0.2396$, $SE = 0.1032$, $t(48) = 2.32$, $p = .025$) even when controlling for the other two variables. Teaching experience also demonstrated a significant positive association with self-efficacy ($B = 0.1245$, $SE = 0.0404$, $t(48) = 3.08$, $p = .003$), while age did not reach standard levels of significance ($B = -0.0716$, $SE = 0.0373$, $t(48) = -1.92$, $p = .061$). The adjusted R^2 value increased to 0.539, suggesting that the three predictors together accounted for 53.9% of the variance in self-efficacy (see Table 7).

Table 7*Model Fit Measures*

Model	Adjusted R²
1	0.539

Note. Models estimated using sample size of $N = 52$

Model Coefficients - Self-Efficacy Score

Predictor	Estimate	SE	<i>t</i>	<i>p</i>
Intercept	4.5040	1.1404	3.95	<.001
Digital Literacy Score	0.2396	0.1032	2.32	0.025
Indicate your age.	-0.0716	0.0373	-1.92	0.061
How many years have you been teaching?	0.1245	0.0404	3.08	0.003

The finding that digital literacy alone explains over 30% of the variation in educators' self-efficacy indicates a practically meaningful effect, especially in the context of professional development planning. When demographic factors are considered alongside digital skills, over half of the variance in self-efficacy is accounted for, suggesting that targeted interventions in these areas could substantially improve teachers' confidence.

Digital literacy was excluded from the testing in Model 3, which used age and teaching experience as predictors only. Both predictors were statistically significant in this model: teaching experience had a positive effect ($B = 0.187$, $SE = 0.0314$, $t(49) = 5.96$, $p < .001$), while age had a negative association with self-efficacy ($B = -0.127$, $SE = 0.0300$, $t(49) = -4.23$, $p < .001$). The adjusted R^2 for this model was 0.498, indicating that these two demographic factors together explained nearly 50% of the variance in self-efficacy (see Table 8).

Table 8

Model Fit Measures

Model	Adjusted R²
3	0.498

Note. Models estimated using sample size of $N = 52$

Model Coefficients - Self-Efficacy Score

Predictor	Estimate	SE	<i>t</i>	<i>p</i>
Intercept	6.733	0.6418	10.49	<.001
Indicate your age.	-0.127	0.0300	-4.23	<.001
How many years have you been teaching?	0.187	0.0314	5.96	<.001

Together, these three models offer a clear picture of predictive relationship between English language educators' self-efficacy and digital literacy. By showing that digital literacy is a statistically significant predictor of English language educators' self-efficacy

and that teaching experience also has a significant effect on educators' self-efficacy, these findings provide an answer to the research question.

The findings of the study are also consistent with recent changes in Kazakhstan's higher education system, where academic institutions are using digital tools extensively to improve instruction. The wider integration of ICT in education has been supported by institutional efforts to adopt digital tools, which have enhanced access and instructional delivery (Nurtayeva et al., 2024). Kurakbayeva and Xembayeva's (2025) findings that digital educational interventions improve learners' creativity, engagement, and preparedness – factors that probably reinforce teachers' confidence in using such tools effectively – are supported by the study's observed link between English language educators' digital literacy and their sense of self-efficacy.

Discussion

This chapter presents an interpretation and analysis of the findings on the relationship between English language educators' digital literacy and their sense of self-efficacy in the context of higher education institutions (HEIs), in Astana. The purpose of this study was to examine whether digital literacy is correlated with and predictive of English language educators' self-efficacy. The research was guided by the following question: To what extent does digital literacy predict English language educators' self-efficacy? The following hypotheses were formulated to address this:

H1: There is a positive correlation between English language educators' digital literacy and their sense of self-efficacy.

H0: There is no relationship between English language educators' digital literacy and their sense of self-efficacy.

Overview of Key Findings

The quantitative analysis showed that digital literacy had a statistically significant moderate to strong positive correlation with self-efficacy ($r = 0.573, p < .001$). The results of a simple linear regression showed that digital literacy was a significant predictor of self-efficacy ($B = 0.464, SE = 0.093, t(50) = 4.95, p < .001$) and could explain approximately 31.5% of the variance in self-efficacy (the adjusted $R^2 = 0.315$). These results offer strong evidence for the alternative hypothesis (H1) and enable the null hypothesis (H0) to be rejected. The results of the study indicate that digital literacy is an important factor that influences the beliefs of educators regarding their teaching effectiveness: English language educators who consider themselves to be digitally competent also express higher levels of confidence in their ability to instruct.

Interpretation of Results in Light of Literature

In contemporary educational settings, higher education institutions consider digital competence as an essential teaching requirement rather than an optional addition. These findings are consistent with those of Tafazoli et al. (2017) and Hidalgo et al. (2020), who reported that language teachers actively develop digital competencies and that such a skill directly adds value to the classroom and improves the students' engagement. Mastering digital resources allows the teachers to control the classrooms better, present the content in multiple formats, and create an interactive learning environment.

According to Gomez et al. (2021) and Chen (2019), who highlighted the use of technology as an incentive for better instruction and assessment, these results also mirror the larger trend towards digital transformation in HEI. An educator's perceptions of professional competence and instructional autonomy are directly impacted by their proficiency in digital platforms, learning management systems, and communication tools, which are becoming essential components of the academic experience.

The results of this study are noteworthy because they closely match those of Hatlevik's (2016) study, which found that ICT-related self-efficacy accounted for 41% of the variance in digital competence, which is similar to the 31.5% variance explained in this study. In a similar vein, Pertiwi et al. (2022) discovered that vocational teachers' capacity to create and present digital learning resources was greatly improved by their competence with ICT. The research expands current knowledge into the less studied field of English language education at universities and demonstrates that similar patterns are present.

This relationship is further supported by the descriptive statistics. Self-efficacy ($M = 4.86$) and digital literacy ($M = 4.92$) were both reported with high average scores and low standard deviations, which indicates agreement amongst the responses. This implies that, regarding self-efficacy and digital literacy, a majority of educators in the sample

considered themselves both able and confident in their abilities to teach. A combination of digital skills and significant work experience is a likely cause of this self-perception as respondents reported an average of 12 years of teaching. High self-perceived competence with digital tools likely facilitates teachers' willingness to adapt to new instructional settings, resolve technical problems, and apply innovative pedagogical approaches.

This concentration of high scores is also reflected in the non-normal distribution of the variables, which may be explained by a ceiling effect (Nikolopoulou, 2023). In that case most participants consistently rated themselves highly, leading to a clustering of responses. Self-selection bias and social desirability may have affected the responses as well: educators who were more confident and competent in digital domains might have been more willing to participate in a digital survey, and participants might have been more likely to present themselves favorably. Given the survey's format and the participants' professional status, it is reasonable to expect a desire to appear competent in both technical and pedagogical domains.

Moreover, the substantial majority of respondents (94.3%) who reported they were “familiar” or “very familiar” with digital tools illustrates their strong technological confidence which likely enhances their sense of self-efficacy. This observation strengthens the core argument of the study: digital literacy not only supports instructional practice, but profoundly contributes to educators' professional identity and self-esteem as well.

The results, other than supporting previous literature, indeed offer a contrast to the findings of Özdemiş and Önal (2022) regarding EFL teachers' self-efficacy in technology use. In this study, participants possessed strong pedagogical knowledge, but still, self-efficacy in using technology was low. This difference could be due to contextual factors. The educators participating in this study were from Astana's higher educational institutions, which might be better equipped with institutional support, digital

infrastructure, and professional development opportunities, leading to a higher sense of confidence with technology use. Thus, while the findings of this study differ from those of Özdemir and Önal (2022), they still support their argument regarding the relevance of resource and training access to technology self-efficacy.

Contribution to Knowledge

The research addresses an important gap that exist in current studies. The majority of existing studies focus on pre-service teachers, educators in vocational school settings, and primary and secondary teachers (Chen, 2019; Hatlevik, 2016; Pertiwi et al., 2022; Poulou et al., 2018; Šabić et al., 2022; Zee & Koomen, 2016) but in-service university instructors receive less attention. The findings of this research provides new data about the understudied population of higher education faculty to understand how digital literacy supports teacher self-efficacy in educational settings.

The research adds value to existing literature by adding culturally and geographically diverse data, specifically by using Central Asian data from English language educators in Astana as a specific context. The study highlights how access to appropriate digital tools and training combined with institutional support for language educators strengthens the digital literacy–self-efficacy relationship in different educational systems.

Practical Significance

The results of the current study indicate that digital literacy significantly predicts teachers' self-efficacy, with digital skills alone accounting for approximately 31.5% of the variance in perceived confidence. When demographic factors such as teaching experience are included, this increases to nearly 54%, which is substantial in educational psychology. These findings suggest that initiatives aimed at improving teachers' digital literacy may have broader effects on instructional confidence and pedagogical engagement. Thus,

practical efforts to support professional development should consider digital competencies as foundational to teacher empowerment and effectiveness.

Conclusion

In conclusion, the research demonstrates that English language educators who develop digital literacy skills will boost their professional confidence and teaching effectiveness. The study emphasizes that digital skill development requires ongoing investment because it leads to enhanced self-efficacy and better instructional quality in the modern digital educational environment. The research implications guide educational policy development as well as professional development design and institutional support systems to create environments that enable educators to succeed in contemporary classrooms.

Conclusion

This study aimed to investigate the relationship between English language educators' digital literacy and their sense of self-efficacy in the context of higher education institutions in Astana, Kazakhstan. This study is timely and relevant given the digitalization of higher education institutions and the role of self-efficacy of educators in teaching and learning cannot be overemphasized. As universities in Kazakhstan are in the process of modernization and digitalization of their infrastructure and pedagogical practices, it is crucial to identify the factors that affect the readiness and confidence of educators to use digital tools. The current study empirically investigated the relationship between digital literacy and self-efficacy and the implications of this relationship for future scholarship, professional development, and educational policy.

The purpose of the study was to determine whether English language educators' digital literacy predicts their sense of self-efficacy, and to what extent. The study was guided by the research question: To what extent does digital literacy predict English language educators' self-efficacy? To address it, two hypotheses were proposed:

H1: There is a positive correlation between English language educators' digital literacy and their sense of self-efficacy.

H0: There is no relationship between English language educators' digital literacy and their sense of self-efficacy.

The study carried out a quantitative, survey-based research design. Data were collected using two well-established instruments such as Digital Literacy Scale (Ng, 2012) and Teachers' Sense of Efficacy Scale (Tschannen-Moran & Hoy, 2001). The two instruments were merged into one questionnaire and adapted to a six-point Likert scale for consistency. The survey was distributed to English language educators at higher education

institutions in Astana using a combination of convenience and random sampling. A total of 52 valid responses were received, and data were analyzed using Jamovi software.

Summary of Key Findings

According to descriptive analysis, participants generally rated themselves highly in both digital literacy ($M = 4.92$) and self-efficacy ($M = 4.86$), suggesting a confident, digitally-aware teaching population. Although the Shapiro-Wilk test showed that the data were not normally distributed, the Pearson's correlation analysis was applied, following standard practice for continuous variables (Field, 2009; Norman, 2010, Ghasemi & Zahediasl, 2012). The results showed a statistically significant, moderate to strong positive correlation between digital literacy and self-efficacy ($r = 0.573, p < .001$). Linear regression analysis further supported the predictive relationship: digital literacy significantly predicted self-efficacy ($B = 0.464, SE = 0.093, t(50) = 4.95, p < .001$), accounting for 31.5% of the variance in self-efficacy (the adjusted $R^2 = 0.315$).

These findings support the alternative hypothesis (H1), confirming that a significant positive relationship exists between digital literacy and self-efficacy among English language educators in higher education in Astana. The study's findings contribute to existing literature by reinforcing the idea that teachers who perceive themselves as digitally literate also tend to feel more confident in their teaching abilities. These results align with prior studies emphasizing the role of digital competence in enhancing teachers' effectiveness, motivation, and adaptability (Hatlevik, 2016; Hidalgo et al., 2020; Tafazoli et al., 2017).

In the discussion, the findings were further interpreted in relation to the literature review. The correlation and predictive strength between the two variables are consistent with international and local findings. For instance, Hatlevik (2016) reported that ICT-related self-efficacy accounted for 41% of variance in digital competence, a result close to

the 31.5% found in this study. Similarly, Kurakbayeva and Xembayeva (2025) noted that digital interventions like MOOCs improved learners' readiness and creativity – skills that may contribute to educators' confidence when using technology in the classroom. In Kazakhstan's context, universities are making rapid strides toward digitization, transitioning toward "smart universities" that incorporate AI and interactive platforms (Musina, 2024). The high levels of digital tool familiarity and teaching experience among the respondents likely contributed to the strong relationship found in this study.

Thus, the study's central argument is affirmed: English language educators who perceive themselves as digitally competent are also likely to feel confident in their instructional abilities. This has important implications not only for understanding the current state of teacher readiness in Kazakhstan but also for shaping future initiatives to support educators.

Implications and Recommendations

The results of this research have meaningful contribution to the to the literature on teacher education and digital competence by incorporating empirical data from Central Asian educational context, a region that is still insufficiently represented in international scholarship. This study expands the cultural and geographical diversity of studies on digital literacy and self-efficacy by focusing on English language educators in higher education institutions in Astana. This study provides new data regarding in-service university educators, whereas previous research has mostly focused on school-level or pre-service teachers and on Western or East Asian contexts. It demonstrates that digital literacy is a cognitive and psychological tool that enhances teachers' instructional confidence in addition to being a technical skill. This finding supports and expands on Bandura's (1995) social cognitive theory in digitalised academic settings by illustrating how digital literacy enhances self-efficacy through perceived competence and control.

The findings have practical implications for higher educational institutions as well. First and foremost, the findings underscore the importance of digital literacy as a driver of teacher self-efficacy. As such, institutions should prioritize professional development programs that specifically target the development of digital skills in pedagogically meaningful ways. Training workshops, ongoing mentorship, and collaborative learning communities could be valuable platforms for teachers to improve their digital competence and increase their confidence in applying these skills in classroom settings. Continuous, context-sensitive training should be created by institutions to guarantee that teachers are prepared to use digital tools pedagogically as well as technically. The study also emphasises the need for strong institutional support, which includes access to up-to-date educational software, reliable digital infrastructure, and ongoing technical support. This includes providing stable internet access, updated software, technical assistance, and platforms that are user-friendly and aligned with curriculum goals. Institutional support plays a crucial role in empowering educators to adopt and adapt to digital tools effectively.

This study provides evidence that the integration of digital literacy into teacher training curricula can have long-term benefits. As the field of English language education continues to evolve in response to technological innovation, integrating digital tools into instructional practice will become even more essential. Equipping teachers with these competencies early in their careers can lead to improved student outcomes, more innovative classroom environments, and higher levels of job satisfaction among educators.

The finding that digital literacy predicts 31.5% of the variance in self-efficacy suggests that targeted training programs could have a meaningful and measurable impact on educators' instructional confidence. This highlights the need for policy-makers to fund and scale such interventions across institutions.

Finally, for practicing educators, particularly in the field of English language education, the study emphasises the importance of actively engaging with digital technologies. Educators are more likely to develop strong self-efficacy beliefs when they foster digital literacy, and these beliefs can enhance student engagement, instructional design, and classroom management. This implies that in contemporary higher education settings, digital skills are essential teaching competencies rather than merely optional supplements.

Limitations

As with any research, this study has several limitations that should be acknowledged. One of the primary limitations is the sample size. Although 52 responses were adequate for conducting the chosen statistical tests, the small sample limits the generalizability of the findings. A larger sample size would have enhanced the study's external validity and provided a more representative picture of the broader population of English language educators in Kazakhstan.

Second, the study relied solely on self-reported data collected via online surveys. While the use of validated instruments enhances the credibility of the data, self-reports are inherently subjective and may be influenced by social desirability bias or inaccurate self-assessment. Future research could incorporate classroom observations, interviews, or peer assessments to triangulate and validate self-reported data.

Finally, the study was limited to higher education institutions in Astana, which may not fully represent the diversity of institutional settings across Kazakhstan. Cultural, geographic, and institutional differences may influence both access to digital resources and attitudes toward technology use. Broader regional studies would help confirm whether the findings are applicable to other contexts.

Future Research Suggestions

Building on the current study, future research could explore several avenues to deepen the understanding of the relationship between digital literacy and self-efficacy among educators. First, researchers may conduct comparative studies across different cities or regions in Kazakhstan, or even internationally, to identify contextual variables that influence digital competence and teaching confidence. Such comparative analyses would provide insight into how educational policy, infrastructure, and culture shape teachers' experiences with technology.

Second, longitudinal studies would be beneficial in examining how teachers' digital literacy and self-efficacy evolve over time, particularly as new technologies emerge and as educators receive further training. Understanding these trajectories can guide the design of more effective, long-term professional development programs.

Third, researchers might investigate the role of specific digital tools or platforms in shaping educators' sense of self-efficacy. For instance, does familiarity with collaborative tools like Google Workspace or educational platforms like Moodle correlate more strongly with confidence than general digital literacy? Delving into specific technologies could yield practical recommendations for teacher training.

Fourth, future studies could expand the scope to include students' perspectives, particularly in assessing how educators' digital literacy impacts the learning experience. Students' feedback can offer another valuable dimension to understanding the implications of digitally competent teaching.

Lastly, future research could explore interventions that aim to improve both digital literacy and self-efficacy. Experimental or quasi-experimental designs involving pre- and post-assessments of targeted training programs could yield valuable evidence on what works in building digitally empowered and confident educators.

Conclusion

In conclusion, this study has shown that digital literacy is significantly associated with English language educators' sense of self-efficacy in the context of higher education in Astana, Kazakhstan. As digital technologies continue to reshape the educational landscape, the capacity of educators to navigate and utilize these tools confidently is of growing importance. The results of this study highlight not only the current strengths of educators in this area but also the opportunities for further development, institutional support, and targeted training. By fostering both digital competence and self-efficacy, educational systems can better equip teachers to meet the demands of 21st-century classrooms and contribute meaningfully to students' academic success and lifelong learning.

References

- Bandura, A. (1995). *Self-Efficacy in changing societies*. Cambridge University Press.
<https://doi.org/10.1017/cbo9780511527692>
- Bandura, A., Freeman, W. H., & Lightsey, R. (1999). Self-efficacy: The exercise of control. *Journal of Cognitive Psychotherapy*, *13*(2), 158–166.
<https://doi.org/10.1891/0889-8391.13.2.158>
- Bandura, A. (2006). Toward a psychology of human agency. *Perspectives on Psychological Science*, *1*(2), 164–180. <https://doi.org/10.1111/j.1745-6916.2006.00011.x>
- Cambridge Dictionary. (n.d.). Self-efficacy. In *dictionary.cambridge.org/dictionary*. Retrieved December 3, 2024, from <https://dictionary.cambridge.org/dictionary/english/self-efficacy>
- Chen, A. (2019). *ESL teachers' self-efficacy toward pedagogical use of digital technologies: an exploratory case study in the Ontario context* [Publication No. 6422] [Master's thesis, The University of Western Ontario]. Electronic Thesis and Dissertation Repository. <https://ir.lib.uwo.ca/etd/6422>
- Chiu, T. K. F., Sun, J. C.-Y., & Ismailov, M. (2022). Investigating the relationship of technology learning support to digital literacy from the perspective of self-determination theory. *Educational Psychology*, *42*(10), 1263–1282.
<https://doi.org/10.1080/01443410.2022.2074966>
- Cotos, E. (2011). Potential of automated writing evaluation feedback. *CALICO Journal*, *28*(2), 420–459. <https://doi.org/10.11139/cj.28.2.420-459>
- Culp-Roche, A., Hardin-Fanning, F., Tartavouille, T., Hampton, D., Hensley, A., Wilson, J. L., & Wiggins, A. T. (2021). Perception of online teacher self-efficacy: A multi-

- state study of nursing faculty pivoting courses during COVID 19. *Nurse Education Today*, 106, 105064. <https://doi.org/10.1016/j.nedt.2021.105064>
- Creswell, J. W., Creswell, J. D. (2018). *Research design. qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- Field, A. (2009). *Discovering statistics using SPSS*. SAGE Publications.
- Gbemu, L. A., Sarfo, F. K., Adentwi, K. I., & Aklassu-Ganan, E. K. K. (2020). Teacher educators' self-efficacy beliefs and actual use of ICTS in teaching in the Kumasi metropolis. *The Turkish Online Journal of Educational Technology*, 19(2), 13–23. <https://files.eric.ed.gov/fulltext/EJ1251121.pdf>
- George, D., & Mallery, P. (2016). *IBM SPSS statistics 23 step by step: A simple guide and reference* (14th ed.). Routledge. <https://doi.org/10.4324/9781315545899>
- Ghasemi, A., & Zahediasl, S. (2012). Normality tests for statistical analysis: A guide for non-statisticians. *International Journal of Endocrinology and Metabolism*, 10(2), 486–489. <https://doi.org/10.5812/ijem.3505>
- Glister, P. (1997). *Digital Literacy*. Wiley.
- Gomez, F. C., Trespalacios, J., Hsu, Y., & Yang, D. (2021). Exploring teachers' technology integration self-efficacy through the 2017 ISTE standards. *TechTrends*, 66(2), 159–171. <https://doi.org/10.1007/s11528-021-00639-z>
- Guess, A. M., & Munger, K. (2023). Digital literacy and online political behavior. *Political Science Research and Methods*, 11(1), 110–128. <https://doi.org/10.1017/psrm.2022.17>
- Hatlevik, O. E. (2016). Examining the relationship between teachers' self-efficacy, their digital competence, strategies to evaluate information, and use of ICT at school. *Scandinavian Journal of Educational Research*, 61(5), 555–567. <https://doi.org/10.1080/00313831.2016.1172501>

- Hidalgo, F. J. P., Parra, M. E. G., & Abril, C. A. H. (2020). Digital and media competences: Key competences for EFL teachers. *Teaching English With Technology*, 20(1), 43–59. <https://files.eric.ed.gov/fulltext/EJ1242656.pdf>
- Hussain, M. S., Khan, S. A., & Bidar, M. C. (2022). Self-Efficacy of teachers: A review of the literature. *Multi-Disciplinary Research Journal*, 10(1), 110-116.
- Khamza, A., Zhanguit, B., Omarbekova, A., & Nurman, S. (2024). Digital technologies in education. *Scientific Herald of Uzhhorod University Series Physics*, 2024(55), 1955–1964. <https://doi.org/10.54919/physics/55.2024.195bw5>
- Kim, K. R., & Seo, E. H. (2018). The relationship between teacher efficacy and students' academic achievement: A meta-analysis. *Social Behavior and Personality: An International Journal*, 46(4), 529–540. doi.org/10.2224/sbp.6554
- Krause, M., Pietzner, V., Dori, Y. J., & Eilks, I. (2017). Differences and developments in attitudes and self-efficacy of prospective chemistry teachers concerning the use of ICT in education. *Eurasia Journal of Mathematics Science and Technology Education*, 13(8), 4405-4417. <https://doi.org/10.12973/eurasia.2017.00935a>
- Kurakbayeva, A., & Xembayeva, S. (2025). Enhancing professional abilities of university students through digital educational interventions: a study in Kazakhstani universities. *Frontiers in Education*, 9. <https://doi.org/10.3389/feduc.2024.1478622>
- Künsting, J., Neuber, V., & Lipowsky, F. (2016). Teacher self-efficacy as a long-term predictor of instructional quality in the classroom. *European Journal of Psychology of Education*, 31(3), 299–322. doi.org/10.1007/s10212-015-0272-7
- Mannila, L., Nordén, L., & Pears, A. (2018). Digital competence, teacher self-efficacy and training needs. In *ICER 2018 - Proceedings of the 2018 ACM Conference on International Computing Education Research* (pp. 78-85). ACM. <https://doi.org/10.1145/3230977.3230993>

- Musina, S. (2024). Application of digital tools in the management of universities in Kazakhstan. *Management of Education*, 14(8–1), 278–285.
<https://doi.org/10.25726/m0622-8545-9759-g>
- Ng, W. (2012). Can we teach digital natives digital literacy? *Computers & Education*, 59, 1065–1078. <https://doi.org/10.1016/j.compedu.2012.04.016>
- Nikolopoulou, K. (2023). What is a ceiling effect? Definition and examples. *Scribbr*. Retrieved April 1, 2025, from <https://www.scribbr.com/research-bias/ceiling-effect/>
- Norman G. (2010). Likert scales, levels of measurement and the "laws" of statistics. *Advances in health sciences education : theory and practice*, 15(5), 625–632. <https://doi.org/10.1007/s10459-010-9222-y>
- Nunnally, J.C. and Bernstein, I.H. (1994) The Assessment of Reliability. *Psychometric Theory*, 3, 248-292.
- Nurtayeva, D., Kredina, A., Kireyeva, A., Satybaldin, A., & Ainakul, N. (2024). The role of digital technologies in higher education institutions: The case of Kazakhstan. *Problems and Perspectives in Management*, 22(1), 562–577.
[https://doi.org/10.21511/ppm.22\(1\).2024.45](https://doi.org/10.21511/ppm.22(1).2024.45)
- Özdemir, O., & Önal, A. (2022). “EFL teachers” TPACK self-efficacy beliefs, web 2.0 competence and perceptions towards web 2.0 tools. *i-manager's Journal of Educational Technology*.
- Pertiwi, U.G., Vebriyanti, E.A., Nurani, L.M., & Waskita, D. (2022). Teacher’s Self-Efficacy on Designing Digital Material in E-Learning: A Case Study in a Vocational School. *Proceedings of the 67th TEFLIN International Virtual Conference & the 9th ICOELT 2021 (TEFLIN ICOELT 2021)*.

- Poulou, M. S., Reddy, L. A., & Dudek, C. M. (2018). Relation of teacher self-efficacy and classroom practices: A preliminary investigation. *School Psychology International*, *40*(1), 25–48. <https://doi.org/10.1177/0143034318798045>
- Punie, Y., Ferrari, A. & Brečko, B. N. (2013). *DIGCOMP: A framework for developing and understanding digital competence in Europe*. Joint Research Centre: Institute for Prospective Technological Studies. <https://data.europa.eu/doi/10.2788/52966>
- Razali, N. and Wah, Y. (2011). Power comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling tests. *Journal of Statistical Modeling and Analytics*, *2*, 21-33.
- Reddy, P., Sharma, B., & Chaudhary, K. (2020). Digital literacy: A review of literature. *International Journal of Technoethics (IJT)*, *11*(2), 65–94. <https://doi.org/10.4018/IJT.20200701.oa1>
- Šabić, J., Baranović, B., & Rogošić, S. (2022). Teachers' self-efficacy for using information and communication technology: The interaction effect of gender and age. *Informatics in Education*, *21*(2), 353-373. <https://doi.org/10.15388/infedu.2022.11>
- Saienko, N., Lavrysh, Y., & Lukianenko, V. (2020). The impact of educational technologies on university teachers' self-efficacy. *International Journal of Learning Teaching and Educational Research*, *19*(6), 323–336. <https://doi.org/10.26803/ijlter.19.6.19>
- Sánchez-Caballé, A., Gisbert-Cervera, M., & Esteve-Mon, F. (2020). The digital competence of university students: A systematic literature review. *Aloma Revista De Psicologia Ciències De L Educació I De L Esport*, *38*(1), 63–74. <https://doi.org/10.51698/aloma.2020.38.1.63-74>

- Spante, M., Hashemi, S. S., Lundin, M., & Algers, A. (2018). Digital competence and digital literacy in higher education research: Systematic review of concept use. *Cogent Education*, *5*(1), 1519143. <https://doi.org/10.1080/2331186x.2018.1519143>
- Tafazoli, D., Parra, M. E. G., & Abril, C. a. H. (2017). Computer literacy: Sine qua non for digital age of language learning and teaching. *Theory and Practice in Language Studies*, *7*(9), 716-722. <https://doi.org/10.17507/tpls.0709.02>
- Täschner, J., Dicke, T., Reinhold, S., & Holzberger, D. (2024). “Yes, I Can!” A systematic review and meta-analysis of intervention studies promoting teacher self-efficacy. *Review of Educational Research*, *95*(1), 3-52. <https://doi.org/10.3102/00346543231221499>
- Toropova, A., Myrberg, E., & Johansson, S. (2020). Teacher job satisfaction: The importance of school working conditions and teacher characteristics. *Educational Review*, *73*(1), 71–97. doi.org/10.1080/00131911.2019.1705247
- Tschannen-Moran, M., & Hoy, A. (2001). Teacher efficacy: capturing an elusive concept. *Teaching and Teacher Education*, *17*, 783–805. [https://doi.org/10.1016/S0742-051X\(01\)00036-1](https://doi.org/10.1016/S0742-051X(01)00036-1)
- Vodă, A. I., Cautisanu, C., Grădinaru, C., Tănăsescu, C., & De Moraes, G. H. S. M. (2022). Exploring digital literacy skills in social sciences and humanities students. *Sustainability*, *14*(5), 2483. <https://doi.org/10.3390/su14052483>
- Zee, M., & Koomen, H. M. Y. (2016). Teacher self-efficacy and its effects on classroom processes, student academic adjustment, and teacher well-being: A synthesis of 40 years of research. *Review of Educational Research*, *86*(4), 981–1015. <https://doi.org/10.3102/0034654315626801>
- Zee, M., & Koomen, H. (2020). Engaging children in the upper elementary grades: unique contributions of teacher self-efficacy, autonomy support, and student-teacher

relationships. *Journal of Research in Childhood Education*, 34(4), 477–495.

doi.org/10.1080/02568543.2019.1701589

Appendix A

Teachers' Sense of Self-efficacy Scale

Socio-demographic characteristics of the respondents

What is your age? Use numbers. (Specific numbers)

What is your gender? (Male, Female, Other/Prefer not to say)

How many years have you been teaching? Use numbers. (Specific numbers)

What is your highest level of educational qualification? (Bachelor's degree, Master's degree, PhD, Candidate, Other)

How familiar are you with using digital tools and technologies in your teaching? (Not at all familiar, Somewhat familiar, Familiar, Very familiar)

1 (nothing), 2 (very little), 3 (some influence), 4 (quite a bit), 5 (a great deal)

Teacher Beliefs	How much can you do?				
	Nothing	Very little	Some influence	Quite a bit	A great deal
How much can you do to control disruptive behavior in the classroom?	1	2	3	4	5
How much can you do to motivate students who show low interest in school work?	1	2	3	4	5
How much can you do to get students to believe they can do well in school work?	1	2	3	4	5
How much can you do to help your students value learning?	1	2	3	4	5
To what extent can you craft good questions for your students?	1	2	3	4	5
How much can you do to get children to follow classroom rules?	1	2	3	4	5
How much can you do to calm a student who is disruptive or noisy?	1	2	3	4	5
How well can you establish a classroom management system with each group of students?	1	2	3	4	5
How much can you use a variety of assessment strategies?	1	2	3	4	5
To what extent can you provide an alternative explanation or example when students are confused?	1	2	3	4	5

How much can you assist families in helping their children do well in school?	1	2	3	4	5
How well can you implement alternative strategies in your classroom?	1	2	3	4	5

Appendix B

Digital Literacy Scale

1 (not proficient), 2 (somewhat proficient), 3 (proficient), 4 (very proficient)

Attitudes towards ICT for Teaching				
1. I enjoy using ICT in my teaching.	1	2	3	4
2. ICT enhances the effectiveness of my teaching.	1	2	3	4
3. ICT makes teaching more engaging for my students.	1	2	3	4
4. I feel more motivated to teach when using ICT.	1	2	3	4
5. ICT enables me to provide more personalized and independent learning opportunities for my students.	1	2	3	4
6. I see great potential in using mobile technologies (e.g., tablets, smartphones, apps) to support teaching and learning.	1	2	3	4
7. I believe ICT should be an integral part of my teaching practices.	1	2	3	4
8. I know how to troubleshoot technical problems independently.	1	2	3	4
9. I can easily learn to use new technologies relevant to teaching.	1	2	3	4
10. I stay informed about important new educational technologies.	1	2	3	4
11. I am familiar with a wide range of digital tools and technologies.	1	2	3	4
12. I have the technical skills needed to create teaching materials (e.g., presentations, videos, online quizzes, blogs) that enhance student learning.	1	2	3	4
13. I have strong ICT skills that support my teaching and professional development.	1	2	3	4
14. I am confident in my ability to search for, evaluate, and apply online resources for teaching purposes.	1	2	3	4
15. I am aware of issues related to web-based activities, such as cyber safety, plagiarism, and copyright.	1	2	3	4
16. ICT enables me to collaborate effectively with colleagues on lesson planning, project work, and other teaching-related activities.	1	2	3	4
17. I frequently engage with professional learning networks and communities online to enhance my teaching practices (e.g., through forums, webinars, or social media platforms).	1	2	3	4

Appendix C

Educators' Digital Literacy and Sense of Self-efficacy Survey

Socio-demographic characteristics of the respondents

What is your age? Use numbers. (Specific numbers)

What is your gender? (Male, Female, Other/Prefer not to say)

How many years have you been teaching? Use numbers. (Specific numbers)

What is your highest level of educational qualification? (Bachelor's degree, Master's degree, PhD, Candidate, Other)

How familiar are you with using digital tools and technologies in your teaching? (Not at all familiar, Somewhat familiar, Familiar, Very familiar)

Section I. Teachers' Sense of Self-efficacy Scale	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
I can control disruptive behavior in the classroom.	1	2	3	4	5	6
I can motivate students who show low interest in schoolwork.	1	2	3	4	5	6
I can encourage students to believe in their ability to succeed academically.	1	2	3	4	5	6
I can help my students value learning.	1	2	3	4	5	6
I can craft good questions for my students.	1	2	3	4	5	6
I can ensure that students follow classroom rules.	1	2	3	4	5	6
I can calm a student who is disruptive or noisy.	1	2	3	4	5	6
I can establish a classroom	1	2	3	4	5	6

management system for different groups of students.						
I can use a variety of assessment strategies effectively.	1	2	3	4	5	6
I can provide alternative explanations or examples when students are confused.	1	2	3	4	5	6
I can assist families in supporting their children's academic success.	1	2	3	4	5	6
I can implement alternative strategies to adapt my teaching when needed.	1	2	3	4	5	6
Section II. Digital Literacy Scale						
I enjoy using ICT in my teaching.	1	2	3	4	5	6
ICT enhances the effectiveness of my teaching.	1	2	3	4	5	6
ICT makes teaching more engaging for my students.	1	2	3	4	5	6
I feel more motivated to teach when using ICT.	1	2	3	4	5	6
ICT enables me to provide more personalized and independent learning opportunities for my students.	1	2	3	4	5	6
I see great potential in using mobile technologies (e.g., tablets, smartphones, apps) to support teaching and learning.	1	2	3	4	5	6

I believe ICT should be an integral part of my teaching practices.	1	2	3	4	5	6
I know how to troubleshoot technical problems independently.	1	2	3	4	5	6
I can easily learn to use new technologies relevant to teaching.	1	2	3	4	5	6
I stay informed about important new educational technologies.	1	2	3	4	5	6
I am familiar with a wide range of digital tools and technologies.	1	2	3	4	5	6
I have the technical skills needed to create teaching materials (e.g., presentations, videos, online quizzes, blogs) that enhance student learning.	1	2	3	4	5	6
I have strong ICT skills that support my teaching and professional development.	1	2	3	4	5	6
I am confident in my ability to search for, evaluate, and apply online resources for teaching purposes.	1	2	3	4	5	6
I am aware of issues related to web-based activities, such as cyber safety, plagiarism, and copyright.	1	2	3	4	5	6

ICT enables me to collaborate effectively with colleagues on lesson planning, project work, and other teaching-related activities.	1	2	3	4	5	6
I frequently engage with professional learning networks and communities online to enhance my teaching practices (e.g., through forums, webinars, or social media platforms).	1	2	3	4	5	6