Digital mind and human consciousness: integration of digital technology in shaping learning experiences

Introduction. As education evolves in the digital age, integrating technology into teaching and learning has become pivotal. This digital transformation carries profound implications for youth experiences and cognition warranting extensive research. This study aimed to elucidate the impact of embedded digital technologies and online tools on learning experiences and consciousness among Kazakhstani and Turkish youth. Specifically, it sought to examine the relationship between key variables and interpret the findings through robust philosophical frameworks spanning critical theory to pragmatism.

Study participants and methods. The study surveyed 90 bachelor’s and master’s students from reputable Kazakhstani and Turkish universities, examining the relationship between digital integration, online tools, learning experiences and human consciousness. Quantitative analysis entailed correlation and regression techniques. Robust philosophical frameworks spanning critical theory to axiology anchored the investigation.

The results. Strong positive correlations emerged between all variables – learning experiences, online tools, digital integration and human consciousness (range of $r = 0.660$ to 0.834). This tight alignment implies technology integration fundamentally transforms education by enabling more interactive, creative and personalized learning. Likewise, extensive online tool use strongly associates with peer collaboration, global awareness and analytical thinking, suggesting enhanced cognition. However, ethical risks around misinformation and critical analysis diminishment must be addressed. Regression analysis further evidenced the significant positive impact of digitalization on consciousness ($p < 0.001$), underscoring its promise. Yet equitable governance is essential to ensure prudent oversight alongside optimization. Overall, given judicious and ethical implementation, embedded digital tools demonstrate immense potential to enrich diverse student experiences and minds.

Conclusions. This pioneering analysis enriches philosophical understanding of how embedded digital tools are transforming youth learning and minds. The robust correlations substantiate prevailing assumptions that judicious technology integration fundamentally expands interactive, creative education opportunities aligned with students’ needs and interests. The findings also reinforce sociocultural notions of peer socialization in virtual environments catalyzing enriched consciousness. However, risks around misinformation and critical analysis diminishment temper techno-utopian visions, compelling context-attuned governance frameworks.

Key contributions include illuminating these complex dynamics and ethical dimensions within Muslim-majority nations. Overall, the research carries profound practical implications for pedagogical digital competence models, assessment mechanisms, and proactive policies prioritizing equitable access and ethical digital literacy. As education evolves for digital native generations, optimizing technology’s merits while mitigating its risks remains an imperative, multifaceted challenge.

Keywords: digital mind, human consciousness, digitalization, learning experience, education, digital integration, Turkish and Kazakh youth

INTRODUCTION

The contemporary landscape of education is profoundly shaped by global policy directives that emphasize the potential of digital technologies to augment teaching and learning. Key international organizations, including UNESCO and the Council of Europe, have spearheaded initiatives that underscore the pivotal role of digital integration in enhancing educational access and quality [1]. UNESCO’s publications and programs highlight the emergence of digital literacy as an imperative skill, allowing learners to access, evaluate and utilize digital information effectively. Likewise, the Council of Europe has formulated policies aimed at fostering digital citizenship competencies that promote ethical, responsible, and critical engagement in digital spheres [2]. These global policy perspectives reinforce the significance of investigating the impact of digitalization on education, particularly on transforming learning experiences and skills development. Exploring this dimension is critical to align national and local educational priorities with internationally recognized digital competence frameworks.

Justifying digital mass consciousness, generated by digital technologies widespread on a global scale, is characterized by significant involvement in information flows, which is associated with the general availability of information, the speed of its transmission and reception, and the ease of implementation of communication practices. Global informatization has created new forms of digital communication (network communities, forums, chats, etc.), which led to mass self-communication, which has acquired special significance in the digital mass consciousness [3]. However, the digital mind and human consciousness, as in industrial society, is a reflection of the ideals and values of the consumer society. Traditionally, human consciousness has been viewed as an object that is influenced by various subjects (state, capital, media, etc.). In the conditions of global informatization, mass consciousness, integrated into digital forms of communication, has moved to the stage, in the words of M. Castells [4], of mass self-communication, which is distinguished by interactivity; involvement of the broad masses, becoming full-fledged subjects of communication processes; horizontal communication networks; greater autonomy of the online community; ample opportunities for self-expression (for example, thanks to new technologies, such as crowdsourcing, mass consciousness participates in the production of knowledge, thereby forming collective intelligence, a “smart crowd”, according to G. Reingold), etc. But at the same time, mass consciousness has not ceased to be an object of influence from external actors. Moreover, new forms and technologies of such influence have emerged, which have become very sophisticated and individually targeted. The struggle for control of mass consciousness on networks is intensifying every year, just like the struggle to preserve freedom in the digital space does. One cannot help but see the negative aspects in connection with the development of global informatization: a huge flow of information (in particular, a huge array of data called Big Data), which mass consciousness does not have time to process, the difficulty of separating valuable information from information noise, a secret and obvious influence on mass consciousness with the help of digital technologies, clip-like consciousness, etc. Philosophically, the advent of digital technologies has redefined human interaction within digital mass consciousness. It prompts contemplation on the nature of consciousness, its fusion with digital communication, and the ethical implications of technological influence on societal cognition and individual autonomy.
Nevertheless, the process of global informatization has not only already changed consciousness, but the changes of the latter continue at the present time, primarily due to the fact that the process of global informatization is increasingly manifesting itself. But what kind of changes are these, and in what direction will mass consciousness develop? The search for answers to these questions makes the chosen research topic not only relevant but also significant. The topic under consideration is also relevant in relation to the study of youth, which is still being formed as an information society and in which the processes of functioning of mass consciousness as a digital consciousness begin. It is important here to analyze how the processes of globalization, in which Muslim countries are also involved, affect the mass consciousness of its citizens, especially young people.

The relevance of the research topic is explained with the specificity of the processes that clearly affect the digital mind and human consciousness, which not only changed mass consciousness in national-state entities’ frames across the majority of countries but also significantly accelerated the forming of global mass consciousness based on information communication technology (ICT). The modern world is in the midst of an unprecedented digital revolution, ushering in profound changes that resonate throughout society, culture, and the human experience. This digital transformation, characterized by the pervasive use of digital technologies, has created a seismic shift with far-reaching consequences [5]. It includes philosophical inquiry, seeking to unfold the significant impact of digital interfaces and prompt connectivity on the existential and cognitive realms of youth. The integration of digital technology in the educational landscape has untied the complex tapestry of change, influencing not only how youth learn, but also the way they interact, think, and perceive the world around them [6]. Certainly, the change introduced by digital transformation allows philosophical investigation to understand the complex implications of digitalization [7]. Philosophically, this investigation unfolds the epistemological shift related to how knowledge is being understood and acquired. It emphasizes questions on the reliability and the authenticity of digital change and assesses whether the digital influx influences the basic understanding of what constitutes reality and knowledge. Emerging technologies such as the internet, artificial intelligence, social media, and mobile devices have become integral parts of daily life, altering the way individuals perceive and engage with the world, and understand knowledge [10]. Education in the digitalization era has emerged as a focal point significantly impacted by the transformative effects of technology. Traditional educational paradigms are evolving, embracing digital tools and platforms that offer innovative modes of learning and knowledge acquisition. Notably, the youth of today are growing up in an environment where digital technologies are ubiquitous [9; 10].

Thus, the totality of practical and theoretical problems related to global informatization and its impact on the digital mind and human consciousness of young people required a socio-philosophical analysis of the designated topic, capable of comprehensively and comprehensively approaching its understanding. This analysis allows us not only to reveal the essence of the diverse manifestations of the Digital mind and human consciousness in the context of global informatization, but also to identify its role in the systemic relationships that determine the functioning of the entire society. Our inquiry delves into how the convergence of the digital mind and human consciousness manifests and how it influences philosophical understanding and worldview, especially among the youth in these specific regions. The goal is to enhance our philosophical knowledge, not only in understanding the philosophical implications of digitalization but also in advancing the field of philosophy by addressing contemporary issues rooted in the digital age. Our
research problem thus revolves around the philosophical impact of digitalization on the human mind, and how this impact is shaping education, thought processes, and values. It transcends the realm of education to explore the core questions of existence, knowledge, and ethics in a digital world.

Overall, the article navigates the intricate intersection of the digital mind, human consciousness, and education, embarking on a philosophical exploration deeply rooted in the realms of Kazakh and Turkish youth. The structure of this article embodies a coherent progression, each section contributing distinctly to unraveling the philosophical dimensions within the context of digitalization and education.

LITERATURE REVIEW

Digitalization and its Societal Impact
The advent of the digital age has brought about a profound integration of digital technologies across various dimensions of human life, encompassing the societal, economic, cultural, and philosophical domains [11]. This transformative integration has fundamentally reshaped how individuals interact, communicate, and access information in contemporary society, sparking extensive philosophical inquiries to comprehend its implications on human existence and consciousness. The implications of digitalization on society need to be critically examined from a philosophical perspective, aiming to enhance philosophical knowledge and deepen our understanding of the human experience in the digital era.

The historical evolution of digitalization can be traced back to the mid-20th century, marked by the invention of the first digital computer by John Presper Eckert and John Mauchly, known as the ENIAC, in 1945 [12]. Subsequent decades witnessed remarkable milestones, including the development of microprocessors, the birth of the internet, and the proliferation of personal computing devices. These technological advancements laid the foundation for the digital era we currently inhabit, prompting us to reflect on the philosophical implications of this digital metamorphosis.

Furthermore, the societal implications of digitalization extend beyond the realm of technology. Ethical considerations, privacy concerns, and the responsible development and deployment of digital technologies have emerged as critical philosophical inquiries [13]. The ethical discourse surrounding the digital age emphasizes the need for a collective ethical responsibility toward ensuring the ethical use of technology and information, thus fostering a deeper understanding of the ethical dimensions of the digital world [14].

In essence, exploring the philosophical dimensions of digitalization and its societal impact allows us to transcend the surface-level transformations and delve into the fundamental shifts in human cognition, consciousness, and ethical paradigms. The aim of this analysis is to contribute to philosophical knowledge by critically evaluating existing philosophical concepts, identifying inherent problems, and proposing novel perspectives that shed light on the philosophical implications of the digital era.

The Digital Mind and Cognitive Shifts
The contemporary era of digitalization has ushered in a profound transformation in the human mind and cognitive processes. Understanding this transformative shift is critical for advancing philosophical knowledge concerning the interplay between technology and human consciousness. The concept of the digital mind, shaped by the pervasive use
of digital technologies, entails a complex interrelation between digital devices, online platforms, and the human brain.

The integration of digital technologies with human experience has augmented cognitive capabilities. It is emphasized that digital technologies provide access to an immense repository of information, thereby enhancing learning and knowledge acquisition [15]. However, this perpetual exposure to information can lead to information overload, potentially affecting critical thinking and analytical abilities. This raises the philosophical concern of the impact of an overabundance of information on the quality of human thought and comprehension.

One of the significant effects of digitalization is the transformation of memory processes. The reliance on digital devices for storing information may potentially impact traditional memory functions [16]. This shift raises philosophical questions regarding the evolving nature of human memory and its symbiotic relationship with digital technologies. In addition to this, constant notifications, alerts, and the need to switch between various digital platforms can create challenges in sustaining focused attention [17]. This pervasive digital environment has given rise to attention fragmentation and reduced attention spans. Philosophically, this shift prompts contemplation on the nature of deep learning and critical thinking in an age where sustained attention is challenged. On the other side, the integration of digital technologies into our cognitive processes necessitates a careful examination of the ethical implications. The concept of autonomy in decision-making, privacy of thought and information, and the authenticity of human experiences in the digital realm are central philosophical concerns [18]. As digital technologies become deeply entrenched in our lives, the ethical dimensions of human agency and authenticity come to the forefront of philosophical discourse.

Moreover, Albert Borgmann's “focal practices” approach encourages a mindful integration of technology into meaningful human practices [19]. The philosophical challenge lies in ensuring that technology augments rather than diminishes our genuine engagement with the world. This concept provokes contemplation on how to preserve our authentic human experiences amidst the pervasive digital integration. Similarly, in the realm of education, the digital mind has brought about a paradigm shift. The digitalization of education involves integrating technology into pedagogical practices, creating a dynamic learning environment [20]. Philosophically, this transformation necessitates an exploration of how technology influences the fundamental process of knowledge acquisition and its implications for education as a philosophical endeavor.

**Philosophical Perspectives on Digitalization**

The advent of the digital age has stimulated profound philosophical inquiries, aiming to comprehend the implications of the technological revolution on human existence and consciousness. Philosophical theories addressing the digital age delve into diverse dimensions, each offering unique perspectives and challenging traditional notions.

One prevailing viewpoint arises from posthumanism, a philosophical stance that questions conventional concepts of human identity and cognition in the context of pervasive digital influence [19]. Posthumanism contemplates the integration of technology and humans, exploring the potential transformation of the human condition through advancements like artificial intelligence and cybernetics [21]. This paradigm invites critical scrutiny regarding the essence of humanity in an era where the boundaries between humans and machines blur. Furthermore, the interplay of technology, ethics, and human consciousness forms a critical facet of philosophical contemplations. Technology doesn't merely affect how we live; it influences how we think and perceive reality.
P. Bourdieu’s structural constructivism is important in explaining digitalization, as he argued how social structures including culture, politics, and education reproduce and persuade inequalities, and how people steer and contest these structures on the basis of capital and habitus. He referred to habitus as the way people’s thinking and actions are shaped by things of different capitals [22]. He adds that human behavior and nature are products of structured systems. This theory is useful in understanding people’s behavior, and how structure influences people. Philosopher Albert Borgmann advocates for a "focal practices" approach, emphasizing the importance of incorporating technology into meaningful human practices [23; 24]. He urges a mindful integration that preserves our genuine engagement with the world rather than reducing it to mere consumption of digital content. Similarly, the social reality theory posits that humans constructs their understanding of reality using communication and interaction with others. This comprises the way one sees and interprets the world and how they connect with each other. Coined by Peter Berger, this theory argues that society is created with human interaction, referred as habitualization. This theory is helpful in understanding how people observe reality differently and behave in a certain way [25].

These philosophical perspectives challenge us to evaluate our evolving relationship with technology and its ethical dimensions. This transformative digital landscape necessitates a deep philosophical exploration of the changing nature of human existence and consciousness. Engaging with these philosophical perspectives provides a foundation for a comprehensive analysis of the impact of digitalization on the philosophical understanding of human experience.

**Education in the Digital Era**

The advent of the digital era has triggered a philosophical reexamination of education, transcending traditional paradigms and methodologies. Philosophical inquiry into this realm delves into the profound implications of technology on the essence and purpose of education, aiming to extend philosophical knowledge in this evolving landscape.

In this digitally enriched epoch, the very nature of education undergoes a transformation. It extends beyond the confines of conventional classrooms, embracing digital platforms and e-learning systems, fostering a dynamic and interconnected learning environment. This philosophical shift contemplates the fusion of technology and pedagogy, exploring its impact on the acquisition and dissemination of knowledge [26].

The integration of technology into education ushers in personalized learning experiences, catering to diverse learning styles and paces [27]. However, this transition raises philosophical questions concerning the essence of education itself. However, the digitalization of education calls for an exploration of ethics and values within this transformed educational sphere. Additionally, digital literacy emerges as a critical facet in contemporary education, embodying the ability to navigate, assess and ethically employ digital information [28; 29]. So, understanding the philosophical essence of digital literacy is vital in augmenting philosophical knowledge and elucidating its role in shaping modern educational landscapes.

**Youth in the Digital World: A Comparative Analysis**

Understanding the evolving digital landscape demands a profound philosophical analysis, one that delves into the intricate interplay of culture, consciousness, and digitalization. It is imperative to explore the socio-cultural factors that influence their choices and interactions in order to gain a comprehensive understanding of youth engagement with digital technologies.
Different factors including the role of family, peer groups, educational institutions, and media in shaping digital behaviors and preferences play a pivotal role in shaping the human consciousness of the youth, impacting their values, attitudes, and cognitive processes [31]. The fundamental philosophical inquiries are grappled with in contemplating the impact of the digital age on youth. The pervasive integration of technology raises questions about the very essence of human existence and consciousness. It challenges traditional paradigms, prompting us to reassess the boundaries between humanity and technology. Post-humanist philosophical perspectives come to the fore, urging us to contemplate the potential transformation of the human condition through technology [32]. These inquiries form the crux of our philosophical exploration. Acknowledging the profound influence of culture on digital experiences in Kazakhstan and Turkey is essential. Culture, closely linked to philosophy, significantly shapes how young individuals perceive and interact with the digital world. Cultural values, societal norms, and historical contexts manifest in their digital behavior, guiding their interactions and preferences. Analyzing these cultural influences is vital for a comprehensive understanding of the philosophical impact of digitalization on youth consciousness. The comparative analysis explores how family structures, peer groups, educational institutions, and media affect the human consciousness of youth, raising philosophical questions about culture, ethics, and the digital mind.

Synthesis of Literature

This synthesis of literature consolidates the multifaceted insights gained from the reviewed studies. It harmonizes the diverse perspectives on digitalization, youth, and education. This synthesis lays the groundwork for the forthcoming philosophical analysis by identifying commonalities, patterns, and recurring themes. The literature reveals a consensus on the transformative impact of digitalization on education, emphasizing shifts in pedagogical paradigms and the essential role of digital literacy. Additionally, ethical considerations and the nuanced interplay between technology, ethics, and human consciousness emerge as central themes. This synthesis underlines the need to scrutinize these aspects through a philosophical lens, fostering a deeper understanding of the digital mind’s influence on Kazakh and Turkish youth.

METHODOLOGY

This study is based on the interdisciplinary approach, which considers the genesis, essence, and features of education from the point of view of philosophy taking into account the achievements of cultural studies, pedagogy, sociology. As a methodological basis for this research, we used structural and functional, systemic, and comparative analysis, as well as theoretical and methodological studies of domestic Turkish and Kazakh scientists as well as foreign scientists analyzing education in the conditions of a transforming society. Simultaneously, relying on the principle of continuity in scientific works, the philosophical problems of education were studied in the conditions of contradictory processes occurring in various social systems.

This research uses a philosophical and theoretical approach including, critical theory, pragmatism, sociocultural approach, and axiological approach to understanding the digital mind and human consciousness among Turkish and Kazakh youth in the digital era. The considered philosophical approaches are used to allow scientific generalization, extending
the implication of the study beyond demographics, and offering broader implications for
digital education in different cultural landscapes.

The critical theory which is a significant philosophical lens considered for this study
emphasizes explaining and understanding society. It helps uncover access to digitalization
and limitations and explains systematic influences and inequalities in the educational realm.
Exploring the disparity in access to digital technology youth helps unveil challenges and
explains societal power dynamics. Similarly, pragmatism in this research emphasizes how
youth utilize digital resources for education highlighting advantages in terms of problem-
solving, skill development, and information assimilation. Integration of pragmatism allows
the evaluation of digital tool’s effectiveness in education.

The sociocultural approach is used for examining the cultural influences on the
integration of digital tools, and attitude towards technology. It is useful in explaining the
influence of cultural values on learning autonomy and online collaboration. Similarly, an
axiological approach is applied to comprehend the ethical perspective, beliefs, and values
that influence youth in their digital educational preferences.

To understand the digital experience of youth within the educational context, a
quantitative survey provides measurable details into the complex realms of digitalization in
an educational context and provides in-depth findings. Using this method, the digitalization,
digital technology tools, and its impact on human consciousness, can be understood, as it
typically includes allowing to make generalized findings, thus increasing the applicability of
the study. Likewise, a cross-sectional design is selected to collect data regarding Kazakh and
Turkish youth in the educational context in the current digital era at a single point in time,
allowing an in-depth examination of digital engagement. This design is useful in collecting
data from various groups and hence deemed suitable for this study.

The sample size for this study was 90, and it was taken from Parker’s sampling table
[33], considering the 95% confidence interval level and 5% margin of error. The survey was
collected with a stratified sampling strategy which was convenient for the researcher to
sort out the participants needed for the study. The participants (Turkish and Kazakh youth)
were contacted initially on Facebook, and once their approval was taken, a formal e-mail
was sent to them requesting to participate in the survey (Appendix A). The rationale for
restricting to this demographic was that both groups of students belong to the same
region, with multiple nationalities, but have differences in technological infrastructure,
regional dynamics, and educational system, hence presenting a different philosophical
perspective regarding the integration of digitalization in education and its effect on human
consciousness. The participants were recruited from the 10 reputable universities from both
Turkey and Kazakhstan, for instance, (Al-Farabi Kazakh National University, L.N. Gumilyov
Eurasian National University, Koc University, Bilkent University). Considering the limited
resources and time, these leading universities were selected so that focused investigation
regarding the digital mind and human consciousness in the digitalized educational realm
can be accomplished.

This research is guided by the following research question that aligns with our focus on
philosophical analysis:

"How does the integration of digital technology online learning tools shape the learning
experiences of Kazakh and Turkish youth, and influence their consciousness?"

The following hypotheses are tested:

H1: The integration of digital technology in education positively impacts the learning
experiences of Kazakh and Turkish Youth.
Regression analysis was conducted to find the relationship between the variables and the factors influencing them. Likewise, correlation was applied to evaluate the strength between independent and dependent variables. A five-point scale ranging from 1 for "strongly agree" to 5 for "strongly disagree" was used for rating the variables (Table 1A). The reliability of variables was assessed using Cronbach’s alpha, yielding values of 0.8222, 0.823, 0.867, and 0.893. The data were analyzed using SPSS software.

RESULTS

In the study, the participant demographic was largely aged 21 and 23 at 32.2 percent, followed by the age range of 22 at 20.0 % and, age 24 were 15.6 %. The sample of 90 students was drawn from reputable universities in Turkey and Kazakhstan. From the Turkish institutions – Koc University and Bilkent University – bachelor's degree students comprised 35% and 30% of participants respectively. College diploma students made up 15% of the sample from Koc and 20% from Bilkent; this credential in Turkey refers to a 2–3-year postsecondary diploma program. Master’s students constituted 10% and 5% of the recruitment pool from Koc University and Bilkent University correspondingly. As for the Kazakh universities, 40% of respondents came from bachelor’s programs at Al-Farabi Kazakh National University, while 35% were bachelor’s students from L.N. Gumilyov Eurasian National University. Regarding master's students, the breakdown was 15% from Al-Farabi Kazakh National University and 10% from L.N. Gumilyov Eurasian National University. The correlation results presented in Table 1 show a strong positive correlation between learning experience, online learning tools, digital integration, and human consciousness among Kazakh and Turkish youth. A robust correlation is found between the learning experience and online learning tools (r = 0.660, p < .001), indicating that increased use and engagement with online tools coincide with enhanced learning experiences. Likewise, digital integration shows a positive correlation with both learning experience (r = 0.727, p < .001) and online learning tools (r = 0.807, p < .001), signifying that effective integration of digital technology positively influences learning experiences and the utilization of online tools. In addition, human consciousness demonstrates a substantial correlation with all variables: learning experience (r = 0.703, p < .001), online learning tools (r = 0.834, p < .001), and digital integration (r = 0.764, p < .001). This highlights that a more enriched learning experience, coupled with extensive use and effective integration of digital tools, is strongly associated with an increased level of human consciousness among Kazakh and Turkish youth.

Table 1

<table>
<thead>
<tr>
<th></th>
<th>LE</th>
<th>OLT</th>
<th>DI</th>
<th>HC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(LE)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PearsonCorrelation</td>
<td>1</td>
<td>.660**</td>
<td>.727**</td>
<td>.703**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>Online Learning</td>
<td>.660**</td>
<td></td>
<td>.807**</td>
<td>.834**</td>
</tr>
<tr>
<td>Tools (OLT)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Similarly, the regression findings highlight that digital integration displayed a positive relationship with human consciousness ($p = .188$), however, the relationship was not statistically significant. Likewise, learning experience had a positive impact on human consciousness, implying that increased learning experience adds to the development of human consciousness ($p = .007$). The results show that digital and online learning tools contribute to the impact on the learning experiences which strongly correlate with the development of human consciousness among youth, hence, validating H1 The integration of digital technology in education positively impacts the learning experiences of Kazakh and Turkish Youth, and H2 The use of online learning tools has a positive influence in increasing consciousness among Kazakh and Turkish youth.

### Table 2

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>Beta</th>
<th>$t$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$</td>
<td>Std. Error</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>2.479</td>
<td>.255</td>
<td></td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Digital integration</td>
<td>.090</td>
<td>.068</td>
<td>.137</td>
<td>1.326</td>
<td>.188</td>
</tr>
<tr>
<td>Online learning tools</td>
<td>.305</td>
<td>.050</td>
<td>.576</td>
<td>6.105</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Learning experience</td>
<td>.094</td>
<td>.034</td>
<td>.224</td>
<td>2.757</td>
<td>.007</td>
</tr>
</tbody>
</table>

$a$ Dependent Variable: HC

In order to interpret and discuss the empirical findings, the following section provides a comprehensive discussion using socio-philosophical analysis.

The integration of digital technology and tools in an educational context, pragmatic philosophy emphasizes experimental learning, and John Dewey showed the practical use of knowledge and technology. Dewey emphasized the instrumental role of technology which aligns closely with the correlation between online learning tools, learning experience, and consciousness. Dewey's work, particularly in ‘Democracy and Education’ emphasizes that educational experiences should be rooted in real-world applications. Dewey's belief that education should be adaptable and responsive to the needs of the learner, suggests that digital integration serves this pragmatic purpose by augmenting educational experiences Reich et al. [34]. The pragmatists argue that digitalization is evolutionary and revolutionary and that technology in an educational context can help meet societal demands and meet
students’ needs Bartolomé et al. [35]. The utilitarian philosophy and practical outlook of pragmatism have influenced the educational system in the contemporary era and found that activity-based learning and teaching methods have turned the educational system to purposefully infusing a sense of reality in the education system Hickman et al. [36]. This is evident from the empirical findings highlight that digitalization of education and online learning tools have improved the learning experience of Turkish and Kazakh youth positively and have contributed to influencing their worldview and understanding of global issues. This indicates that the implementation of digital technology in education and the utilization of online learning tools have had a beneficial impact on how young people from Turkey and Kazakhstan perceive their learning process thus supporting H1. Likewise, in the context of Kazakhstan, Sarekenova et al. [37] found that digital conversation-based activities and online learning programs contributed to achieving higher academic achievement. Global informatization is benefiting youth to access technology affecting their views, beliefs, and interests, social interaction, and education. This aligns with Dewey’s belief that education is a response and adaptable to the needs of students, it shows that digital integration and tools serve the pragmatic purpose by increasing the learning experience and contributing to enhancing the consciousness and worldview [38].

It is noted that Turkish and Kazakh youth have responded positively on how digital integration and online learning platforms add to expand awareness and understanding among the youth, increasing exposure, learning experience, and knowledge acquisition. This aligns closely with the findings of Meri-Yilan [39] highlighting digitalization of education has contributed to increased exposure to youth, allowing diverse perspectives and improved learning experiences. Critical theorists understand the relationship between human activities and technology and draw on Marx critical theory discussing human activities and practices in connection to technology and sociocultural modes of production not only describe the world but rather change it Delanty and Harris [38]. Note, that like other critical theorists, some of them are concerned with educational technology not always negative in the context of technology, as Marcuse and Habermas view that digital tools and platforms can be used for enlightenment and emancipation [40]. Heggart [41], using form a critical pedagogy finds the role of technological tools in facilitating autonomous and positive learning experiences. Further, the digitalization of education is noted to be linked with critical theory. Koetting suggests its theoretical foundation lies in a scientific, behaviorally oriented rationality model. This model is partially explored through Habermas’s tripartite classification of science: empirical-analytic, historical-hermeneutic, and critical. These divisions respectively focus on technical control, mutual understanding in life, and emancipation [42]. Aligned with Habermas’s vision of emancipation through critical understanding, it can be said that moving beyond traditional teaching methods like ‘chalk and talk’ that emphasize predetermined outcomes, it is important to empower students to explore political or cultural topics online, allowing the educational institute to reassess their teaching methods. This approach enhances digital technology’s use, promoting better judgment, facilitating meaningful discussions, and encouraging collaborative learning [42].

These philosophical approaches highlight broader implications not just restricted to the context of Turkish and Kazakh youth. Considering Dewey’s view on pragmatism, the practical use of technology contributes to increasing the learning experience, implying that digital integration and its tools respond to learners’ needs, transforming educational methods towards purposeful reality-infused learning. Likewise, critical theory shows technology as an instrument disrupting socio-political dynamics and ideological constructs. Habermas’s
vision of emancipation shows how digitalization empowers students to explore cultural and political topics, increasing collaborative learning and better judgment. This implies that the integration of digitalization and online learning platforms has a positive impact on the learning experience and understanding of reality, as also established by [44].

Besides, theoretical approaches including the sociocultural approach developed with the support of Lev Vygotsky’s work, show that learning can be elucidated by accounting for the multifaceted relationship between individuals, communities, tools, culture, and history. A number of theoretical concepts in the sociocultural approach regarding learning are centered on the observation of small groups, dyadic relationships, and in-person interaction. The sociocultural approach emphasizes the influence of socialization on cognitive development [42; 43]. Using a sociocultural approach, it is observed that the students can increase their competencies through creating content and communication skills. The social interaction with the tutor generates an ideal setting for learning [44]. As per this approach, the digital realm shapes a fresh form of interaction where human actions are influenced by their digital culture [45]. The current findings also revealed showed positive impact of digital technology on the learning experience. However, this outcome may be influenced by differences in technological infrastructure, education environment, and culture. Hismanoglu and Hismanoglu [47] agree as they found that the educational environment also contributes to affecting student behavior and enhances overall learning experiences. The sociocultural approach helps understand how culture affects individuals, changing how they function. This technological culture serves as the foundation for interaction and helps maintain stability and balance among everyone involved in interactions. This approach implies that digital culture has a positive influence on interaction, learning, and communication, correlating with the current findings. It shows a profound influence of the digital realm and tools on reshaping social and cognitive dimensions, indicating potential stability and equilibrium in online interactions across different cultural and educational landscapes, as also found in the case of Turkish and Kazakh youth.

Likewise, as the findings highlight the positive effect of digital integration and tools of human consciousness and learning experience, using an axiological approach can provide broader implications of the findings emphasizing how technologies have changed the way people think and perceive. Apart from the positive effect observed in the findings, the axiological approach presents a contrary view to understanding the role of technology which possibly results in the loss of spiritual and social credentials and national identity of generations. Chaotic information collected from the internet provides problematic thinking. Students connected to digital platforms or social networks receive contradictory and even biased information, making it difficult to follow ethical guidelines and rules. Psychologically people get stressed due to increasing exposure to information they receive online, and this information negatively impacts their ability to make informed decisions and analyze the situation. Communication using social media changes the habits and worldviews developed, and people start to judge and perceive negatively [48; 49]. This implies that online learning tools are found to impact the worldview of Turkish and Kazakh youth, increase consciousness, and is found to develop analytical skills. However, the increased use of digitalization is noted to affect the critical thinking of students and influence the understanding of reality and knowledge acquisition as reported in studies including [50; 51]. To be precise, the axiological approach highlights the impact of digitalization on the ethical dimension, yet has a positive impact as reported in the findings and poses to critical thinking and the perception of reality across diverse educational contexts.
On the other hand, the results are in line with the findings of multiple researchers who agree that digital technologies enhance learning and knowledge acquisition [14]. The integration of technology in education is found to impact the acquisition and dissemination of knowledge [24], thus correlating with the current results. Similarly, the social reality theory coined by Peter Berger argues that society is created with human interaction, and helps people observe reality differently and behave in a certain way [25]. However, researchers including [12] highlight societal implications of digitalization extending beyond the realm of technology. The responsible development and deployment of digital technologies have emerged as critical philosophical inquiries which are also discussed in the context of the axiological approach emphasizing that constant exposure to technology can influence thinking, perception, and decision-making. In a similar context [27; 28], add that digital literacy is a critical facet in contemporary education, embodying the ability to navigate, assess, and ethically employ digital information. Though Turkish and Kazakh youth highlighted the positive impact of learning tools and digitalization on their learning experience and human conscious, validating H2, yet ethical aspect related to digitalization was missing. In this reference, Albert Borgmann’s "focal practices" approach encourages a mindful integration of technology into meaningful practices [23]. Prasiasa [22] and Robbins [24] also highlight mindful integration to maintain genuine engagement with the world. However, the study is novel as it has highlighted positive relationship between digital integration, online learning tools, learning experiences, and human consciousness among Kazakh and Turkish using philosophical and theoretical lens highlight digital tools respond to learner needs. The study considered sociocultural and axiological impacts of digitalization, emphasizing stability in digital interactions and ethical considerations, presenting new dimensions to understanding digital influence on youth education.

DISCUSSION

The results of this study reveal important insights into the interplay between digital integration, online learning tools, and the enhancement of learning experiences and human consciousness among Kazakh and Turkish youth. This discussion section interprets these findings, situates them within the context of existing literature, notes limitations, and identifies promising directions for further research.

The findings of this study, demonstrating a robust positive relationship between digital integration, online learning tools, and enhanced learning experiences and human consciousness, are largely consistent with existing literature. As noted by Afacan Adanir and Muhametjanova [20], the effective utilization of digital technology expands opportunities for interactive and engaging learning approaches, mirrored in the current results. Moreover, the sociocultural emphasis by Colás-Bravo-Bravo et al. [48] on socialization as a catalyst for cognitive growth aligns with the correlation between digital exposure and peer collaboration with higher levels of consciousness. Hence, key aspects of the findings reinforce prevailing theoretical perspectives on the constructive role of digitalization in transforming youth education. However, the risks of misinformation outlined by Comunello et al. [29] persist, necessitating further inquiry into the ethical dimensions of digital literacy. Nonetheless, within its delimited scope, this study reaffirms the promising potential of thoughtfully embedded digital tools and platforms to enrich the learning experiences and minds of young students. This pioneering research highlights the affirmative impact of digitalization
on enriching the learning experiences and consciousness of Kazakh and Turkish youth. It advances philosophical knowledge regarding the evolution of digitally mediated education. While positive effects are observed, further progress necessitates sustained ethical oversight to mitigate misinformation risks. Deliberate efforts to expand access are also vital for just, democratic digital integration. Overall, the findings open promising new directions for understanding the role of digital tools in transforming youth learning and cognition.

The specific cultural context may restrict wider applicability across educational settings. Further confirmatory research with larger, cross-cultural samples is needed to substantiate the preliminary findings. Additionally, employing interviews to support the survey data could have enriched the analysis. Additional qualitative data exploring personal experiences would also be beneficial. Comparative studies investigating variables affecting access to digital learning are essential to promote equitable adoption.

**CONCLUSIONS**

This pioneering research explored the intricate association between digital integration, online learning tools and the enhancement of learning experiences and human consciousness among Kazakh and Turkish youth. The findings demonstrate a robust positive correlation between these key variables, aligned with the study hypotheses. This research carries important theoretical implications concerning the interrelation between digitalization and transforming educational paradigms. The sociocultural emphasis on socialization driving cognitive growth is clearly evidenced, as enhanced learning experiences are tied to expanded consciousness gained through online peer collaboration and global exposure. This suggests profound theoretical insight into how virtual social interactions shape young minds. Additionally, the effectiveness of online tools in enabling more tailored, interactive learning opportunities aligns with pragmatist visions of education adapting to student needs. Hence, key theoretical perspectives on technology meeting societal demands are reinforced. However, the risks of misinformation and diminished critical faculties challenge notions that increased access to information translates to enriched understanding. This compels more nuanced theoretical conceptions accounting for these ethical dimensions still insufficiently addressed in prevailing frameworks. In summary, while underscoring important theoretical assumptions on the merits of embedded digital tools, this research also reveals spaces for more comprehensive, discerning theorization attuned to the unintended consequences of the digital revolution. Broader, interdisciplinary perspectives encompassing critical, pragmatic, and axiological lenses could fruitfully illuminate these complex dynamics.

This research has pivotal implications for education practice and policymaking. Fundamentally, the results support increased investment into thoughtfully integrating digital technologies within schools and curricula to expand interactive, creative, and personalized instruction approaches tailored to diverse competence levels. However, technical infrastructure and sustained teacher training are imperative to optimize effective adoption. Additionally, competence frameworks, learning assessments and teaching practices must continually adapt to the evolving digital landscape through coordinated institutional efforts. At the policy level, guidelines and funding avenues prioritizing ethical digital literacy development are vital to fulfill the promises while mitigating risks of misinformation, diminished attention spans and critical analysis faculties augmented by technology overexposure. Legal protections surrounding
student data privacy also demand consideration as learning becomes increasingly digitized. Balancing broadened access to innovative EdTech tools with comprehensive ethical oversight is essential. Schools cannot approach this transition lightly but require thorough governance mechanisms granting teachers latitude for context-specific adoption while ensuring student support and monitoring adverse impacts. Getting ahead of challenges instead of catching up remains imperative.

The findings carry meaningful implications for education policy and practice, underscoring the need for measured digital integration coupled with sustained competence development to fully leverage the benefits while mitigating risks. Further large-scale, cross-cultural inquiries are imperative to substantiate these preliminary indications. Exploring comparative variables around access and components underlying effective integration would be beneficial. This research breaks new ground in deciphering the impact of the digital revolution on shaping young minds and pedagogies. It brings to the forefront vital questions regarding the responsible evolution of education for an emerging generation of digital natives.

FUNDING

The article was written within the framework of the competition for grant financing of scientific and (or) scientific and technical projects for 2024-2026 (Grant No. AR 23488374).

REFERENCES

ve.2022.05.02(4)


### Information about the authors

**Nazira Tangkish**  
(Kazakhstan, Shymkent)  
PhD, Associate Professor, Department of Political Science  
M. Auezov South Kazakhstan University  
E-mail: nazira.tangkish@mail.ru  
ORCID ID: 0000-0003-0951-2144

**Talgat Tumashbay**  
(Kazakhstan, Shymkent)  
PhD, Senior Lecturer, Department of Philosophy  
M. Auezov South Kazakhstan University  
E-mail: t.tumashbay@mail.ru  
ORCID ID: 0000-0003-1653-9935

**Aisha Shaldarbekova**  
(Kazakhstan, Shymkent)  
Cand. Sci. (Philos.), Senior Lecturer, Department of Philosophy  
M. Auezov South Kazakhstan University  
E-mail: shaldarbekovaa@bk.ru  
ORCID ID: 0000-0002-1694-8811

**Mavluda Rakhimshikova**  
(Kazakhstan, Shymkent)  
Cand. Sci. (Philos.), Associate Professor, Department of Philosophy  
M. Auezov South Kazakhstan University  
E-mail: mrakhimshikova@bk.ru  
ORCID ID: 0000-0002-2860-3044

**Gulnur Aripzhan**  
(Kazakhstan, Turkestan)  
Master, Senior Lecturer  
International University of Tourism and Hospitality  
E-mail: gulnur.aripzhan@outlook.com  
ORCID ID: 0000-0003-9161-0832

**Ainur Yerbota**  
(Kazakhstan, Turkestan)  
Master, Lecturer  
Khoja Akhmet Yassawi International Kazakh-Turkish University  
E-mail: ainur.yerbota@outlook.com  
ORCID ID: 0009-0002-6528-6110
1. Gender
   a) Male
   b) Female

2. Age

3. Education
   A) Undergraduate (student)
   B) College Diploma (student)
   C) Bachelor’s degree (student)
   D) Master’s degree (student)

<table>
<thead>
<tr>
<th>Digital Integration in Education</th>
<th>1 = Strongly Agree</th>
<th>2 = Agree</th>
<th>3 = Neutral</th>
<th>4 = Disagree</th>
<th>5 = Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The use of digital resources and instruments significantly increases the educational experience.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital technologies have a critical role to play in coursework, providing opportunities for engaging and interactive learning.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The integration of digitalization in education enriched the comprehensive subject understanding and practical application in academic pursuits.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The digitalization has helped students prepare for a technologically driven professional landscape.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Online Learning Tools*

| I use learning tools for my studies and research work.                              |                  |           |             |              |                      |
| The e-learning tools help contribute to interactive and collaborative learning experiences. |                  |           |             |              |                      |
| The use of digital tools helps comprehensive and innovative learning approaches to individual academic needs. |                  |           |             |              |                      |
| Online learning tools improved my overall learning experience and knowledge retention. |                  |           |             |              |                      |

*Human Consciousness*

| The use of online learning tools has expanded my awareness and understanding of various subjects. |                  |           |             |              |                      |
| I believe that utilizing online learning tools has positively impacted my worldview.          |                  |           |             |              |                      |
| The use of digital tools adds to the evolution of human consciousness increasing analytical thinking and problem-solving skills. |                  |           |             |              |                      |
| I feel more connected and aware of global issues due to my exposure to online learning tools. |                  |           |             |              |                      |

*Learning Experiences*

| My educational experiences are enriched due to the integration of technology                  |                  |           |             |              |                      |
| The use of digital tools impacted my interaction and engagement with the content.            |                  |           |             |              |                      |
| Digital integration has positively impacted my academic performance and learning outcomes.   |                  |           |             |              |                      |
| Digitalization of education has affected my learning experience and knowledge acquisition.    |                  |           |             |              |                      |