

An Analysis Of The Challenges In Learning Transformation In The Digital Era

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Abstract– The transformation of learning in the digital era has led to fundamental shifts in educational paradigms, learning approaches, teacher roles, and the readiness of technological infrastructure and competencies across educational stakeholders. This study aims to analyze the key challenges faced during the digital learning transformation process in a senior high school. The focus is placed on core aspects such as perspectives, attitudes, and understandings of social change and its implications for learning due to the rapid development of digital media technologies. Using a qualitative method with a case study approach, data were collected through in-depth interviews, observations, and document analysis involving both teachers and students. The findings reveal several significant challenges: entrenched mindsets resistant to change, limited digital and media literacy, issues concerning values and ethics, uneven teacher competencies, and resistance to pedagogical innovation. Furthermore, the study identifies a disorientation or misalignment in educational practice, where a noticeable gap exists between how teachers deliver knowledge and the evolving learning needs of students. Additionally, digital technologies are still predominantly used for entertainment rather than for academic enhancement, by both students and teachers. This transformation also necessitates a redefinition of the teacher's role—not merely as facilitators of learning, but as mentors, inspirers, and role models. The study emphasizes the urgency of promoting a digital mindset, strengthening media and digital literacy, implementing effective teacher training policies, ensuring equitable access to technology, and adopting more flexible, participatory, and student-centered learning approaches. These findings contribute to a deeper understanding of current educational challenges and serve as a foundational reference for improving educational management toward a more adaptive, meaningful, and future-oriented learning system.

Keywords– Digital literacy, Educational transformation, Learning innovation, Media technology, Teacher roles, Values in education)

I. INTRODUCTION

The rapid advancement of digital technology has significantly transformed nearly every aspect of human life, including the realm of education. This transformation calls for a paradigm shift in learning from traditional models to systems that are more adaptive to technological innovation [1]. Within this context, the role of teachers has evolved. They are no longer the sole and dominant source of knowledge; instead, they are expected to act as facilitators, collaborators, and even leaders in digital learning environments [2]. In practice, technology has become an inseparable part of daily human life, including in learning processes. The development of information technology has reshaped the way students learn and access knowledge, challenging long-held mindsets, values, and social relationships within educational settings [3]. While digital technology opens opportunities for boundless collaboration, it simultaneously presents complex, multidimensional challenges, particularly in social, psychological, and ethical dimensions [4]. Overreliance on digital media can diminish empathy, lower the quality of interpersonal communication, and widen participation gaps due to disparities in access [5].

This phenomenon can be critically examined through cultivation theory, as developed by Gerbner, which emphasizes how long-term media exposure shapes social perceptions and constructs reality [6]. In today's educational context, this theory helps explain how repeated exposure to media environments including social media platforms like TikTok, Instagram, and YouTube can internalize particular values without users' critical awareness [7]. The dominant narratives amplified by platform algorithms can shape perceptions of success, lifestyle, and even social truths. Without strong media and digital literacy and critical thinking, this influence may negatively affect students' character and learning orientation.

Consequently, educational processes risk being replaced by market logic and algorithmic influences rather than pedagogical principles [8] ; [9].

Beyond the challenges to values, the paradigm shift in digital-era learning also demands a new mindset from both teachers and students. White and Collins [2] highlight that psychological and cultural barriers often hinder the adoption of new educational paradigms. In this regard, mindset transformation becomes fundamental. The concept of a growth mindset [10] provides a psychological foundation for resilience and development amidst challenges, while a digital mindset [11] offers a strategic framework for leveraging technology effectively. Integrating both mindsets is highly relevant for navigating the current complexities of educational transformation.

Furthermore, Fullan [12] stresses the importance of developing six global competencies within the deep learning framework: character, citizenship, collaboration, communication, creativity, and critical thinking. Meaningful educational transformation can only occur through deep-level change grounded in a shared vision, collaborative leadership, and adaptive, sustainable learning systems. In line with this, Illeris [13] asserts that effective learning encompasses three core dimensions: cognitive, emotional, and social. A lack of balance in any of these dimensions may adversely impact the overall success of learning processes.

This study aims to critically analyze the multifaceted challenges of learning transformation in the digital era, focusing on how teachers and students construct and adjust their mindsets in response to rapidly shifting learning dynamics. A deep understanding of these mindset changes is essential for teachers to design learning strategies that are more adaptive, meaningful, and aligned with students' actual needs. The findings of this research are expected to broaden perspectives and offer alternative preferences for managing education that is contextual, humanistic, and relevant to contemporary challenges while also promoting values, empathy, sensitivity, and awareness of global and universal humanitarian issues.

II. RESEARCH METHODOLOGY

This study employed a qualitative descriptive approach using a case study method to gain an in-depth understanding of the experiences, perceptions, and challenges faced by teachers and students in the transformation of learning in the digital era. A qualitative approach enables researchers to explore complex phenomena contextually and meaningfully. As Creswell [14] emphasizes, this approach focuses on understanding subjective meanings within natural settings.

The descriptive method was utilized to systematically and factually describe phenomena without manipulating or intervening in variables [15]. In this context, the researcher aimed to present the realities of the field based on empirical data as they were observed and experienced.

The research subjects consisted of active high school teachers from various subject areas at SMA Negeri 9, Tana Toraja Regency, South Sulawesi. The choice of the senior high school level was based on the consideration that late adolescence is a critical phase in the formation of learning identity and marks a transitional period toward higher education and the workforce. This makes digital learning a particularly strategic and significant challenge at this stage.

A purposive sampling technique was employed, selecting informants intentionally based on specific criteria relevant to the research objectives. This technique is effective in obtaining rich and meaningful data from participants with direct experience related to the phenomenon under investigation [16].

Data collection techniques included in-depth interviews, participant observation, and document analysis. The interviews explored teachers' views and experiences in addressing the challenges of digital learning transformation. Participant observation was conducted to understand classroom dynamics firsthand, while document analysis examined various supporting materials such as lesson plans, evaluation records, and school policy documents. To enrich the theoretical context, the researcher also conducted a literature review of relevant journals, books, and academic articles.

Data analysis followed the interactive model developed by Miles and Huberman [17], which includes three main stages: data reduction, data display, and conclusion drawing. Data reduction involved selecting and simplifying relevant information; data display organized the information in narrative or visual formats; and conclusion drawing was carried out reflectively to identify patterns and derive meaningful insights from the data.

To enhance the credibility of the findings, the researcher applied source and methodological triangulation, conducted member checking with key informants, and maintained systematic consistency in the documentation of field data [18].

III. FINDINGS AND DISCUSSION

The advancement of digital technology has instigated fundamental transformations in education, extending beyond the mere utilization of devices to encompass shifts in thinking, attitudes, and interactions within the learning process. This transformation presents complex challenges that necessitate comprehensive adaptation to contemporary learning needs. Based on interviews, observations, and documentation, this study identifies that the primary challenges in digital learning are not solely related to technological availability but are deeply rooted in mindset shifts and mental preparedness to navigate an ever-evolving learning ecosystem.

Three principal challenges in digital learning emerged from this research: (1) the paradigm shift from traditional models to technology-based learning that demands autonomy and collaboration; (2) low levels of digital media literacy, leading to technology being used more for entertainment than for educational purposes; and (3) cultural and digital awareness challenges, including disparities in technology access and utilization that result in participatory and quality learning inequalities.

The identified gaps pertain not only to students' access to devices and internet connectivity but also to teachers' capabilities in integrating technology pedagogically. This underscores that digital learning challenges are not merely technical but are deeply entrenched in psychological, social, and cognitive dimensions. Therefore, mindset transformation becomes a pivotal element in addressing these challenges, both for teachers as learning facilitators and for students as active learners expected to be reflective, critical, and adaptive within the digital learning ecosystem.

A. *Shifting Learning Paradigms*

In facing the increasingly complex challenges of global education, traditional approaches are no longer sufficient. The rapid advancement of technology has triggered profound social, economic, and cultural dynamics, demanding a fundamental transformation in how education is conceptualized, designed, and implemented. Therefore, a paradigm shift in learning essentially requires a transformation of mindset how both teachers and students perceive the essence, goals, processes, and meaning of learning itself.

The 21st-century learning mindset demands adaptive capabilities within global contexts, one of which is through Global Citizenship Education (GCE). This concept recognizes that every individual is part of a global society, with responsibilities to contribute to a just, inclusive, and sustainable world [19]. GCE emphasizes the importance of understanding global interdependence, appreciating cultural diversity, and committing to social justice and environmental sustainability. Through this lens, students are encouraged to engage critically with global realities such as climate change, humanitarian crises, and digital inequality and actively participate in finding solutions [20].

This paradigm shift also integrates contemporary global issues, such as the climate crisis and emerging technologies, into the learning process. Climate literacy education, for instance, is essential for fostering students' awareness and concern toward global ecological challenges [21]. Meanwhile, developments in artificial intelligence (AI), geopolitical uncertainties, food insecurity, and digital ethics crises require educational institutions to design contextualized, reflective, and adaptive learning systems that respond to the changing times [22].

In this context, a mere introduction of digital technology into the classroom is insufficient. What is more critical is a fundamental shift in how learning itself is perceived. Fullan and Langworthy [13] assert that learning transformation occurs when teachers and students co-create deep learning experiences through meaningful integration of technology. This process not only enhances 21st-century competencies such as collaboration, communication, creativity, and critical thinking, but also promotes student autonomy and active participation in learning.

Student-centered and socially grounded learning can be explained through Vygotsky's [23] theory of social constructivism, which highlights the role of social interaction in knowledge construction. Within this framework, the teacher is no longer the sole source of information but a facilitator who designs collaborative learning ecosystems. Technology serves to create open, flexible, and participatory learning

spaces [24]. Strategies such as flipped classrooms, inquiry-based learning, and the use of collaborative platforms like Google Workspace, Padlet, or Miro support this pedagogical shift.

However, this paradigm shift cannot be effectively realized without a systemic change in mindset. Teachers must move beyond traditional instructional dominance and develop reflective pedagogical practices that are responsive to students' needs. Conversely, students must be guided to develop self-directed learning, social responsibility, and critical awareness of their surrounding world. The curriculum, school culture, and education policy must work in synergy to establish an ecosystem that fosters this transformation.

In conclusion, the primary challenge in shifting learning paradigms lies not merely in the adoption of digital technologies, but in the comprehensive readiness of educational institutions, teachers, and students to embrace a new mindset. This transformation serves as a vital foundation for delivering meaningful, contextualized, and relevant learning in the face of contemporary global challenges.

Crisis of Media and Digital Literacy

Media literacy and digital literacy are distinct yet interrelated competencies that have become integral to contemporary learning. Theoretically, media literacy refers to the ability to access, analyze, evaluate, and create messages across various forms of media [25]. Its primary focus lies in understanding media content, including structure, bias, intention, and its effects on audiences. According to Potter [26], media literacy encompasses both cognitive and critical dimensions, enabling individuals to become more aware of how media messages influence opinions, values, and behavior. Potter emphasizes that media are never neutral and always convey particular perspectives. Hall [27] Media Representation Theory further explains how media selectively represent social realities, shaping public perceptions.

In contrast, digital literacy involves technical, cognitive, and ethical competencies in using digital technologies to search, evaluate, create, and communicate information [28];[29]. It includes understanding how digital tools operate and awareness of digital ethics and safety, such as data protection, digital footprints, copyright, and privacy. Siemens [30], through Connectivism Theory, highlights that digital literacy also entails the ability to build and maintain knowledge networks, which is essential in modern learning. UNESCO [31] defines digital literacy as the capacity to access, manage, understand, integrate, communicate, evaluate, and create information safely and appropriately through digital technologies.

The evolution of media and digital literacy theories has given rise to the New Literacies Perspective, which views literacy not only as a technical or cognitive skill but also as a dynamic and contextual social practice within a rapidly changing digital society [32];[33]. This perspective underscores the importance of adapting to new modes of communication and understanding how individuals learn socially through digital interaction.

Moreover, the concept of Critical Digital Literacy adds a deeper layer of analysis by addressing power, ideology, and representation embedded in digital technologies and media [34];[35]. This form of literacy encourages individuals not to passively consume information but to critically evaluate its sources, motivations, and social implications, while fostering ethical awareness in technology use.

Field interviews conducted in this study highlight that students' levels of digital literacy remain relatively low. This limitation affects their ability to filter information critically and engage with digital content ethically. Hobbs [36] argues that media literacy encompasses technical, cognitive, social, and ethical dimensions of media use.

One pressing issue in today's digital learning environment is information overload the overwhelming volume of information from various platforms, which often hampers students' ability to identify valid, relevant, and meaningful content. This overflow is driven not only by the quantity and diversity of sources [37] but also by the multiplicity of digital channels and formats [38]. Media literacy plays a vital role in helping students navigate and critically assess such information [39]. Beyond the technical aspects, information overload poses cognitive and affective challenges in evaluating the credibility of fragmented media ecosystems [40]. Thus, literacy strategies must emphasize information quality [41] and the ability to interpret data contextually, going beyond surface-level metrics [42].

Furthermore, the abundance of information does not necessarily correlate with its quality. MacDonald, Bath, and Booth [43] noted a decline in information quality, while Bawden and Robinson [44] pointed

out the growing difficulty in locating useful content. As a result, students often rely on unverified sources or misinformation, which can lead to confusion in understanding academic material [45].

Effective information processing in this context requires a balance between cognitive skills and affective engagement. Media literacy supports rational analysis and evaluation while fostering emotional awareness in determining the relevance of information. Hahnel et al. [46] assert that a balanced cognitive-affective engagement benefits students in filtering information effectively within digital environments.

In educational contexts, teachers play a pivotal role in facilitating active learning and developing students' critical capacities to assess, verify, and understand data and knowledge. Anderson [47] emphasizes that, in digital environments, teachers must act as learning facilitators rather than mere transmitters of information. They are responsible for guiding students in navigating digital content, thinking critically, and learning independently. As such, students can more effectively discern relevant information, and develop a deep understanding of contemporary issues. These skills are essential in the information age, which demands analytical, evaluative, and strategic use of information [48].

B. *The Shifting Role of Teachers in the Digital Ecosystem*

The increasing complexity of modern life across multiple dimensions demands that teachers not only serve as role models but also as sources of inspiration for students. Within the school context and the broader social sphere, teachers are consistently perceived as exemplary figures individuals whose conduct is worth emulating, both in real-life interactions and in digital spaces such as social media. Inspirational teachers do more than merely deliver knowledge, concepts, and facts; they also impart meaningful life values. As Narvaez [49] argues, morality should not be confined to classroom instruction but must be brought to life through daily interactions and emotional engagement.

In today's dynamic educational ecosystem, the evolving role of teachers calls for enhanced professional competencies alongside a transformation of pedagogical identity. This identity must become more multifaceted, reflective, and responsive to shifting social contexts, technological advancements, and the continual evolution of instructional methods. Beyond maintaining strong integrity, teachers must reaffirm their role as moral exemplars amidst the erosion of traditional values. As embodiments of integrity, empathy, and social responsibility, teachers play a pivotal role in navigating transnational value conflicts that often challenge local cultural norms [50];[51].

Findings from interviews conducted in this study reveal a perceived decline in teachers' function as role models and sources of inspiration, attributed largely to rapid socio-cultural changes. Consequently, there is a pressing need for teachers to reclaim and reinforce their inspirational presence, especially in the face of digital media that often promotes non-educational or even harmful content. Teachers are expected to foster enthusiasm, nurture hope, and offer guidance that enables students to navigate both life and learning with clarity and purpose. By modeling lifelong learning, empathy, and reflective behavior, inspirational teachers contribute meaningfully to students' character development [52]. In line with this, Leithwood and Jantzi [53] describe such educators as transformational leaders in the classroom, capable of articulating a compelling vision, providing emotional support, demonstrating high awareness, and encouraging students to think critically and independently.

In an era dominated by fast-paced information and highly visual content, teachers face significant challenges in maintaining student attention and relevance. It is no longer sufficient to simply deliver engaging instructional materials, teachers must also remain inspiring and exemplary figures. Without this dual presence, students are more likely to be influenced by online personalities whose impact may be superficial or detrimental. Interview data further underscore the importance of teachers as sources of inspiration, as students increasingly draw upon their daily media consumption for behavioral cues and moral orientation. Tafonao and Harefa [54] assert that inspiring teachers are those who create meaningful learning experiences and build strong emotional connections with their students, turning the classroom into a space for self-actualization. This role is especially critical in today's digital environment, where students often face social pressure and misinformation that can hinder their holistic development.

One of the most notable shifts in the teacher's role is the move away from being the primary source of knowledge toward becoming a learning partner who facilitates student autonomy, decision-making, and problem-solving. As learning consultants, teachers are expected to diagnose students' diverse learning needs and tailor appropriate instructional strategies. Simultaneously, they must guide students in

developing essential skills such as decoding information, navigating digital environments, and effectively sharing knowledge. According to Kim [55], the modern educator must function as a knowledge incubator, change agent, digital network builder, and pedagogical consultant one who possesses high levels of morality and humanity, practical insight, sensitivity, and logical reasoning to remain effective in an ever-changing educational landscape.

Additionally, the teacher's role involves cultivating a school environment that is safe, supportive, and conducive to both academic and emotional growth. Hafen et al. [56] found that students who learn in classrooms characterized by positive and supportive climates are more likely to exhibit strong intrinsic motivation and prosocial behavior. On a broader scale, Daily et al. [57] emphasize the importance of a trauma-informed climate one that is free from physical and psychological threats, inclusive of diversity, committed to social justice, and open to the emotional and identity expressions of all learners. Pekrun et al. [58] also highlight that positive emotional experiences during learning, such as enthusiasm, curiosity, and engagement, are significantly correlated with academic achievement and active participation in school activities.

Within the digital learning ecosystem, teachers are also expected to integrate technology meaningfully using digital learning platforms, educational social media, and interactive applications to increase student engagement. Moreover, they are responsible for guiding students in the ethical and critical use of technology, while also fostering the development of digital literacy skills, which are increasingly vital in today's information-saturated world.

C. *Disruption of Learning Motivation Due to Social Media*

The high intensity of social media use among students has become one of the main factors contributing to the decline in learning motivation. Based on interviews with teachers, students spend an average of 8 to 9 hours per day on various social media platforms such as TikTok, Instagram, and Facebook. These instant digital activities tend to divert students' attention away from academic tasks that require concentration and perseverance. This phenomenon aligns with the Cognitive-Affective Engagement Theory, which emphasizes that optimal learning engagement requires a balance between cognitive and affective components [46]. When students' emotional engagement is largely absorbed by social media stimuli, their capacity for academic self-regulation and attention management becomes disrupted.

Research on digital behavior confirms that excessive exposure to social media is associated with a decline in intrinsic motivation, especially when the digital activity lacks meaningful relevance to learning [59]. In this context, Self-Determination Theory posits that learning motivation is fundamentally rooted in the satisfaction of three basic psychological needs: autonomy, competence, and relatedness [60]. However, passive and repetitive social media consumption tends to undermine these needs, thus reducing students' intrinsic drive for deep learning.

Furthermore, interviews with several teachers revealed that excessive use of social media negatively impacts students' active participation in learning. Teachers reported that students who are highly active online tend to show a significant decrease in attention and focus during academic activities. This condition is consistent with Prensky's [61] theory of instant gratification, which asserts that digital natives often seek quick and immediate results, and lack the persistence required for sustained cognitive engagement.

Another negative consequence is the decline in students' critical thinking and concentration abilities due to digital multitasking, as discussed by Kirschner and De Bruyckere [62]. Difficulties in maintaining focus and low analytical skills are evident in poorly completed reflective assignments. This also reflects a metacognitive gap, namely students' lack of awareness of the educational potential of technology. As Erstad et al. [63] argue, the ability to operate digital devices does not automatically translate into effective learning through technology. Therefore, pedagogical approaches that guide students to reflect on their technology use and build self-evaluation are highly necessary [33].

Nevertheless, teachers also recognize that social media does not always have a negative impact. Some teachers have made efforts to integrate digital platforms into learning strategies, for example by creating short learning content uploaded on Instagram, where students are invited to follow the account and interact through comments. Although this initiative remains sporadic and not yet embedded in formal school policy, it demonstrates the potential of social media as a collaborative and reflective learning

medium. This approach aligns with the perspective of Social Constructivism, which highlights the importance of social interaction in the learning process [23], and the concept of Connected Learning, which links students' digital interests and experiences with meaningful formal education.

Research by Tang, Chen, and Lin [64] indicates that high exposure to social media negatively affects academic self-regulation, including time management and self-control. This finding is in line with teachers' observations that students often struggle to manage their study time and are easily distracted by social media notifications. Consequently, learning strategies are needed that not only limit social media use but also guide its productive and structured integration into the learning process.

Thus, the challenge of learning motivation disruption caused by social media use demands more adaptive and contextual pedagogical approaches. Schools and teachers must design learning strategies that bridge students' digital worlds with meaningful academic goals. Transformational interventions are essential not merely restricting access but integrating social media into the curriculum as a learning medium that supports emotional and collaborative engagement. In line with this, Greenhow and Lewin [65] emphasize that digital-era learning strategies should merge students' formal and informal experiences while placing motivational engagement at the core of sustained learning processes.

D. Digital Access and Utilization Gap

One of the major challenges in digital-based learning transformation is the unequal access to technological devices and the ability to use them productively. Interviews and field observations revealed significant disparities among students in terms of the availability of smartphones, internet connectivity, and digital literacy skills. Students from low-income families often lack stable access to Wi-Fi or personal devices, which limits their ability to fully engage in digital learning activities. This issue highlights what Warschauer [66] describes as the second-level digital divide—not merely access to technology, but disparities in how that technology is used for educational purposes.

Teachers also reported that while some students are adept at using digital platforms for entertainment, they often lack the skills to navigate educational technologies effectively. This gap is consistent with Van Dijk's [67] theory of digital inequality, which emphasizes that real inclusion in the digital society depends not only on access but also on motivation, skills, and meaningful usage. Without adequate support, students may fall into patterns of superficial engagement, using digital tools in ways that do not contribute to learning outcomes.

Moreover, interviews indicated that some teachers themselves face difficulties in optimizing technology due to limited training or lack of institutional support. This supports findings by Tondeur et al. [68], who emphasize that successful technology integration in education requires not only infrastructure but also professional development and pedagogical reorientation. In many cases, the absence of comprehensive digital literacy programs for teachers results in minimal or inconsistent use of educational platforms.

From the students' perspective, interviews show that access to learning materials is often hampered by low bandwidth, especially in rural or underserved areas. This condition exacerbates educational inequalities and leads to what UNESCO [69] warns as a "learning crisis" in the digital age. Bridging this gap demands targeted policy interventions, such as subsidized data packages, equitable device distribution, and inclusive digital infrastructure planning.

In response to this issue, some schools have begun experimenting with blended learning models, where digital learning is complemented by printed modules or face-to-face support. Although still in its early stages, this hybrid approach shows promise in addressing disparities in digital access while maintaining student engagement. It also aligns with the Universal Design for Learning (UDL) framework, which encourages flexible learning environments to accommodate diverse learners [70].

Thus, the digital access and utilization gap is not only a technical problem but also a pedagogical and structural issue. Addressing it requires systemic strategies that involve schools, communities, and policymakers to ensure digital equity. As Selwyn [71] notes, digital education should not merely reproduce existing inequalities under the guise of innovation but must critically respond to social, economic, and cultural barriers that hinder inclusive learning.

E. Transformation of Teacher–Student Relations in the Digital Era

The integration of technology in education has also reshaped the dynamics between teachers and students. Traditionally, the teacher was positioned as the primary knowledge provider, while students acted as

passive recipients. However, digital platforms have disrupted this hierarchy, shifting the teacher's role from a content transmitter to a learning facilitator. Based on field interviews, teachers acknowledge that students today have broader and more immediate access to information, which often challenges traditional authority in the classroom.

This shift aligns with the Connectivist learning theory, which asserts that knowledge exists within networks, and learning involves the ability to navigate, evaluate, and create connections within these networks [30]. In this model, the teacher becomes a co-learner and guide, helping students to develop digital navigation, critical thinking, and ethical reflection skills in the use of online information.

Interviews also reveal that the openness and interactivity of digital platforms contribute to more egalitarian communication patterns between teachers and students. For instance, students tend to express their ideas more freely through online discussions than in conventional classroom settings. This phenomenon supports the dialogic pedagogy perspective, which emphasizes mutual respect, shared inquiry, and co-construction of knowledge [72]. However, it also requires teachers to adapt their interpersonal strategies to remain relevant and respected in digital interactions.

Nevertheless, the shift in roles is not always easy. Some teachers experience challenges in building emotional connections with students through digital platforms. They express concern that online learning reduces the sense of closeness, empathy, and personal engagement that are essential for holistic education. This concern aligns with Noddings' [73] ethics of care theory, which emphasizes the importance of relational and affective aspects in teaching. Therefore, effective teacher-student interaction in the digital age must go beyond cognitive engagement to also foster emotional presence and relational sensitivity.

Field observations further indicate that students respond positively when teachers demonstrate openness, humility, and digital competence. Teachers who are willing to explore new platforms, involve students in decision-making, and reflect critically on their practice tend to receive higher levels of student engagement and respect. This is consistent with research by Trust, Krutka, and Carpenter [74], which shows that educators who engage in connected professional learning communities and share power with students tend to cultivate stronger digital pedagogical relationships.

In conclusion, the transformation of teacher-student relations in the digital era offers both opportunities and challenges. While digital tools allow for more democratic and interactive learning, they also demand a redefinition of teacher identity, authority, and relational practice. To ensure these transformations enhance rather than diminish the quality of education, teachers must be supported in building both digital competence and relational sensitivity in line with contemporary pedagogical ethics.

F. Teacher Quality and Pedagogical Competence in the Transformation of Learning

Amid the rapid transformation of education, teacher quality is no longer solely defined by academic qualifications, but also by adaptive capacity in the face of change, professional integrity, and competence in designing contextual and meaningful learning experiences. Quality teachers are those who can respond to the complexities of learning through continuous reflective practice and design instructional approaches that are relevant to students' needs and the demands of the times [75]. Such reflective practice encompasses not only technical aspects of teaching but also ethical, emotional, and social dimensions that shape a teacher's professional identity [76]. Critical reflection on teaching practices further drives the enhancement of pedagogical competence, innovation in instructional strategies, and the ability to address diverse student learning challenges [77].

In an increasingly dynamic learning context, teachers are also required to develop resilience the capacity to endure, recover, and grow amid professional pressures and complex emotional dynamics. Resilience involves not only surviving but also thriving growing professionally and personally in response to ongoing change. Contemporary approaches to building teacher resilience highlight the importance of reinforcing reflective practice, professional social networks, and collaborative leadership [78]. Furthermore, resilience includes emotional agility the ability of teachers to recognize, manage, and navigate emotions constructively. Teachers with emotional agility are better equipped to make sound pedagogical decisions, maintain healthy interpersonal relationships with students, and foster supportive and inclusive classroom climates [79].

The digital transformation of education also presents new challenges for teachers' pedagogical competence. As a core capability, pedagogical competence encompasses the mastery of learning theories

and instructional strategies, including the ability to understand student characteristics, facilitate cognitive, affective, and psychomotor development, and create a socially and emotionally safe learning environment. Loughland and Ellis [80] emphasize that relevant pedagogical competence today includes the ability to build supportive relationships, design data-driven instruction, and cultivate a classroom culture responsive to diversity.

In addition, pedagogical competence requires teachers to respond to the diverse learning needs of students across cultural backgrounds, academic abilities, and learning preferences. This approach reinforces the teacher's role as a learning facilitator who is sensitive to students' social, cultural, and psychological contexts [81]. Within the Technological Pedagogical Content Knowledge (TPACK) framework, Koehler, Mishra, and Cain [82] argue that effective teachers in the digital era must be able to integrate content knowledge, pedagogy, and technology in a balanced manner to create relevant and transformative learning experiences.

Findings from interviews conducted in this study indicate that teachers feel the need to better understand students' individual learning styles, including preferences for visual and digital content, to create more engaging and contextualized instruction. One teacher noted, "Students tend to be more interested and understand the material more easily when it is presented in visual formats and shared via social media." This aligns with differentiation theory [83], which underscores the importance of tailoring teaching strategies to students' needs, interests, and learning styles to maintain motivation and engagement. Such practices also reflect the principles of connectivism [30], where learning is viewed as the outcome of networked connections and interactions through digital platforms.

Thus, in the context of digital learning transformation, teacher quality is not only measured by content mastery or technological proficiency but also by the extent to which pedagogical competence is centered on student needs and societal changes. This competence includes reflective dispositions, the ability to build empathetic relationships, context-sensitive pedagogical skills, and the resilience to continue learning and growing in the face of challenges.

Within the framework of continuous professional development, the presence of learning communities in schools becomes a vital strategy to strengthen teacher competence. Learning communities serve as spaces for collective reflection, collaboration, and peer learning that promote systemic improvements in instructional quality. DuFour and Fullan [84] and [85] emphasize that effective learning communities can enhance teachers' collective capacity to design instruction, assess student outcomes, and support professional growth oriented toward student needs.

In conclusion, teacher quality in digital learning contexts encompasses more than mastery of content or the use of technology. It must involve pedagogical competencies that create meaningful and deep learning environments, strengthen student character, and equip students with the skills needed to face an increasingly complex world. Teachers' reflective dispositions and resilience must be continuously cultivated through lifelong learning. School-based learning communities function as collaborative platforms for professional practice, fostering shared growth and reflective engagement [84];[85]. Therefore, enhancing teacher quality through collaboration and continuous professional learning stands as a central pillar in supporting the success of educational transformation in the digital era.

The challenges of education will continue to evolve in tandem with technological advancements and the progression of human civilization. Technology, in particular, will persistently introduce new innovations and drive rapid, often unpredictable changes. Reframing our perspectives and understanding of the challenges posed by educational transformation, the essence of learning, and the dynamic, complex, and uncertain nature of the modern world is essential in shaping an adaptive and contextually relevant educational system.

Education should not be confined to serving the demands of employment, success, or modern industrialization alone. It must also nurture empathy, civility, responsibility, sensitivity, and integrity. Integrity arises from a deep awareness of essential human values, broad and profound knowledge, and the ability to navigate complex social challenges. A sustainable future requires individuals equipped with holistic and multifaceted capacities. In this regard, schools as learning ecosystems should provide equitable access and opportunities for students to develop their full potential and become lifelong learners.

Accordingly, educational progress depends on the integration of strong school leadership vision, a supportive, safe, and inclusive school climate responsive to students' learning needs, and the continuous improvement of teachers' quality and competence. This study recommends the development of more inclusive, flexible, and collaborative school policies that empower all stakeholders within the school ecosystem to actively contribute to the creation of learning environments aligned with the demands of the times. This includes providing mindset-shaping training for teachers and students, wider access to professional development, and the enhancement of technical skills that support effective learning.

IV. CONCLUSION

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Education should not be confined to serving the demands of employment, success, or modern industrialization alone. It must also nurture empathy, civility, responsibility, sensitivity, and integrity. Integrity arises from a deep awareness of essential human values, broad and profound knowledge, and the ability to navigate complex social challenges. A sustainable future requires individuals equipped with holistic and multifaceted capacities. In this regard, schools—as learning ecosystems—should provide equitable access and opportunities for students to develop their full potential and become lifelong learners. Accordingly, educational progress depends on the integration of strong school leadership vision, a supportive, safe, and inclusive school climate responsive to students' learning needs, and the continuous improvement of teachers' quality and competence. This study recommends the development of more inclusive, flexible, and collaborative school policies that empower all stakeholders within the school ecosystem to actively contribute to the creation of learning environments aligned with the demands of the times. This includes providing mindset-shaping training for teachers and students, wider access to professional development, and the enhancement of technical skills that support effective learning.

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