

Enhancing Quality Education through Institutional Digital Transformation and Teacher Communication Effectiveness: A Mediation Analysis

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Abstract:

Quality education, one of the 17 Sustainable Development Goals, is vital for a nation's professional progress and significantly contributes to the country's development while boosting global competitiveness. A high-quality education depends on core factors such as students' characteristics, institutional support, curriculum and learning goals, feedback, and motivation. Additionally, teachers' communication effectiveness plays a pivotal role in cultivating a stimulating learning environment, encouraging analytical thinking, and providing tailored support to learners. As education becomes increasingly digital, it is essential to plan and organise educational content through technological advancements. With digital transformation, the usage of digital tools such as multimedia, AI and Analytics, flipped classrooms, and Online assessments has become indispensable alongside conventional teaching skills. The current study seeks to gain insight into how core determinants of education, with digital transformation and teachers' communication effectiveness as mediators, can influence quality education. A model has been proposed, highlighting the role of teacher communication effectiveness and digital transformation as robust mediators. The study makes a substantial contribution to the corpus of knowledge by integrating teachers' communication effectiveness and digital transformation with core determinants of Quality education, ensuring opportunities for inclusive, equitable, and continuous learning that foster holistic development and equip students with life skills, knowledge, and character.

Keywords: Teachers' effective communication, Digital transformation, Quality education, Core determinants

1. Introduction

Education empowers the mind, unleashes creativity, and is crucial for achieving success in life. It serves as the pathway to several opportunities, allowing every individual to play a role in building a progressive and prosperous community. Quality Education is one of the 17 Sustainable Development Goals (SDGs), which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" by 2030. Quality education is a complex concept that can be understood in various ways and encompasses diverse principles, manifesting across all stages from early childhood to postgraduate studies (Master's and Doctorate levels) within the educational framework. John Dewey's (1916-1938) approach to progressive education propagated problem-solving, democratic, and experiential learning. At the same time, Lev Vygotsky (1934) highlighted the importance of social engagement and suggested that learners can accomplish more with guidance and teamwork than they can do independently. Jean Piaget (1923-1969) offered valuable insights into the development phases, emphasising that children excel in life when their cognitive capacities at different ages align with the educational curriculum. These insights reshaped the concept of quality education, making it more personalised, dynamic and student-centric. Furthermore, Paulo Freire's (1912-1997) critical pedagogy approach outlined education as a means of empowerment and social change, motivating pupils to engage in analytical reasoning and challenge prevailing power dynamics.

These intellectuals transformed the concept of quality education into an ongoing endeavour to cultivate problem-solvers, independent thinkers, and socially responsible individuals, where education is a process that includes interactive teaching and learning. The EFA Global Monitoring Report from 2005 states that, to achieve universal participation in education, the most dynamic factor is the quality of education provided to students. Quality education is essential for any country's progress and development while boosting global competitiveness (Tarman, 2016; 2017, Marcolini, 2017). The National Education Commission (1964-66) accurately noted that "of all the

various elements that affect the quality and impact of education on national progress, the character, quality, and skill of teachers are undoubtedly the most important.” The core elements of Quality Education include Student characteristics, curriculum and learning goals, Institutional support, and Motivation.

1.1 Teacher Communication Effectiveness in Education: The teaching faculty is the backbone of an educational institution, and the efficiency and effectiveness of the educational system depend on the teachers, as they are instrumental in structuring the learning process and influencing student behaviour. Young students often face various external influences. During their formative years, their relationships with friends, family, and the community change considerably. A teacher's interaction with students has psychological consequences for students, significantly contributing to their overall well-being, academic success, and future careers. The teacher's style of sharing knowledge and information with students and of interacting with them has a significant influence on students' motivation and participation levels. A teacher serves as a fundamental facilitator, converting educational goals and philosophies into knowledge and skills and imparting them to students. The communication effectiveness of teachers when interacting with students is key to creating a stimulating learning environment, encouraging critical thinking, and providing personalised support. A teacher should not only emphasise theoretical knowledge, but also be proactive, responsive, and adaptive in an ever-evolving educational landscape.

Teachers' effectiveness comprises not only subject expertise and instructional tools but also their communication with students (Loy, 2006). Having access to an educational institution does not guarantee quality education. It relies on the interactions and communication that take place in the classrooms. Teachers' ongoing effective communication with students significantly impacts the success of educational institutions. Effective classroom communication not only imparts knowledge but also develops students' skills that facilitate their future communication. The attitude of the students towards their teachers is positively influenced when teachers create a friendly relationship with them (Celep, 2004; Pânișoară et al., 2015). The student characteristics, their traits and abilities and the conditions that influence learners' engagement are central to learning outcomes, teaching strategies and academic success. The enthusiasm of the young learner to gain knowledge and insight, and their focus on results, are significantly shaped by the competence and communication effectiveness of their teachers (Agustiani, 2019; Dhillon & Kaur, 2021). The literature has identified several skills vital for educators to convey ideas clearly and concisely and to become effective communicators. A teacher's communication effectiveness can be influenced by several variables, such as:

Table 1. Communication Effectiveness Variables

Variable	Variable Definition
Listening	Ability of the teacher to be an active and empathic listener rather than being passive to the opinions and ideas of the students
Ability to get the message across	The ability of the teacher to deliver the message clearly and explicitly
Emotional management in the communication process	Ability of the instructor to be expressive in the display of emotions, and also to deal with the emotions of the students
Insight to the communication process	Teachers' understanding of communication and treating it as a process rather than an individual activity
Assertive communication	The ability of the educators to communicate differing ideas and their ability to support differing opinions of the students

1.2 Integration of Digitalization in Education: The continual worldwide digital transformation has also permeated the education sector. The recent COVID-19 pandemic was the catalyst in bringing about the digital change in education, and since then, there has been a marked impact of digital technologies on the education system. They have transformed the entire educational landscape by focusing not only on conventional classroom teaching but also on integrating online spaces and boosting engagement with multimedia and artificial

intelligence, thereby eliminating geographical limitations. These tools serve not just as repositories of knowledge, but they also act as collaborators, mentors and evaluators of knowledge. The emergence of digital technologies and online resources has transformed education by enabling students to study wherever they are, providing them with the flexibility to manage their academic and personal commitments (Emmanuel & Sife, 2008; Kostopoulos & Kotsiantis, 2021). Conventional teaching methods, at times, fail to facilitate immediate learning and deliver prompt assessments, becoming a deterrent to student involvement and participation. Nevertheless, this gap is addressed by digital educational sources. Student learning and collaborative participation in the classroom activities can be enhanced by integrating technological resources with conventional pedagogy. Several student-centric techniques, such as gamification and flipped classrooms, can optimise the learning process. Teachers should focus on the practical application of concepts by designing game-based classroom activities that lead to optimal learning and meet new pedagogical demands (Kocagül, 2024). Gamification strategies aligned with pedagogical principles can enhance student motivation and engagement in higher education, though their effectiveness depends on the quality of instructional design and the thoroughness of the methods (Tomaylla-Quispe et al., 2026).

The integration of AI-powered digital transformation is further revamping the academic landscape by enhancing personalisation, accessibility, and learning efficiency. Artificial intelligence fosters individual growth and streamlines learning experiences, saving time and eventually facilitating academic success and professional development (Yurtseven et al., 2025). The effective integration of technology in the education sector, along with teachers' ability, substantially enhances instructional interactivity and learning efficacy and has increased interest in the use of virtual worlds in education (Akram et al., 2022). Once a prospective development, this phenomenon has become a prerequisite for relevance. Teachers' effective communication, combined with the utilisation of digital technologies, plays an important role in accomplishing SDG 4 goals. These also advance the broader objective of inclusive and equitable education by enabling educators to connect with all students, including those participating remotely. The current article discusses how teachers' communication effectiveness, digital transformation (including AI), and core determinants of education ensure quality education that leads to the fulfilment of SDG4. Communication effectiveness and digital transformation act as mediators between the core determinants and Quality Education.

2. Review of existing literature

2.1 Core Determinants of Education

The effectiveness of any educational institution and the education provided are influenced by numerous factors. Learning is a complex process, since in each learning activity, students acquire knowledge from teachers and interpret it as per their own abilities to engage in a variety of activities. Studies reveal that each student's traits affect their learning habits, approaches, and styles (Bleidorn et al., 2018; Haile, 2021; Emery et al., 2021). Students have different learning characteristics, as evident by their learning styles and how they analyse the information conveyed by educators (Rafidah & Purnomo, 2025). Thorndike (1911), in his law of readiness, states that learning is successful when the learner tends to act or show readiness to learn. The desired learning outcomes can be achieved if all components in the education system - the curriculum, the teaching methodology and evaluation methods - are aligned with each other. Self-efficacy influences a teacher's instructional methods, dedication, and teaching style, and it also aids teachers in maintaining perseverance when working with difficult students (Skaalvik & Skaalvik, 2007). Abunawas et al. (2026) highlight that curriculum components have a significantly high contribution to student learning outcomes for secondary education in Jordan. In the era of online education, student engagement and self-efficacy can be improved with effective institutional support. Retention rates are higher among students who receive regular institutional support than among those who do not (Nguyen & Adelusi, 2024). During online classes, the students who interact with academic advisors and support staff are more likely to complete their programs (Richardson et al., 2017). Proactive engagement tactics and personalised academic advice are the basic requirements for maintaining student commitment. Mental health and psychological support services have emerged as another crucial factor in retaining students during online classes. When institutions provide consistent support—financial, psychological, technological, academic—they nurture intrinsic motivation,

thereby engaging students who are genuinely interested (Liu et al., 2021; Nuryana et al., 2023). Students who are intrinsically motivated engage in activities primarily for the inherent pleasure and satisfaction they derive from completing them. They demonstrate higher levels of conceptual understanding and academic determination (Deci & Ryan, 2000).

Feedback plays an essential role in the classroom environment. Real-time feedback received from the instructors is of great importance for the learners. Feedback has an influence on students' academic performance and behaviour and is critically important for learner success (Tampal et. al., 2019;). Educators can utilise feedback loops to offer insights based on various factors- the student, lesson, group, and more. It is the teacher's responsibility to improve the learners' skills through effective feedback (Mashaan, 2020). It has been observed that the feedback that students received earlier plays an imperative role in influencing their learning process.

2.2 Role of Teacher's Communication Effectiveness

An effective teacher is crucial to fully and optimally utilise the available resources, aligning them with the needs of the students. Understanding students' traits will enable educators to find ways for students to understand concepts and materials and to develop new skills, thereby influencing the effectiveness of the learning process (Rafidah & Purnomo, 2025). A teacher's communication style and proper management of content are vital to students' productive growth. Learning cannot occur without effective communication (Ergin & Birol, 2005, p. 30), and students tend to have positive perceptions of teachers' communication when they receive the messages as interesting (Falcon & Leon, 2023). Teachers' communication effectiveness, timely response to students' requirements, fostering a sense of community, and building student-teacher relationships enhance students' classroom participation, resulting in improved academic performance. It is the teacher's approach towards teaching practices which acts as a major determinant of students' outcomes. (Shan et al., 2014; Singh & Sarkar, 2015; Blomeke et al., 2016). The way teachers interact and communicate with students greatly influences their performance and conduct. The proficiency of teachers and their attitude, along with the methods they use in instruction, are crucial for fostering students' learning, motivation, academic success, and future achievements (Moskovsky et al., 2016; Joe et al., 2017). Effective communication between educators and learners, both in the classroom and beyond, significantly impacts students' eagerness to engage in learning (Singh & Sarkar, 2015; Blomeke et al., 2016).

Furthermore, the classroom interactions have two aspects: teacher-student and student-student. The way teachers communicate with their students can impact classroom behaviour and the students' motivation to excel (Dobbs & Arnold, 2009; Dhillon & Kaur, 2023). Effective communication of the teachers on the enthusiasm of young learners is crucial for both understanding and fostering a results-driven mindset in students (Diloyan, 2017). Educators who possess strong communication skills, up-to-date knowledge, and effective classroom management during lessons significantly influence student learning and academic performance, foster motivation, and contribute to moral development, thereby enhancing overall student outcomes (Kheruniah, 2013; Khan et al., 2016). When instructors exhibit good interpersonal communication, they create a supportive classroom environment characterised by mutual respect and encouragement among students. This positively influences the students' overall success and their dedication to the institution (Kareva, 2014). Teacher-student verbal exchanges and students' traits play a significant role in enhancing students' motivation and learning (Domenech & Gomez, 2014; Jurik et al., 2014). Educators enhance students' educational experiences in various academic, cognitive, and personal domains. Their role extends well beyond merely presenting information—they influence how students engage with knowledge, acquire skills, and develop as individuals (Malla & Mattoo, 2022). Teachers are often viewed as emotional contagions, meaning that the emotions teachers exhibit in the classroom can be passed on to students (Frenzel et al., 2018), and they often emulate the conduct of their educators. When instructors exhibit emotional composure, tranquillity, and assurance, pupils are more inclined to embrace comparable dispositions, creating a constructive learning atmosphere that nurtures their academic and personal growth. An effective teacher must have strong communication abilities, good classroom management, up-to-date knowledge, and a balanced personality. When a teacher is approachable and friendly, students' views towards the instructor will be positively

influenced since pupils prefer teachers who are friends with them and open to conversation (Ehindero & Ajibade, 2000; Celep, 2004, p. 76).

2.3 Digital Transformation

In addition to the effectiveness of teacher communication, digital technology is transforming the education sector, resulting in a more interactive and engaging experience; therefore, it is essential to integrate technology and pedagogy to remain competitive. The integration of technology in education greatly influenced students' academic achievement (Okoye et al., 2024). Digitalisation involves transforming information into a digital format and encompasses the widespread use and incorporation of digital technologies into different areas of life. Digital competence includes a wide range of abilities, knowledge, attitudes, and skills necessary for the effective use of information and communication technologies (ICT) and digital media in different areas, such as performing tasks, communicating, managing information, solving problems, collaborating, creating content, and enhancing knowledge (Ferrari & Punie, 2013). Digitalisation supports SDG 4 by expanding access to learning through online platforms and remote education, by improving teaching quality via digital tools (e.g. smart boards, learning management systems, AI tutors), and fostering digital literacy- a crucial 21st-century skill when used effectively. Digital tools and online platforms have a beneficial impact on student engagement, motivation, and academic achievement. They play a significant role in improving educational experiences and results (Rafiq et al., 2024). Lukose & Agbeyangi (2025) indicate that digital learning resources improve student engagement and academic success, but there is a need for improved infrastructure, training, and well-defined policies to ensure effective implementation. The advent of digital technologies has fundamentally transformed the education system. A new age has begun with the global connectivity of the Internet and numerous smart devices linked to it. Consequently, it is the responsibility of instructional designers and educators to harness the power of advanced digital technology to transform education, ensuring that effective and efficient learning is accessible to all, regardless of location (Haleem et al., 2022). Digital classrooms, videos, augmented reality, robotics, and various technological tools enhance the learning experience and contribute to inclusive educational settings which promote teamwork and inquisitiveness, while enabling educators to gather information on student performance (Brem et. al., 2021).

The pervasive digital transformation engulfing the educational setting has instigated a profound, fundamental alteration in the mechanisms of communication within the academic environment. This transition surpasses superficial modifications, fundamentally elevating the standard, pace, and scope of engagement and knowledge dissemination. Djibran et al. (2024) note that digital technology is transforming education, making it a more dynamic and engaging experience; therefore, it is essential to integrate technology into the curriculum to remain competitive. This transformation benefits both educators and learners through the strategic adoption and integration of sophisticated digital tools and platforms. A diverse set of technologies comprises these tools, including Learning Management Systems (LMS), video conferencing software, interactive whiteboards, collaborative document editors, and personalised learning assistants powered by AI. The incorporation of digital resources contemporizes instructional methodologies and simultaneously equips students with the competencies needed to engage in a technologically advanced society (Bećirović, 2023). The education sector is undergoing a paradigm shift, transitioning from the traditional unidirectional flow of information—from the teacher to the student—to a dynamic, interactive exchange among various participants. As education becomes increasingly digital, it is essential to organise educational content through technological advancements (Arisoy, 2022).

Educators now have the ability to deliver rich multimedia content, provide instantaneous feedback, and manage complex learning workflows with unparalleled efficiency. Digital methods such as PPTs, video presentations, e-learning techniques, online training, and other technological approaches are progressively incorporated into the teaching-learning process (Ozdamli & Cavus, 2021; Lacka et al., 2021). Simultaneously, learners benefit from enhanced accessibility to resources anytime, anywhere, fostering self-paced study and promoting active engagement. The integrated nature of these digital systems ensures that communication is not fragmented but centralised, creating a unified and coherent learning ecosystem that supports deeper collaboration, personalised learning pathways, and a more interactive educational experience for everyone involved.

3. Research Gaps

The body of research reviewed indicates that existing studies have extensively explored how teachers' communication effectiveness, digital technologies, students' ability, institutional support, etc., play a significant role in enhancing the quality of education. However, there is a paucity of research that has integrated core determinants of education, digital technologies, and communication effectiveness of teachers within a single comprehensive framework to explain Quality Education. Insufficient attention has been given to how core determinants of education, with digital transformation and pedagogical communication effectiveness, as mediators, ultimately shape the quality of education. Institutions are increasingly investing in digital infrastructure; nevertheless, there is insufficient evidence that technological integration alone improves educational quality. There is a scarcity of studies examining whether teachers' communication effectiveness and digital integration are a critical mechanism for transforming core determinants into meaningful educational outcomes. This creates a practical need for policymakers and institutions to identify pedagogical effectiveness and digital transformations that maximise the quality of education.

4. Integrative Discussion and Proposed Model

Teachers' digital skills are essential for achieving optimal teaching outcomes, and a significant correlation between teachers' digital competencies and their effectiveness has been observed (Iqbal et al., 2024). The current technological revolution is transforming traditional teaching methodologies into digital formats, necessitating techno-pedagogical knowledge, the expansion of digital skills, and strong communication abilities to facilitate a favourable learning atmosphere in the classroom and engaging learning experiences. In the framework of rapid digital advancement, digital literacy plays a vital role in students' comprehension and retention of information. This encompasses the ability to participate effectively in online environments and to understand the social and ethical implications of digital engagement. In addition, digital literacy fosters critical and collaborative thinking, which are essential skills for addressing future challenges in the workforce and global community (Livingstone, 2020).

In the rapidly globalising world, the survival of societies depends on Sustainable development to meet current needs without compromising the capacity of future generations to meet their own needs. One of the Sustainable Development Goals is Quality Education, which aims to ensure inclusive, equitable and holistic education. The conception and utilisation of technology have emerged as key priorities for societies alongside sustainable development. But this rapid pace of advancement and transformation brings about several complex challenges for society. The influence of technological progress has made a conspicuous change in the educational system as well. It is crucial for educators to present information clearly, with empathy and responsiveness, and to support their students in using the most current technological tools and materials in this digital or hybrid environment. It's the clear communication of the teachers which improves cognitive learning by reducing redundant cognitive load (Bolkan, 2016, 2017b), providing organisational assistance (Bolkan, 2017b), and helping students connect new information to the existing storehouse of knowledge (Bolkan, Goodboy, & Kelsey, 2016). Furthermore, clarity in teachers' communication promotes effective learning as it is associated with teacher immediacy. The primary role of educators is to provide classroom instruction, and there is a broad consensus that high-quality teaching is essential for enhancing student achievement (Titsworth et al., 2015; Fauth et al., 2019).

After analysing and synthesising the literature, it has been found that digital transformation and teachers' effective communication are essential for quality education, along with certain core determinants of education. Based on this analysis, a framework is proposed in which both digital transformation and teachers' communication effectiveness act as mediators between core determinants of education and quality education.

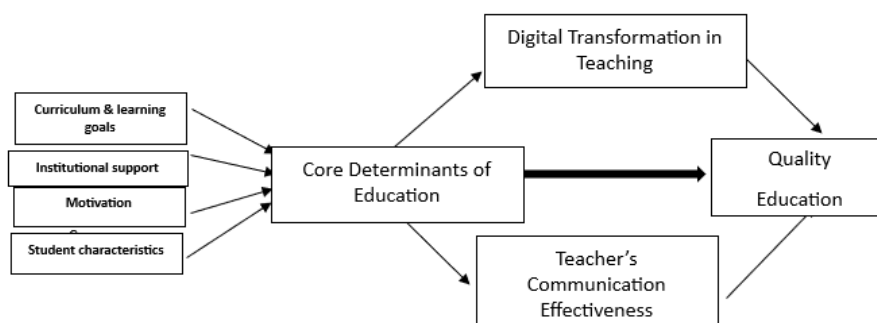


Figure 1. Proposed framework for Quality Education

The current article focuses on fundamental pedagogical, technological, and infrastructural aspects that influence the teaching–learning process. In contemporary educational discourse, quality education has many facets, shaped by the interplay among instructional strategies, technology integration, and institutional support networks. Therefore, the current article views core determinants as crucial antecedents of quality education, with teachers' communication effectiveness and digital transformation acting as mediators. The core determinants, such as student characteristics, curriculum & learning goals, institutional support and motivation, create the foundational learning environment. Systems theory advocates that the efficient operation of interrelated factors and necessary infrastructure facilities is central to efficient organisational outcomes. In the absence of adequate and sufficient infrastructure, the efficacy of digital and communication initiatives may be limited, thereby reducing their contribution to the quality of education (Earthman, 2004).

The core resources are insufficient unless and until they are skillfully integrated with pedagogical practices, which act as mediators. The constructivist theory proposes that learning is an active, socially mediated process in which knowledge is shaped through conversation and interaction (Vygotsky, 1978). Teachers' communication effectiveness becomes vital in this paradigm as it promotes scaffolding, feedback, and collaborative phenomenology. Teaching is fundamentally an act of communication; therefore, teachers' understanding of communication as a process rather than an individual activity has a profound impact on the quality of education. An appropriate understanding of the communication process and an effective communication system within an educational institution can drive effective functioning and student learning outcomes (Mahdi, 2023). Empathetic and effective communication enhances student engagement and motivation. Educators who implement supportive communication styles strengthen both emotional and intellectual involvement of learners, making them active participants rather than passive recipients (Ruby, 2025). The key component of the communication process that makes it two-way is Feedback. Teachers who understand this process give timely, constructive feedback to students, encourage dialogue, and adjust their teaching strategies to meet students' requirements. Constructive and empathetic feedback has a positive impact on student-teacher relationships, enhancing the instructional quality of the class and overall educational standards (Pang & Xie, 2026).

Educators spend substantial time speaking and being the initiator of the communication process; nevertheless, being an active listener is an equally important component of the teacher's effectiveness. The ability of teachers to listen effectively is crucial to providing high-quality education, as it enhances student involvement, fosters healthy classroom relationships, and supports inclusive learning environments. UNESCO (2017) states that inclusive education demands attention to the needs of all learners, an aspect that active listening directly facilitates, making listening a key factor of effective pedagogy and holistic student development. Active listening involves focus, analysis and empathy, while a teacher's listening skills also need to focus on comprehending students' inquiries, reactions, feelings, and educational requirements. Emotional encouragement from teachers is important for students to succeed, and active listening is a major feature of this support (Browell, 2012). Educators' ability to convey their emotions and understand students' feelings is a foundation of quality education. An instructor who can express their feelings can establish a friendly, engaging classroom environment, and their communication is

correlated with students' satisfaction and sentiments (Dhillon & Kaur, 2021). When educators demonstrate enthusiasm, compassion, and support, this eases students' anxiety, making them feel secure and motivated and improves their participation. Recognising and addressing students' emotions builds trust and strengthens relationships. When students feel this connection, they can express themselves honestly and ask for assistance, building a strong teacher-student relationship. Teachers with high emotional intelligence foster a more supportive and inclusive classroom environment, both for emotional well-being and academic performance. Emotional skills lower stress levels and sustain a positive learning environment. (Iqbal et al., 2024; Lu & Chen, 2024). The ability to be aware of personal emotions and the emotions of others aids in managing successful interactions and ensures clear communication.

The comprehension, retention and application of the information by the students depends on how clearly teachers are able to communicate their messages. Clear and effective communication builds trust and minimises confusion, promoting a supportive classroom atmosphere. Clarity in the teacher's instructions makes classes more interesting by reducing boredom and disengagement, facilitating discussion between teachers and students (Marzano, 2007). Students are more confident in their assessments, hence improving their academic performance. In modern education, teachers' ability to convey diverse viewpoints and validate students' diverse opinions is important for effective instruction. This methodology aligns with dialogic and inclusive teaching, which promotes the sharing of multiple perspectives. These strategies greatly improve the educational experience by nurturing critical thinking, engagement and a democratic learning environment (Kavangh et al., 2025) where all students feel important. Students experience a sense of psychological safety and feel more confident when their teachers honour their diverse viewpoints and mutual respect grows (Quick & Erickson, 2024). This has a direct impact on the overall quality of education. Effective teacher communication ensures that students fully understand the information, whereas digitalisation improves the methods by which this communication occurs.

Digital transformation is conceptually supported by models of technology acceptance and integration, including the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) and the Technology Acceptance Model (TAM) (Davis, 1989). These models highlight how perceived utility and usability of technology significantly influence its adoption and effects. By enabling interactive, flexible, and customised learning experiences, digital technologies expand the scope of information delivery in educational contexts and support constructivist principles (Selwyn, 2016). Learning management systems, like Google Classroom, are centralised online platforms for organising educational activities. They make it easier for teachers and learners to communicate, submit assignments, receive feedback, and distribute content. Thereby, the adoption of LMS improves accessibility and learning continuity. Accommodating a variety of learning styles, smart technology (interactive boards, virtual labs) and multimedia resources (videos, animations, simulations) enhance the teaching-learning process. Smart technologies also encourage active learning and classroom interaction, which align with constructivist teaching. Their application improves comprehension and motivation by transforming standard training into an interesting, student-centred experience.

Mayer (2001) suggests that employing audiovisual tools in education greatly enhances students' comprehension. The continuous, adaptable, and data-driven assessment of student performance is made possible by online assessment systems. Through tests, assignments, and automated grading, these systems facilitate both formative and summative evaluation. They also improve the efficiency, scalability, and transparency of evaluation systems—all of which are critical for preserving high-quality instruction in digital settings. By facilitating individualised and flexible learning experiences, artificial intelligence (AI) and analytics have a revolutionary impact on contemporary education. AI-powered systems are able to forecast performance, analyse student behaviour, and suggest customised learning paths. The integration of AI into education can improve overall educational quality and raise academic standards. Flipped learning is a pedagogical approach that reverses the traditional classroom model, with students exposed to the material before class and using class time to deepen understanding through peer discussion and teacher-led problem-solving exercises. In flipped learning, students acquire knowledge before class and utilise class time to practice and apply concepts and ideas through interaction with teachers and peers. After the class, students consider the feedback they received and reflect on their own learning. These attributes of

digital transformation, together, improve the accessibility, interactivity, and effectiveness of the teaching-learning process.

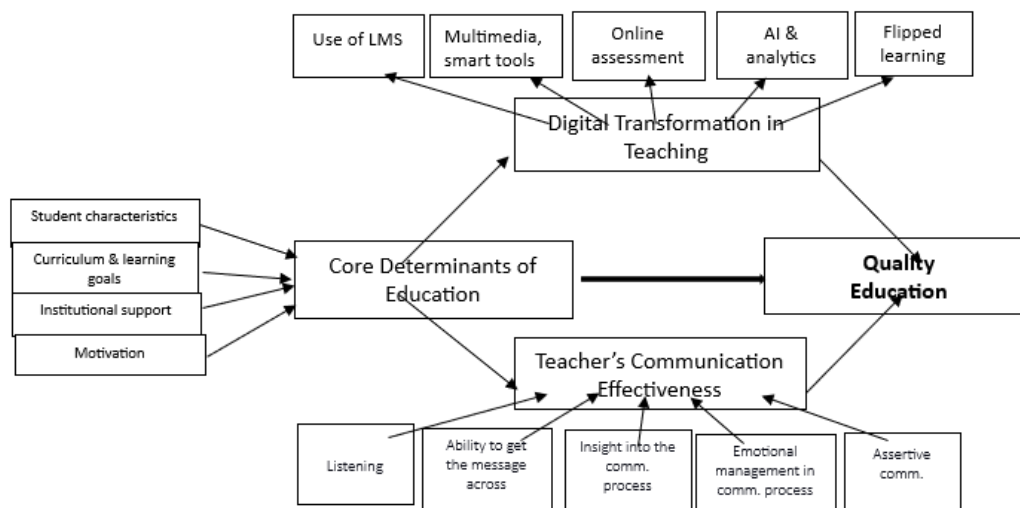


Figure 2. Mediating Variables of Comm. Effectiveness & Digital Transformation for Quality Education

When taken as a whole, these theoretical stances imply that core determinants, teachers' communication effectiveness and digital transformation work synergistically to provide quality education rather than coming from separate sources. The core determinants create a supportive atmosphere; digital transformation improves delivery and accessibility; and teachers' communication effectiveness increases student engagement. These elements work together to enhance student learning outcomes, skill development, and overall educational quality through effective teaching strategies.

5. Conclusion

Quality education, one of the 17 Sustainable Development Goals, ensures opportunities for inclusive, equitable, and continuous learning that foster holistic development and equip students with life skills, knowledge, and character. It ensures a safe and secure learning environment, trained faculty and engaging curriculum. A classroom is a dynamic communication environment, and effective communication in the educational field depends on the teacher's ability to articulate their thoughts and ideas clearly, concisely, and confidently. Teachers' effective communication can design a learning experience that sustains the students' interest and keeps them motivated. To be an effective communicator, an instructor must continuously alter content and style of communication to match students' requirements. With digital transformation, there is an evolution in conventional teaching approaches. Given that effective teacher communication is the backbone of education, and the use of digital technology enhances this effectiveness, both become essential components for quality education. The current study discusses how core determinants of education, with digital transformation and teachers' effective communication as mediators, enhance quality education. Digital transformation and the use of AI offer incredible opportunities to improve engagement and accessibility, and to enable personalisation and adaptive learning. The study will benefit academicians' pedagogical effectiveness by strategically incorporating digital resources and communication strategies, enabling them to create more interactive, inclusive, and responsive learning settings, leading to improved overall results and quality education, thereby fulfilling the SDG4 goal.

6. Implications of the Study

The results of this study constitute a valuable contribution to the scholarly literature and have practical implications for educational policymakers, administrators, and instructors. A framework has been designed that highlights the importance of digitalisation and teachers' communication effectiveness as mediators, alongside the

core determinants of education. This framework has implications for academicians' pedagogical practices, professional development, and students' academic success. The digital transformation would help students to be aware of global challenges. By understanding the mediating roles of teachers' communication effectiveness and digitalisation between the core determinants and Quality Education, one of the 17 Sustainable Development Goals, a favourable learning classroom environment can be established, enabling students to comprehend shared knowledge and information. The teaching profession can be given a novel direction that will elevate students' classroom participation, academic performance, social skills and interpersonal abilities.

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