

Evidence-Based Educational Interventions for Advancing Quality, Equity and Accessibility: A Narrative Review of Policy and Practice

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ABSTRACT: Enhancing the quality, equity and accessibility of education is still a major issue for the educational systems throughout the world. Although the school enrollment has risen in several countries, it does not necessarily ensure proper learning, fair opportunities or active involvement for all students. The persistent inequalities concerning poverty, disability, language, gender, immigration status, rural area and the lack of information technology still affect the educational results. This literature review investigates evidence-based educational measures which can improve the learning quality, decrease inequality and broaden the access to education. It combines the findings from peer-reviewed articles, systematic reviews, meta-analyses, policy statements and international documents mainly published between 1995 and 2026.

The review points out several important aspects which have significant effects on policy and practice, such as teacher's professional training, formative evaluation, guidance, systematic support for literacy and mathematics, individualized instruction, inclusive education, early childhood education, parent involvement, electronic access to resources, open educational materials, learning aided by artificial intelligence, data-based decision-making and instructional leadership. In order to meet the present requirements of educational reforms, the article also stresses the significance of interdisciplinary cooperation between teachers, policy makers, technicians, psychologists, community members and parents. This cooperation is crucial for developing teaching methods which are both pedagogically sound, technically convenient, psychologically supportive and socially inclusive.

The results indicate that evidence-based measures are highly efficient when modified according to local conditions, consistent with the objectives of equity and backed by adequate implementation resources. Moreover, this study associates these measures with the United Nations Sustainable Development Goal 4 on equitable and quality education, SDG 10 on minimizing inequalities and SDG 17 on promoting sustainable development through partnerships. Present research on the digitalization and application of artificial intelligence in education also suggests that educational advancement needs not only the introduction of technology but also ethical management, enhancement of teachers' abilities, equity-oriented implementation and lasting partnerships. The paper emphasizes that evidence should be regarded as a flexible guiding principle rather than a fixed technical method, serving as a means for professional decision-making, institutional improvement and all-inclusive reforms. Its main contribution is to put forward an integrated quality-equity-accessibility framework to promote teaching innovations, educational reforms and Universal Basic Education.

Keywords: Evidence-based education, Educational equity, Educational quality, Accessibility, Inclusive education, Formative assessment, Teacher professional development, Tutoring, Digital divide, Artificial intelligence in education, Sustainable development goals, Transdisciplinary collaboration, Narrative review.

1. INTRODUCTION

Education is necessary for personal development, economic involvement, democratic activities and social mobility. Nevertheless, the increase of school attendance all over the world has not entirely eliminated the inequalities in opportunities and bad teaching effects. In

certain educational systems, the students go to school but fail to gain dependable reading, calculation, computer

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literacy or critical thinking abilities. This situation is called a global learning crisis, particularly impacting the children from poor families, distant places, minority language groups and unstable areas (World Bank, 2018).

The importance of the relationship among educational accessibility, quality and equity has been raised by the worldwide action on Sustainable Development Goal 4. SDG 4 intends to offer universal and equal educational opportunities and lifelong learning for everybody (UNESCO, 2015). This obligation is important as it not only improves the education policies but also requires the systems to consider whether the learners really gain beneficial knowledge, whether the poor people are assisted and whether the educational environment is appropriate for various kinds of learners.

In addition to SDG 4, education reform is also connected with other Sustainable Development Goals. SDG 10 emphasizes the reduction of both intra and inter country inequalities, which has a close relation to the educational equity of the underprivileged students, like those from poor families, rural areas, migrant groups, minority languages and disabled learners. SDG 17 stresses the importance of cooperation for sustainable development. This is particularly necessary in education, because the construction of excellent and inclusive reforms cannot be achieved only by the schools. It requires joint cooperation from the governments, educational institutions, technological suppliers, medical and psychological services, families, non-governmental organizations and local communities.

Recent changes in the global situation indicate that the education systems are being modified due to demographic variation, the digital revolution, advancement of artificial intelligence, instability in labour market and growing social disparity. The OECD's Trends Shaping Education 2025 indicates that the education policies should adapt to the complicated social and technological modifications, such as the requirement of digital ability, continuous learning, resistance and more equitable systems (OECD, 2025). These changes highlight the necessity of evidence-based measures which can promote both innovation and justice.

Evidence-based educational measures can solve these problems. Evidence-based education means using research results, systematic assessment and professional experience to make educational decisions (Davies, 1999). It is against reforms solely depending on tradition, political inclination or administrative advantages. On the contrary, it motivates policy-makers and

implementers to consider which interventions are effective, for which students, under what circumstances and with what results.

Nevertheless, the application of research evidence cannot be considered as a fixed approach in education. Education is an interactive, interpersonal and environment-related procedure. The result of the same measure might differ depending on the teacher's ability, school facilities, student background, curriculum coordination, digital equipment and local customs. Hence, realistic evaluation evaluates not only if an intervention is effective, but also what is effective, for whom, in what situations and why (Pawson & Tilley, 1997).

A viewpoint from different fields is required for the comprehension of evidence-based educational reform. Differently from a single-field study which considers teaching, technology, psychology or policy individually, transdisciplinary cooperation combines knowledge across the boundaries of professional and community. Teachers give their experience in teaching; the policymakers supply the regulations and financial aids; the technologists make the digital and auxiliary tools; the psychologists present the ideas about motivation, happiness and individual differences in learning; and the community participants make sure that the interventions are culturally appropriate and acceptable locally. Such kind of cooperation can encourage the innovation of teaching by guaranteeing that the reforms are not only based on evidence, but also comprehensive, practical, extendible and socially adaptive.

This document describes the efficient methods to improve the quality, fairness and convenience of education. It is regarded as a narrative review instead of an empirical study. Firstly, it explains the theoretical foundation of evidence-based education. Secondly, it refers to the research techniques used in the review. Then, it collects evidence from important intervention areas. Furthermore, it evaluates the effects of policies and practices. Finally, it outlines the main results of the review and emphasizes the significance of considering quality, fairness and convenience as interrelated goals in educational reform.

■ 1.1. Conceptual Background

Evidence-based educational intervention denotes a thorough approach, plan or measure which is based on trustworthy studies and aimed at enhancing educational results. Such interventions can be carried out at the classroom, school, organizational or network level.

■ 1.1.1. Educational Quality, Equity and Accessibility

Educational quality indicates the ability of education to achieve meaningful learning, personal growth and future involvement. It includes aspects such as teacher efficiency, appropriateness of curriculum, assessment methods, learning materials, students' involvement and school atmosphere. Hattie's meta-analysis of reviews proves that feedback, definite teaching and formative evaluation have important impacts on students' achievements (Hattie, 2009).

Quality is not only determined by test results. It also involves well-being, creativity, citizenship, moral growth, digital ability and social involvement. Biesta believes that education should deal with the issues of purpose and value instead of merely technical efficiency (Biesta, 2007). Hence, the quality education should enable the students to gain knowledge, improve their judgment and act responsibly in society.

Educational equity indicates that each student is given an equal chance to achieve success. It does not imply that they are treated in the same way. Those students who are influenced by poverty, disability, language difficulties, discrimination or immigration need more assistance to enter and accomplish success. According to the OECD research (2012), the most efficient educational systems decrease the impact of social and economic conditions on academic achievements.

Equity should be taken into consideration in the distribution of resources, special assistance, inclusive teaching methods and evaluation systems. It also involves the investigation of achievement differences instead of concentrating solely on the average performance.

Accessibility means eliminating obstacles which hinder access, involvement and success in education. These obstacles might be of physical, economic, electronic, linguistic, cultural or institutional nature. For the disabled students, accessibility needs proper adjustment, universal design and aid tools (World Health Organization & UNICEF, 2022).

Accessibility is not limited to the physical entrance of the school. Students should be able to participate actively in the teaching materials, evaluations, communications, social events and electronic learning systems.

■ 1.1.2. Transdisciplinary Collaboration and Educational Reform

Educational intervention based on evidence is now required for transdisciplinary cooperation. The

educational problems like learning poverty, digital isolation, accessibility for disabled people, language obstacles, student detachment and mental health disorders cannot be resolved merely by classroom teaching. These are complicated social issues influenced by pedagogy, family environment, institutional arrangement, public expenditure, digital facilities, psychological condition and cultural background.

In this evaluation, transdisciplinary cooperation includes the combination of knowledge and actions among teachers, administrators, engineers, psychologists, parents and members of the local community. Teachers are in charge of converting evidence into teaching materials, instructions and evaluations. Administrators establish favorable environments by means of financial assistance, responsibility, regulation and overall system planning. Engineers facilitate access to information technology, learning statistics, free educational materials, assistive devices and artificial intelligence applications. Psychologists and counselors offer understanding regarding students' motivation, mental health, social and emotional growth as well as special educational requirements. Parents and the local community supply relevant background information and assure that the measures taken are culturally appropriate and socially acceptable.

This opinion is significant since educational reforms seldom fail due to insufficient evidence, but rather because of variations in implementation. For instance, a digital learning system might be highly advanced technologically, however it may possess inadequate teaching techniques, be unsuitable for students with disabilities or unavailable to those without reliable Internet access. In the same way, an assessment reform may be properly arranged, but it will be ineffective if the teachers are not adequately trained or if the parents are not aware of its objectives. Consequently, cooperation between various fields can improve both the design and execution of evidence-based measures.

■ 2. RESEARCH METHODS

This manuscript used a narrative literature review method to investigate evidence-based measures concerning educational quality, equity and accessibility. A narrative review was deemed suitable since the subject is extensive, multi-disciplinary and of a policy nature. The review combines information from education, psychology, information technology, inclusive studies, public policy and sustainable development.

■ 2.1. Research Design

The study is qualitative and does not include new survey data, interview data or experimental results. It combines the existing empirical studies, systematic reviews, meta-analyses, academic books, policy documents and reports from international organizations. The aim is not to obtain a single effect size, but to determine the main intervention fields, to compare the evidence in different fields and to establish a comprehensive framework for policy and action.

A narrative review is suitable for investigating the connection between evidence, environment and application. Educational measures are affected by local circumstances, such as teacher capability, school facilities, information technology equipment, linguistic variety, familial background and governmental assistance. Thus, the review considers not only what is effective, but also for whom, in which environment and why.

■ 2.1.1. Research Questions

The review was guided by the following research questions:

1. Which evidence-based interventions are associated with improved educational quality?
2. Which interventions are most relevant for reducing educational inequity?
3. What kinds of strategies based on inclusiveness, digitization and support from AI can enhance educational accessibility?
4. How do evidence-based educational interventions contribute to SDG 4, SDG 10 and SDG 17?
5. What are the required conditions for making evidence-based interventions scalable and sustainable?

■ 2.2. Literature Search Strategy

To ensure transparency and reproducibility, a systematic search method was adopted to find relevant documents. The literature search was carried out from 1995 to 2026. Foundation works which were cited widely and still have influence in the field, such as the Coleman Report and early studies on formative assessment, teacher quality and realistic evaluation, were included when published before this period.

The following databases and sources were consulted:

1. Scopus

2. Web of Science
3. ERIC
4. Google Scholar
5. ScienceDirect
6. SpringerLink
7. Taylor & Francis Online
8. OECD iLibrary
9. UNESCO Digital Library
10. World Bank Open Knowledge Repository

The search terms included combinations of the following keywords:

"evidential teaching", "teaching measures", "teaching efficiency", "educational fairness", "easy access to teaching", "inclusionary teaching", "teacher skill enhancement", "formative evaluation", "guidance", "organized knowledge acquisition", "number improvement program", "supplementary teaching", "early childhood training", "parental participation", "information gap", "open learning materials", "application of technology in education", "adoption of new technology", "integration of technology", "goal four for sustainable development", "target ten for sustainable development", "target seventeen for sustainable development", "implementation of educational policies" and "multidisciplinary cooperation".

Boolean operators were used to combine search terms. Examples included:

1. "evidence-based education" AND "equity"
2. "teacher professional development" AND "student achievement"
3. "AI in education" AND "inclusive education"
4. "digital transformation" AND "educational accessibility"
5. "SDG 4" AND "quality education" AND "equity"
6. "education reform" AND "implementation" AND "sustainability"

To improve the currency of the review, emphasis was placed on the recent studies and policy reports released between 2024 and 2026. These recent materials were applied to revise the discussion about educational innovation, artificial intelligence in education, generative AI, digital transformation, AI literacy, learning analytics and ethical governance. The incorporation of recent literature was aimed at dealing with the new

developments in teaching and learning after the COVID-19 pandemic and during the fast progress of AI-based education.

■ 2.3. Inclusion and Exclusion Criteria

Sources were included if they met at least one of the following criteria:

1. They examined educational interventions related to learning quality, equity or access.
2. They offered empirical, systematic, theoretical or policy-oriented evidence concerning educational reform.
3. They were published in peer-reviewed journals, academic monographs or by reliable international organizations.
4. They were widely cited in educational research or policy literature.
5. They presented clear indications for classroom practices, school improvements, digital transformations or system reforms.
6. They discussed the recent advancements in educational innovation, artificial intelligence, digital learning and inclusive education.

Sources were excluded if they:

1. Were not directly related to education.
2. Lacked sufficient publication information.
3. Were entirely opinion-based without theoretical, empirical or policy support.
4. Did not discuss educational quality, equity, accessibility or implementation.
5. Focused only on commercial products without broader educational relevance.

■ 2.4. Analytical Procedure

The selected references were classified thematically. Firstly, the sources were divided into different intervention fields. Secondly, the main results, the working principles of the interventions and the policy significances were extracted. Then, the similar trends were detected among the studies. Next, the findings were arranged into some thematic groups. Lastly, the investigation established a comprehensive framework relating to the quality, equity, accessibility, sustainability and interdisciplinary implementation.

■ 2.4.1. Thematic Categories

The review identified eight main categories:

1. Teacher quality and professional development
2. Formative assessment and feedback
3. Literacy, numeracy and targeted academic support
4. Socioeconomic equity and resource allocation
5. Inclusive education and disability accessibility
6. Early childhood education and family engagement
7. Digital accessibility, open educational resources and AI-supported learning
8. Data-informed decision-making, instructional leadership and policy implementation

■ 2.5. Methodological Limitations

This review has some restrictions. Firstly, it is founded on secondary materials instead of direct investigation. Secondly, though a systematic search method was applied, the review is still in a narrative form and thus does not involve formal evaluation or statistical synthesis. Thirdly, the studies included in the review originate from various national and institutional backgrounds; therefore, they should be modified with caution before being put into practice. Fourthly, some educational results like wellbeing, sense of belonging, creativity and civic involvement are harder to evaluate than academic scores. These drawbacks suggest that the review should be regarded as a comprehensive summary rather than an absolute evaluation of the interventions.

■ 3. FINDINGS FROM THE LITERATURE REVIEW

The examined documents show that evidence-based measures can enhance the educational standard, equality and availability when they are carried out regularly and modified according to the situation. One single measure is not enough. Continuous improvement is based on the cooperation between classroom procedures, school management, special assistance, inclusive systems, digital facilities and policy ability.

■ 3.1. Teacher Quality and Professional Development

Teacher's capability has a significant effect on students' learning. Despite the differences in students' backgrounds, efficient teaching can considerably enhance their performance and lessen the differences in learning.

Darling-Hammond's evaluation indicates a close connection between teacher training, certification and academic results (Darling-Hammond, 2000). It implies that the educational standard cannot be enhanced merely by modifying the curriculum or the examination methods. Teachers require subject knowledge, teaching abilities, capability in classroom management and insight into the variety of learners.

Teacher education is important for equality since students from underdeveloped regions usually learn from incompetent or inexperienced teachers. Therefore, improving teacher training and retaining qualified teachers in the underprivileged schools can increase both the standard and equality.

Professional growth is more efficient when it is continued, cooperative and related to teaching experience. Desimone (2009) has pointed out five elements of effective professional development: content emphasis, practical learning, continuity, length and group participation. Timperley and his colleagues believe that professional training should start with information about the students' learning requirements and should be assessed by its effect on the learners (Timperley *et al.*, 2007).

Schools ought to prevent separate training sessions which are not related to the classroom situations. The professional development should comprise of lesson observation, coaching, examination of students' works, cooperative planning and consideration of instructional problems.

It is also important to have collaboration among teachers. Collective teacher efficacy represents their ability to improve students' learning. Goddard, Hoy and Woolfolk Hoy (2000) stated that collective teacher efficacy has an effect on students' achievements. This finding verifies the significance of professional learning communities, peer coaching and collaborative curriculum development.

In regard to the digital transformation and education assisted by AI, the teacher's professional training should cover digital pedagogy, data literacy, ethical application of AI and the design of inclusive technology. The teachers not only need to know how to use the digital tools, but also when and why these tools are beneficial for the learning process.

Recent investigations at an international scale show that the teachers' capability is significant for educational

reforms in the rapidly developing countries. The OECD (2025) recommends that educational systems should provide both teachers and students with the skills to cope with digital changes, overcome uncertainties, keep up with their own education and meet the updating demands of the job market. Therefore, the teacher's professional training should not only concentrate on subject teaching. It should also include digital skills, knowledge about AI, adaptive teaching techniques, inclusive education and moral judgment.

■ 3.2. Formative Assessment and Feedback

Feedback is advantageous for acquisition when it is applied formatively instead of solely summatively. Formative evaluation includes obtaining information about students' understanding throughout the learning process and utilizing it to modify instruction.

Black and Wiliam's study shows that formative assessment can lead to notable improvements in learning, especially when teachers adjust their teaching based on assessment results (Black & Wiliam, 1998). This is particularly important from an equity standpoint as students falling behind need timely help. If the misunderstandings are found out early, suitable explanations can be given, or extra practice and different representations offered to bridge the knowledge gaps before they become worse.

Feedback is very helpful when it is clear, timely and connected with the learning task. Hattie and Timperley suggest that effective feedback enables learners to know their objectives, present situation and future actions (Hattie & Timperley, 2007).

This indicates that the feedback should include both praise and criticism. Words like "good work" or "try harder" are not adequate. The proper feedback ought to highlight a strength, point out an error and propose a feasible method to enhance. In the written expression, it may require to rearrange the argument or to reinforce the evidence. In mathematics, it is necessary to explain the reasoning instead of just indicating the wrong final result.

Electronic devices and learning analytics can assist in formative evaluation by offering prompt feedback on the progress of the learners. Nevertheless, the judgment of the teachers should not be ignored. The data should be interpreted cautiously, particularly when dealing with students having different linguistic, cultural or social economic backgrounds.

■ 3.3. Literacy, Numeracy and Targeted Academic Support

Basic abilities in reading and arithmetic are important for subsequent studies. Those who fail to gain these skills at an early age may encounter a progressive disadvantage in various subjects.

Evidence indicates that structured literacy instruction is advantageous for reading-disabled students. Slavin and his colleagues have discovered that efficient reading programs usually contain structured teaching, cooperative learning and tutoring (Slavin *et al.*, 2011). The National Reading Panel has recognized phonemic awareness, phonics, fluency, vocabulary and comprehension as the main elements in reading instruction (National Reading Panel, 2000).

These results indicate that literacy education ought to start at an early age, be carried out in a structured way and involve periodic evaluation of the progress. Special assistance is necessary for those learners coming from poor families, having multiple languages or living in areas with restricted access to books and reading materials.

Those who have difficulty in mathematics can gain advantage from clear explanations, visual illustrations and supervised practice. Gersten and his colleagues have indicated that effective mathematics teaching for learners with learning problems should contain clear instruction, visual representations, formative evaluation and chances to describe mathematical concepts (Gersten *et al.*, 2009).

Tutoring is beneficial for improving learning outcomes. Nickow, Oreopoulos and Quan have shown that tutoring programs have significant positive effects, particularly when they are carried out regularly, are organized well and are instructed by trained tutors (Nickow *et al.*, 2020). Tutoring is also essential for equality because wealthy families can generally afford private tutoring, while disadvantaged students may not receive additional help. Hence, publicly funded tutoring can reduce the differences in achievement.

Recent educational rehabilitation programs during the COVID-19 outbreak have emphasized the necessity of individualized academic assistance. The loss of learning has not influenced all students in the same manner. Students who are disadvantaged, those with disabilities and those having poor digital access have suffered more from the disruption. Therefore, structured tutoring, additional learning hours and diagnostic tests are

significant approaches for both recovery and lasting equity.

■ 3.4. Socioeconomic Equity and Resource Allocation

Socioeconomic status still plays a significant role in affecting educational results. Children coming from low-income families might encounter unstable dwellings, food uncertainty, less number of books, fewer electronic equipments, poor internet access and fewer extra curricular activities.

The Coleman Report demonstrated a close connection between family background and educational results (Coleman *et al.*, 1966). Nevertheless, this result should not be considered as proof that schools have little influence. Recent studies show that schools can have a significant effect on education if the teaching quality, resources, leadership and support systems are adequate.

Equitable systems should distribute more resources to those students and schools which have greater requirements. The OECD believes that both equity and quality can be improved simultaneously when the disadvantaged schools get adequate assistance (OECD, 2012). Special funds can help in providing instruction for small groups, counselling, teaching materials, tutoring, school meals, health care and family participation.

Nevertheless, money alone is not enough. The resources need to be linked with efficient plans and proper execution. Moreover, extra funds should be based on the professional education, the duty to obtain fair results and the assessment of whether the help reaches the students in greatest need.

From a cultural viewpoint, equity is significant. Gay (2010) mentions that culturally responsive teaching links the instruction with the students' cultural background, experiences and views. Ladson-Billings (1995) points out that culturally relevant pedagogy improves academic results, enriches cultural knowledge and enhances critical awareness. Therefore, equity not only deals with the allocation of resources, but also includes the acknowledgement of the students' identities, languages and cultures in the curriculum.

■ 3.5. Inclusive Education and Disability Accessibility

Inclusive education intends to allow students with disabilities and different learning requirements to take an active part in the educational process. Inclusion is not

only the physical attendance of students in a classroom. It involves an accessible curriculum, appropriate accommodations, assistive techniques, qualified teachers and a positive school atmosphere.

Universal Design for Learning provides methods to create versatile learning environments. CAST recommends providing multiple ways to capture students' attention, present information, conduct activities and convey ideas (CAST, 2018). UDL is beneficial not only for handicapped students but also for bilingual students, those with various learning customs and those who require more help.

Assistive technology can enhance the accessibility for people with disabilities. For instance, screen readers, captions, speech-to-text programs, communication aids, modified keyboards and accessible electronic media are some examples. The World Health Organization and UNICEF consider assistive technology to be very important for individuals' independence, involvement and integration (World Health Organization & UNICEF, 2022).

Nevertheless, technology is not sufficient for ensuring inclusion. The teachers require training to incorporate assistive equipments in teaching and evaluating. The schools also need maintenance systems, technical assistance and inclusive regulations. A device which is unaccessible, defective or inadequately used in class cannot provide significant access.

Inclusive education needs the cooperation among teachers, special educators, psychologists, parents and community organizations. This indicates the significance of interdisciplinary collaboration. Students with disabilities usually need joint academic, social, emotional and technical assistance.

■ 3.6. Early Childhood Education and Family Engagement

Early childhood education is a beneficial approach to enhance long-term educational equality. The development in this stage has an impact on subsequent learning, behaviour and welfare.

Heckman believes that the investment in disadvantaged young children will bring about high economic and social returns since their early skills are beneficial for the development of later skills (Heckman, 2006). The High Scope Perry Preschool study indicates that the participants gained long-term advantages in educational and employment fields (Schweinhart *et al.*, 2005). Barnett (2011) further states that early education programmes

may be effective when they are of high quality and specifically aimed at disadvantaged children.

Early childhood education of good quality should consist of qualified teachers, an age-appropriate program, secure surroundings, communication with the families and consideration for health and nutrition. In areas with limited resources, early childhood programs may also act as a link between the families, healthcare facilities and primary schools.

Family participation is beneficial for the students' learning and performance. Epstein describes six kinds of school-fatherhood-motherhood relationships: parent-teacher, communication, volunteer work, learning at home, joint decision-making and cooperation with the community (Epstein, 2001). Jeynes (2005) found a positive relation between parental participation and academic success in urban elementary school children.

Schools ought to establish respectful contacts with parents, particularly those who might be neglected by the formal educational system. Some effective methods are translated communication, flexible appointment times, home-school liaison members, community gatherings and advice on helping learning at home.

Fatherly participation ought not to be regarded as transferring the responsibility from the school to the parents. Instead, it should be established on cooperation. The schools should realize that families vary in spare time, language, resources, confidence and previous experiences with educational systems.

■ 3.7. Digital Accessibility, Open Educational Resources and AI-Supported Learning

Electronic technology can enhance educational opportunities, but it might also increase the inequality if the availability is not equal. The electronic difference is not only related to the possession of equipment. Van Dijk (2020) indicates that electronic inequality includes access, skills, use and outcomes. Therefore, the educational systems cannot solve the electronic exclusion by providing devices alone. The students require a stable internet access, digital competence, available learning materials, suitable home environment and teachers who can apply technology properly.

Blended learning can improve flexibility by combining face-to-face teaching with online materials. Means and colleagues have also indicated that blended learning might be more efficient than complete face-to-face or complete online learning when arranged properly (Means

et al., 2013). The present discussions about the digital transformation show that technology is advantageous in facilitating active learning, cooperation, formative evaluation and individualized feedback, instead of merely converting traditional lectures into a digital form.

Open Educational Resources can lessen the financial obstacles by providing free or inexpensive teaching and learning materials. UNESCO approves of OER as a way to ensure the universal and equal access to qualified educational materials (UNESCO, 2019). Hilton's study indicates that OER can attain the same learning results as conventional commercial textbooks but at a lower cost to students (Hilton, 2016). In equity-focused systems, OER will be particularly beneficial for students from poor families and schools with limited resources.

Artificial intelligence has become a significant issue in educational reform. The intelligent system can provide personalized practice, automatic assessments, study analysis and assist with language problems. These methods might be advantageous for people with varying learning speeds, different language abilities or special requirements.

Recently, it has been found that the use of AI in education has developed from a preliminary stage to a wider application in schools and universities. Crompton and Burke (2024) state that AI is now mainly used for personalized learning, examination support, intelligent tutoring, evaluation of students and assistance to teachers. However, they mention some issues concerning bias, transparency, data security and unequal chances. These problems influence the educational fairness because the AI systems may advantage the better-off students more than the poorer ones if the necessary factors such as facilities, teachers' training and management are not adequate.

Recent discussions on policies and research indicate that a comprehensive scheme is necessary for digital transformation instead of the adoption of single technologies. The OECD (2025) suggests that educational systems should be modified to meet the fast-paced technological and social developments by enhancing the digital abilities, encouraging lifelong learning, ensuring equality and preserving institutional stability. It implies that the reform of digital education should be carried out in conjunction with the overall educational objectives rather than being considered as an independent technical task.

Discussion on education, assessment and educational administration has been stimulated by the progress of

generative AI. Kasneci *et al.* (2023) believe that large language models can facilitate personalized teaching, offer writing help, perform tutoring and lessen the teacher's workload, however, they also point out the problems of accuracy, prejudice, privacy and academic honesty. UNESCO (2023) stresses that the use of generative AI in education should be conducted according to humanistic principles such as equality, transparency, teachers' autonomy and students' protection.

The OECD Digital Education Outlook 2026 points out that generative AI and digital education systems are important subjects in educational policies. It emphasizes the necessity of effective digital devices based on scientific research, ethical management and teacher's training, as well as a thorough investigation of AI-assisted tools (OECD, 2026). This suggests that AI should be utilized not only when it is innovative or efficient. Therefore, the AI-assisted education should be evaluated whether it can enhance the learning efficiency, decrease the inequality and improve the accessibility.

Therefore, AI should be employed in education cautiously. The aim is to assist the teachers rather than substitute them. Moreover, it is important to examine the fairness, accessibility, data security and educational advantages. If the AI systems are based on unfair data or used without the teachers' management, they may maintain the inequality instead of decreasing it.

A thorough method is necessary in AI-based education. The teachers must consider the educational significance; the technicians ought to ensure the technical practicability and accessibility; the authorities should manage the privacy and responsibility; the psychologists should take into consideration the learning motivation and comfort; and the groups should participate in the debates about fairness, trust and regional importance.

■ 3.8. Data-Informed Decision-Making and Instructional Leadership

Data-informed decision-making helps schools to find out the differences in learning, to observe the progress and to modify the measures taken. But the teachers require data literacy to apply the evidence properly. Mandinach and Gummer point out that data literacy is very important as the data will be useful only when the teachers can relate them to the teaching decisions (Mandinach & Gummer, 2016).

Data ought not to be applied only for accountability or ranking. It should promote improvements. The schools

can apply assessment data, attendance records, student opinions, teacher's evaluations and parents' suggestions to find out the needs and judge the effectiveness of the measures. The equity-oriented data systems should separate the results according to the socioeconomic status, sex, disability, language, race and place. This is intended to ascertain whether the measures are beneficial to all students or mainly to those from advantaged groups.

School leadership is also significant for educational improvement. Leithwood and his colleagues have pointed out that school leadership is the second most influential element in the school which affects students' learning after classroom teaching (Leithwood *et al.*, 2004). The instructional leaders promote teacher cooperation, curriculum coordination, professional development, inclusive education and the application of evidence.

Leaders ought to take part in reforms such as digital transformation, use of AI techniques or inclusive education. Such modifications need a complete scheme, staff instruction, ethical rules, resources and regular assessment. Otherwise, the innovations may advantage only some projects and cannot be established as stable methods.

■ 4. DISCUSSION

The results show that the relationships between quality, equity and accessibility are very close. It is improbable to achieve lasting educational improvement unless all the other aspects are taken into consideration.

■ 4.1. Integrating Quality, Equity and Accessibility

Quality means that the learning is significant and efficient. Equity means that the learners have equal chances and assistance. Accessibility means that the obstacles for joining are eliminated. These objectives support each other.

An educational system may raise the average performance but ignore the needs of the disadvantaged students. Hence, evaluation and responsibility systems ought to evaluate the results according to the socioeconomic status, gender, disability, language and region. Equity-oriented supervision can assist the policy-makers in finding out whether the measures benefit all the students or only those who are already privileged.

Expansion of enrollment is required, but if the education is of poor quality, it does not offer true chance. The World Bank points out that schooling should result in learning;

otherwise, the education systems may seem to advance while not enhancing people's abilities (World Bank, 2018).

Equity-oriented measures should not consider educational difficulties of the disadvantaged learners as caused by them. Instead, they should eliminate the fundamental barriers such as insufficiently supported schools, language discrimination, unavailable curriculums, lack of digital resources, inadequate teacher aid and less community participation.

The review suggests a comprehensive framework for quality, equity, accessibility, sustainability and transdisciplinary cooperation. In this framework, quality guarantees the effectiveness of teaching and learning; equity means that help is given according to the need; accessibility means that the learners can take part without any unnecessary obstacles; sustainability ensures the continuation of the interventions; and transdisciplinary cooperation relates the educational reforms to policies, technologies, psychology and community knowledge.

■ 4.2. Sustainable Development Goals and Education Reform

The interventions reviewed in this paper contribute directly to SDG 4, SDG 10 and SDG 17.

SDG 4 aims at providing inclusive and equitable quality education and lifelong learning. Teacher training, formative evaluation, tutoring, early childhood education, inclusive education and digital accessibility all contribute to this objective. These measures enable not only the attendance of school but also the effective acquisition of knowledge by the students.

SDG 10 aims at decreasing the inequalities. Equity-based funding, special academic assistance, culturally appropriate teaching, accessibility for disabled people, digital participation and Open Educational Resources (OER) help in narrowing the differences between the high-ability and low-ability learners. These measures are particularly necessary for the students who suffer from poverty, disability, immigration, language difficulties and living in rural areas.

SDG 17 deals with partnerships. Evidence-based educational reform requires the collaboration of governments, schools, universities, technology companies, families, community organizations and international organizations. Interdisciplinary partnerships are necessary to extend the interventions and adapt them to the local conditions.

The quick advancement of AI-assisted education enhances the relevance of SDG 17. The proper and ethical application of AI in education needs cooperation between education departments, schools, universities, technology producers, researchers, families and community groups. Present research on digital transformation indicates that the innovation of technology itself cannot ensure the improvement of education. Therefore, digital reform requires joint governance, enhancement of teachers' abilities, available facilities, ethical regulations and regular evaluations (OECD, 2025; OECD, 2026). Thus, AI-assisted education should be regarded not only as a technological development, but also as a partnership-oriented reform process related to inclusiveness, equality and lifelong learning.

Education is also related to other SDGs. For example, good education can decrease poverty, increase health awareness, attain gender equality, offer proper employment and promote democratic involvement. Therefore, educational reforms should be regarded as both a particular issue and a foundation for sustainable development.

■ 4.3. Implementation Conditions

Evidence-based measures rely greatly on the implementation quality. Even those well-supported schemes may fail if the schools do not get adequate training, resources, leadership or time.

Research indicates that the success of the reform is influenced by the selection, training, coaching, evaluation of performance and supportive administrative systems of the staff (Fixsen *et al.*, 2005). Therefore, the policy makers should not think that a successful pilot project can be applied to other situations without any modification. It is necessary to adapt it while keeping the main features which make the intervention effective.

Coburn (2003) points out that scale should include depth, sustainability, diffusion and ownership. Therefore, the reform should be evaluated not only by the quantity of participating schools. It should also be judged whether the teachers are aware of the intervention, whether it affects the classroom activities, whether it persists through time and whether the local educators take charge of it.

Consider the situation. The tutoring plan may be applied in different ways in urban and rural schools. A computer-assisted instruction is suitable for schools with good network facilities, but it may not be beneficial in areas

with unreliable connections. An equal educational policy cannot be accomplished if the teachers are not competent or if the classes are too large.

Therefore, implementation ought to involve needs analysis, consultation with stakeholders, teacher education, provision of facilities, continuous evaluation and modification according to feedback.

■ 5. IMPLICATIONS FOR POLICY AND PRACTICE

The review implies some effects on policymakers, educational institutions, practitioners and researchers. The educational policy should incorporate evidence-based measures in the long-term plans, and the schools should combine efficient methods into their daily teaching and supportive systems.

■ 5.1. Implications for Policymakers

Policymakers ought to allocate funds to enhance the ability of teachers as a main approach to improve the quality of education. This involves reinforcing initial teacher training, induction, mentoring and ongoing professional development. Special consideration should be taken for schools located in disadvantaged areas.

Funding systems ought to be oriented towards equity. The schools for poor students, disabled students, bilingual learners, immigrants or rural areas should get extra funds. Nevertheless, the resources should be based on evidence-based measures, accompanied by clear implementation schemes and equity-oriented supervision.

Governments should pay attention to early childhood education and early development in reading and arithmetic. It is generally more effective and economical to take preventive measures earlier rather than to use remedial actions later.

Digital policy should not only distribute devices but also take into account the internet accessibility, the convenience of accessing the systems, the ability of the teachers to use computers, the security of personal information, the regulation of artificial intelligence in education and the help for the disabled students. The use of artificial intelligence in educational areas should be restricted by ethical principles, for example, honesty, fairness, human management and protection of the learners' information.

Recently, advances in generative AI necessitate that the policymakers make national or institutional rules about

the use of AI in education. These rules should define the proper use, maintain academic honesty, protect students' data, ensure the transparency of algorithms and follow the accessibility standards. The policymakers should not show an unfavourable attitude towards technology or impose too strict limitations. A moderate method is required: AI should be promoted when it benefits learning, accessibility and teacher assistance, but it should be controlled when it causes dangers such as prejudice, privacy breach, false information or unbalanced access.

The OECD (2026) also states that a successful digital education system needs to be consistent in terms of infrastructure, teaching methods, administration, research findings and teacher training. Therefore, the policymakers should not judge the educational technology merely according to its adoption rate. They ought to investigate whether the use of digital aids can enhance the learning results, decrease the disparities and promote the involvement of all individuals.

Policymakers ought to encourage education plans based on SDG. The education policies must directly relate the national educational objectives to SDG 4, SDG 10 and SDG 17. It is necessary to have certain indicators which evaluate not only the enrolment and achievement but also the inclusion, accessibility, lifelong learning and collaboration.

■ 5.2. Implications for Educational Institutions

Schools and universities need to establish a professional learning community which encourages cooperation among teachers. Professional development should be linked to the curriculum, student information, classroom evaluations and actual instructional enhancement.

Institutions should carry out formative assessment frequently to identify the learning problems and change the teaching techniques. The feedback must be accurate, immediate and feasible. In addition, schools should establish regular tutorial or academic aid programs, especially for those students who cannot obtain private tutorials.

Inclusive learning environments should be established by using Universal Design for Learning, reasonable accommodations, assistive technology and accessible teaching materials. Inclusion should be regarded as the responsibility of the whole school, not just the special education teachers.

Education establishments ought to use digital and AI tools with caution. The technology should be chosen

according to its educational value, accessibility, privacy preservation and equity effect. Both teachers and students need to be instructed on the responsible and critical application of digital tools.

Institutions should formulate some regulations regarding the application of generative AI in education, including the reliability of the outcomes, acknowledgment for AI assistance, privacy of students' information and proper utilization of comments produced by AI. Moreover, these institutions ought not to regard AI as the sole enemy. When employed properly, AI can help in giving formative comments, individualized instruction, convenience and lighten the teacher's burden.

■ 5.3. Implications for Practitioners

Teachers ought to take evidence into consideration when making professional judgments. It does not imply following a rigid procedure. Instead, it involves integrating research findings, classroom practices and understanding of the learners.

Teachers ought to employ formative assessment to recognize the requirements of the students and offer prompt assistance. They should arrange lessons which incorporate clear instructions, practice chances, feedback and active involvement of the students.

Teachers ought to use culturally responsive and inclusive methods. This involves acknowledging the languages, identities, experiences and communities of the learners as educational assets.

During the use of digital tools or AI-assisted systems, the teachers should maintain their position in the learning process. They should assess if these technologies aid in comprehension, involvement and feedback. In addition, they should instruct the students on the ethical and critical use of digital and AI tools.

Practitioners should pay particular attention to the use of AI-produced feedback or automatic evaluation. These methods can offer helpful assistance, but might not take into consideration the learner's situation, emotions, creativity or cultural expressions. The teacher's judgment is still necessary for understanding the results of the AI and guaranteeing that the students get fair and significant support.

■ 5.4. Implications for Researchers

Research in the future ought to focus on implementation, context and equity results. Further evidence is required

from poor countries, rural regions, multilingual settings and educational systems which are influenced by a crisis.

Researchers ought to consider the overall results, such as happiness, affiliation, presence, interest, inventiveness, computer skills and continued involvement. The acquisition of knowledge is still significant, but it cannot represent the main object of education.

Research concerning AI in education must consider not only its efficiency but also fairness, bias, privacy, accessibility and teacher's influence. Examinations should be made to determine if AI devices lead to a decrease or increase of inequality among various student categories.

Recent investigations ought to go beyond short-term studies on innovation. Longitudinal and comparative studies are required to examine whether the interventions assisted by AI and digitally improved are still effective in the long run, how they influence the teacher's responsibilities and whether they can be extended sustainably to various educational settings.

■ 6. CONCLUSION

This document has examined evidence-based educational measures for enhancing quality, equity and access. The findings show that effective educational improvement requires the joint application of teacher professional growth, formative evaluation, feedback, systematic literacy and numeracy assistance, individualized tutoring, equity-oriented resource distribution, inclusive education, early childhood education, parent involvement, digital accessibility, open educational materials, support from AI in learning, data-driven decision-making and instructional guidance.

The principal point of this evaluation is that evidence-based education should be regarded as a practical, ethical and situation-dependent procedure instead of a technical formula. The evidence can assist teachers, school directors and policy makers in taking better decisions, but it should be interpreted by professional judgment and modified according to local requirements. The interventions which enhance the average results but do not benefit the disadvantaged students are not sufficient. Likewise, the strategies which increase the access without improving the quality do not give true educational opportunities.

The objective of this evaluation is to suggest a comprehensive model for educational reform, including classroom teaching, inclusion, information technology,

assisted learning by artificial intelligence, cooperation between parents and schools, policy implementation, compatibility with Sustainable Development Goals and interdisciplinary collaboration. It shows that the enhancement of education depends not only on effective teaching methods but also on the cooperative efforts of teachers, administrators, technicians, psychologists, families and the society.

The incorporation of literature from 2024 to 2026 enhances the significance of the review by demonstrating how artificial intelligence, digital educational systems and global social changes are influencing evidence-based educational reforms. These changes indicate that the future educational systems should not only adopt new technologies, but also guarantee that the innovation is ethical, inclusive, sustainable and in accordance with Education for All.

This integrated system promotes Education for All by indicating that the quality, equity and accessibility should be considered as interrelated objectives. The quality implies that the students get meaningful and efficient teaching. Equity means that the help is given according to the requirements. Accessibility means that the students can take part without any unneeded obstacles. Sustainability indicates that the educational reforms can be carried out and expanded in the long term. Interdisciplinary cooperation guarantees that the educational measures are educationally effective, technically suitable, psychologically supportive and socially significant.

When these goals are achieved simultaneously, educational systems are more capable of offering equitable, just and excellent learning chances to every learner.

■ DECLARATION OF COMPETING INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

■ AUTHOR CONTRIBUTIONS

Liu Yuhong contributed to the conception and design of this study, data analysis, and the drafting of the manuscript, and served as the corresponding author responsible for communication with the journal during submission and peer review. Yang Yi Fan was responsible for data collection, experimental implementation, and literature review. Peng Jia Xin

supervised the study, revised the manuscript critically, and approved the final version. All authors read and approved the final manuscript.

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