ADVANCE SOCIAL SCIENCE ARCHIVE JOURNAL
Available Online: https://assajournal.com
Vol. 04 No. 01. July-September 2025.Page# 4512-4523
Print ISSN: 3006-2497 Online ISSN: 3006-2500
Platform & Workflow by: Open Journal Systems
https://doi.org/10.5281/zenodo.17406386

Integrating Computer Technology in Education: From Traditional Pedagogy to E-Learning Transformation

Tanvir Ahmed
Department of Computer Science & Software Engineering,
Grand Asian University Sialkot, 7 KM Pasrur Road, Sialkot Punjab, Pakistan
Email: drtawaraich@gmail.com
Rai Samee Ullah
Department of Computer Science & Software Engineering,
Grand Asian University Sialkot, 7 KM Pasrur Road, Sialkot Punjab, Pakistan
Email: sameetatla@gmail.com
Dr. Sadaqut Ali
Department of Law, Faculty of Law, Grand Asian University Sialkot, 7 KM Pasrur Road, Sialkot Punjab, Pakistan
Email: sadaqut.ali@gaus.com
Ishfaq Ali
Department of Computer Science, Faculty of Sciences, National textile university main campus Faisalabad Pakistan
Email: ishfaqalimalik@gmail.com

Abstract

Computers have revolutionized modern education by transforming traditional teaching and learning paradigms into dynamic, technology-driven systems. Initially developed for computation, computers now serve as powerful tools for interactive learning, knowledge management, and educational accessibility. Their integration into classrooms and virtual environments supports individualized instruction, encourages active learning, and facilitates efficient information storage and retrieval. This paper explores the multifaceted role of computers across instructional, revelatory, conjectural, and emancipatory learning paradigms, emphasizing their contribution to education, training, and indoctrination processes. Furthermore, it discusses the evolution of computer-assisted and computer-managed learning models, the emergence of E-Learning frameworks, and the challenges within existing educational systems rooted in traditional structures. By analyzing the pedagogical and technological dimensions of computer-based education, this study highlights the transformative potential of digital tools in achieving learner autonomy, expanding access, and promoting continuous knowledge innovation.

Key Words: *Computer-assisted learning, E-Learning, Computer-managed instruction, Educational technology, Training, Curriculum development*

Introduction

The field of education is now indorsing a revolution, with the use of computer as educational

tool, becoming more and more popular. Now computers assist mentors and educators in imparting education to students. Computers are dominant technology today and show great potential in the dimension of education and learning beside other industrial and controlling application. World is on the verge of a major change in the way people learn. This change will affect all levels of education from earliest childhood through adult education. The impact of the computer in education will not produce an incremental change, a minor deviation on the current ways of learning, but will lead to entirely different learning systems (1). Schools will be very different. There will be fewer teachers, and the role of the teachers will be different from today. Computers will function as personal tutors in almost any subject area of the school curriculum (2).

The teacher's role in the constructivist classroom has been described as one of facilitating, managing, and guiding students as they actively construct their own knowledge and understanding of the world. This is in direct ambiguity with the old-fashioned teaching role of imparting and transferring knowledge via lectures so students can copy down and memorize information for an upcoming exam. The teacher in a classroom has to provide a supportive structure for students during their own personal knowledge building journeys. In an instructional computer system, the computer has to act as an effective teacher by providing a helpful structure. The interface must, therefore, facilitate, manage, and guide students as they actively engage in knowledge construction (3). Curriculum makes the framework of development for students. It is the requisite material between students and teachers. In a direct teacher-student relationship there are many factors that hinder learning like student shyness, ego and introversion. Now with the help of computers these issues can be addressed at individual student level by making it possible for students to make use of the available curriculum while getting teachers guidance through computers (3).

"Peter F. Drucker" {was a writer, professor, management consultant and self-described "social ecologist," who explored the way human beings organize themselves and interact much the way an ecologist would observe and analyze the biological world} gives a view of the situation from outside academia:- "In the next ten or fifteen years we will almost certainly see strong pressures to make schools responsible for thinking through what kind of learning methods are appropriate for each student. We will almost certainly see tremendous pressure, from parents and pupils alike, for result-focused education and for accountability in meeting objectives set for individual pupils (4).

The existing education system, rooted in the continuation of Lord Macaulay's legacy, has evolved with numerous problems that hinder advancement toward modern learning and education. Among the key issues are the lack of highly qualified staff, the unavailability of both cultural and contemporary literature, the absence of a strong book culture, and various financial constraints. These challenges impede effective knowledge dissemination and education quality. To address these limitations, there is a critical need to develop and adopt methods such as computer-based learning systems, which can provide more flexible, accessible, and engaging educational experiences, potentially overcoming these enduring problems of the traditional system (Macaulay's legacy in South Asia; challenges in traditional education systems) (https://www.bioscience.com.pk/en/subject/urban-studies/lord-macaulay-education-policy-1835-impact-on-indian-education-system).

Educational Paradigms: Computer-Managed and Computer-Assisted Learning

Computer-managed learning (CML) and computer-assisted learning (CAL) represent distinct but complementary paradigms in contemporary education, each facilitated by computers to enhance the interaction between the learner and their learning environment. In the instructional dimension, computers function like private tutors by breaking down subject matter into manageable parts, reinforcing learning at every stage and focusing on mastery of facts and concepts. However, computer-assisted learning typically offers limited dialogue, restricted by the predefined paths set by package developers and limited ability to interpret a wide range of learner responses. It mainly supports drill and practice exercises, reinforcing specific skills through repetition (5). In the revelatory dimension, the computer serves as a negotiator, progressively unveiling subject matter while simulating real-life systems, thereby reducing costs, saving time, and mitigating dangers associated with physical experimentation. Conjectural learning through computer assistance allows learners to formulate and test hypotheses, explore concepts with sophisticated modeling tools without needing programming knowledge. Emancipatory learning reduces non-essential workload by automating computational and information-handling tasks, freeing learners to focus on authentic intellectual engagement while avoiding mechanical or irrelevant efforts. This shift challenges traditional curriculum design by exposing learners to powerful computing tools that augment learning but require careful pedagogical guidance to maintain educational authenticity (6).

Computer-managed learning emphasizes managing the learning process through tasks such as enrollment, assessment, and progress tracking rather than direct instruction. CML individualizes learning by diagnosing weaknesses and prescribing activities for improvement, effectively supporting educational management and decision-making. In contrast, computer-assisted learning provides interactive instructional content with features such as tutorials, simulations, games, and immediate feedback, fostering active learner engagement but within more structured content limits (7). Thus, computer-assisted learning focuses more on instructional interaction with learners, while computer-managed learning is about administrative and educational process management, both crucial in modern educational environments for maximizing learning outcomes and efficiency.

Learning Process

The learning process is fundamentally a progression through which individuals acquire knowledge by encountering unfamiliar facts, theories, and concepts. This exposure prompts learners to engage in structured experiences or activities over a defined period, aimed at developing competence in areas that were previously unknown or weakly understood. Learning facilitates growth in cognitive and practical dimensions, which can be broadly classified into three outcomes: education, training, and indoctrination. Each serves distinct purposes and follows differing methodologies depending on the desired end result (8). Learning, as a continuous and transformative activity, also involves the interaction between prior knowledge and new experiences, reinforcing the constructivist view that individuals actively build their understanding through engagement and reflection. This developmental process can occur formally through structured education systems or informally through self-directed and experiential learning. Cognitive psychology suggests that learning occurs most effectively when learners participate in meaningful tasks that connect abstract information to real-world application, thereby supporting long-term retention and conceptual understanding (9).

Education

Education primarily focuses on cognitive development, fostering reasoning skills and intellectual growth. It provides learners with an extended vocabulary and a deeper understanding of the nuances and variations of similar words. Education involves comprehending, reframing, and mapping abstract concepts and theories onto new contexts, thereby expanding one's intellectual capacity without restrictive limits. This approach encourages exploration, inquiry, and critical thinking, avoiding rote memorization or "mugging," and aims for a broader grasp of knowledge that students can flexibly adapt in diverse situations (10). In modern educational paradigms, technology-enhanced learning further amplifies these outcomes by promoting self-paced and collaborative learning environments. The integration of digital tools, multimedia resources, and interactive assessments allows for deeper engagement and more personalized learning experiences, aligning with 21st-century education models emphasizing creativity and analytical thinking (11).

Training

Training, by contrast, is more structured and skill-oriented, emphasizing the repetition of specific drills within well-defined limits. It aims to enhance particular skills through regular practice, where mastery is achieved by consistently performing the same tasks. Training is mission-driven and task-oriented, focusing on preparing individuals for specific roles or job functions. Due to this practical nature, memorization often plays a significant role, and the approach leans towards ensuring immediate competence for workforce demands (12).

Technological advancements have transformed traditional training into computer-assisted and simulation-based learning, enabling learners to develop complex technical and operational skills in safe, controlled environments. Such methods are particularly useful in engineering, medicine, and industrial applications where practice-based proficiency is critical. This shift from passive to active engagement underscores the importance of experiential and performance-based training (13).

Indoctrination

Indoctrination in education is recognized as a more restrictive learning paradigm designed to prepare individuals for demanding or high-pressure tasks by focusing on psychological conditioning or "brain programming." This learning process narrows the scope of thinking by suppressing irrelevant faculties and reinforcing specific behavioral and cognitive patterns, typically through task-specific training that limits independent thought and creativity. It often involves repetitive verbal conditioning and exploits motivational or control mechanisms to produce predictable, uniform responses within defined parameters. Research highlights that indoctrination restricts critical faculties, fostering closed-mindedness by creating a disconnection between beliefs and evidence, thereby impeding autonomous reasoning (14). This process, while often undisclosed by educators, functions through complex educational relationships that prioritize conformity and control over critical engagement, positioning indoctrination as a distinct and often problematic mode of knowledge transmission within pedagogy (14).

From a sociopsychological perspective, indoctrination may be effective for specialized or hierarchical systems (such as military or emergency services) where discipline, obedience, and uniformity are crucial. However, it contrasts sharply with constructivist education, which prioritizes autonomy, innovation, and critical reasoning. The use of computer technology in such

contexts can either reinforce structured behavioral conditioning or, conversely, serve as a means of promoting open access to diverse perspectives depending on its pedagogical design (15).
Before proceeding further, it is essential to recognize the critical milestones achieved within the learning process through diverse instructional and experiential approaches. Initially, learners develop fundamental vocabulary and pronunciation skills, which enable accurate articulation and comprehension of linguistic expressions. This foundation facilitates a deeper understanding of word meanings and nuances, fostering an appreciation for contextual variations and subtle language distinctions. Progressing from this, learners begin to construct sentences as cohesive units, advancing toward concept and idea formation, which encompasses effective reading, comprehension, and information retention (16). Following the establishment of foundational understanding, learners engage in manipulation of acquired knowledge, a stage marked by comparing situations, generating logical sequences, selecting appropriate terminology, problem-solving, documenting outcomes, and applying solutions in practical contexts. Ultimately, the learning trajectory culminates in the generation of novel knowledge, where individuals innovate by modifying existing solutions, formulating new concepts, and developing fresh methods and applications. This systematic progression reflects both cognitive and practical dimensions of learning, underscoring the dynamic nature of knowledge acquisition (16)

Problems in Existing Educational Framework and Learning.

Before proceeding further, it is essential to identify the pivotal milestones within the learning process, realized through diverse instructional and experiential methods. The initial stage focuses on developing vocabulary and pronunciation, enabling learners to articulate and comprehend linguistic expressions with precision. This foundation advances to understanding the meanings and nuances of words, cultivating a more profound appreciation of language and its contextual subtleties (17). Subsequently, learners begin constructing sentences as cohesive assemblages of words, facilitating concept and idea formation, which includes effective reading, understanding, and retention of information. Upon establishing this foundational comprehension, learners enter a critical phase where they manipulate acquired knowledge by comparing situations, generating logical sequences, selecting appropriate terms, solving problems, documenting findings, and applying solutions practically. Ultimately, the learning trajectory culminates in the generation of novel knowledge, where individuals revise existing solutions, formulate new concepts, and innovate methods and applications. These stages reflect a systematic progression through cognitive and practical dimensions, integral to effective language acquisition and learning, supported by research in language development theories and second-language acquisition processes (18).

Computers And Learning Process

We cannot afford to base our educational system on the Socratic approach. We can develop good computer-based learning material in which the student is always active. The computer may enable us to get back to a much more humanistic and a much friendlier educational system by making all of our learner's participants rather than the spectators they frequently are in our present book and lecture scenario. Figure 1 presents the conceptual framework of computer-assisted learning, showing how technology bridges the gap between teachers, learners, and educational content. The framework emphasizes four major paradigms instructional, revelatory, conjectural, and emancipatory each contributing to cognitive development and learner

autonomy. The model demonstrates that the computer acts not merely as a tool but as a dynamic facilitator of learning, managing information flow and promoting student engagement (19).

The Information Super highway has great potential for improving the quality, efficient management, effectiveness and access to higher education for a vast population of students in our country. It has put at the disposal of academic community the vast data bank on a worldwide basis. Laboratories around the world are in effect sharing a common chalkboard-the Internet. Theories and experimental results are all being shared electronically, with geographically dispersed community (20).

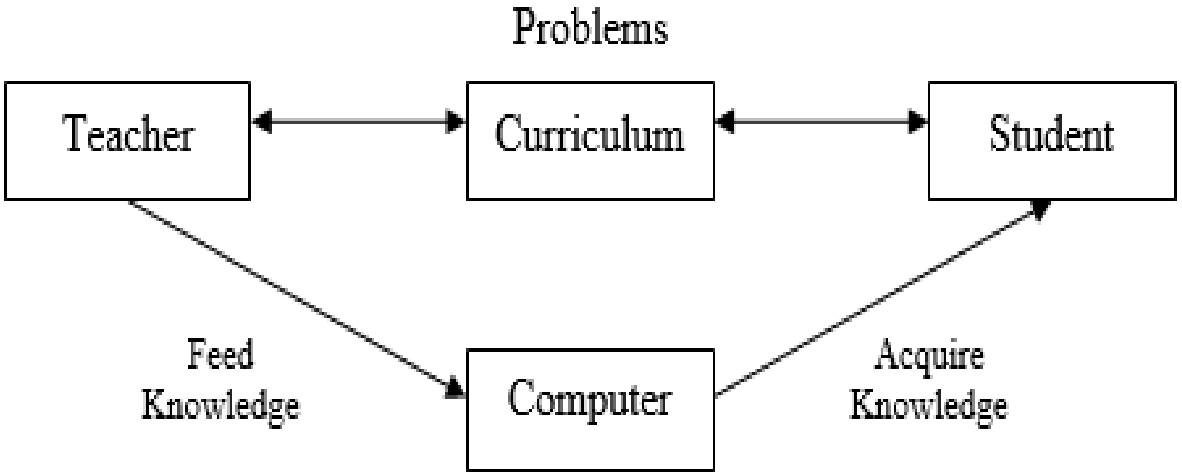


Figure 1. Conceptual Framework of Computer-Assisted Learning

Figure 1. Conceptual framework illustrating how computers support the learning process by integrating instructional, revelatory, conjectural, and emancipatory paradigms. The diagram highlights the flow of knowledge from the learner's interaction with computer systems, enabling individualized, interactive, and adaptive learning experiences.

The role of computers is so vital in every field that they help not repeating laborious data heavy tasks, facilitate industrial processes, offer applications in medicine, new industry of software developed and flourished and play an important role in education, training and indoctrination. This is also why computer education is made a part of school curriculum. Third world countries consider, having computer education and developing know how is the only use of computer technology which is of no use if general public is not made aware of making use of this technology to ease the human life. Computer technology has had a deep impact on the education sector. Thanks to computers, imparting education has become easier and much more interesting than before. Owing to memory capacities of computers, large chunks of data can be stored in them. Computers have changed the way we work, be it any profession. The advantages of computers in education primarily include (21):

- Storage of information
- Quick data processing
- Audio-visual aids in teaching
- Better presentation of information
- Access to the Internet
- Quick communication between students, teachers and parents

Integration of Computer technology in the modern education system enables interactive learning. Hence, reducing laborious load of teachers inform of repeating same contents again and again. It is a brilliant aid in teaching, as students easily refer to the Internet than searching for information in fat books. Internet has emerged a much larger and easier-to-access storehouse of information. Distant online education has revolutionized the dreams of distance learning. Education is not limited to classrooms and school visits. Internet accessibility has virtually shrunk the distances to the bed rooms. Students and teachers can communicate with one another even if they are not in the same premises. Students are not required to attend classes or remain physically present for lectures. They can learn from the comfort of their homes and adjust timings as per their convenience (8, 16). Computers facilitate audio-visual representation of information, thus making the process of learning interactive and interesting. Computer-aided teaching adds a fun element to education. Teachers hardly use chalk and board today. They bring presentations on a flash drive, plug it in to a computer in the classroom, and the teaching begins. There's color, there's sound, there's movement - the same old information comes forth in a different way and learning becomes fun. The otherwise not-so-interesting lessons become interesting due to audio-visual effects. Due to the visual aid, difficult subjects can be explained in better ways. The Internet helps teachers set test papers, frame questions for home assignments and decide project topics. And not just academics, teachers can use web sources for ideas on sports competitions, extracurricular activities, picnics, parties and more. Computers enable storage of data in the electronic format, thereby saving paper. Memory capacities of computer storage devices are in gigabytes. This enables them to store huge chunks of data. Moreover, these devices are compact. They occupy very less space, yet store large amounts of data. Presentations, notes and test papers can be stored and transferred easily over computer storage devices. Similarly, students can submit homework and assignments as soft copies. The process becomes paperless, thus saving paper. Plus, the electronic format makes data storage more durable. Electronically erasable memory devices can be used repeatedly (12, 21). They offer robust storage of data and reliable data retrieval

Following factors of computer-based learning system aide in learning: -

a. The interactive nature of computer-based learning.
b. The ability to individualize the learning experience to the needs of each learner.
c. There are qualitative and quantitative differences in the info depending on the scale at which the learning is examined: -
    - At micro level, info is highly detailed and changes very rapidly.
    - At intermediate level, info is less detailed and changes less rapidly.
    - At macro level, info is presented in summarized form.
d. Computers can be seen as a mediator of the two-way flow of info between the learner and his learning environment.
e. Great promise as learning mode because: -
    - Interactive nature.
    - Ability to individualize learning experience.
f. Ability to conduct Online Tests and record-keeping of all being examined.
g. Access to colossus information all over the world on virtually any subject helping greatly in scientific literacy.

h. A 24-hour professional bond between students and teachers to share and impart knowledge.
i. A professional fraternity and collaboration between educators.
j. Availability of various applications like virtual classrooms, video-conferencing, examinations, knowledge base etcComputers offer innumerable methods of enhancing successful instruction. However, there are so many different programs, networks and computer-based lesson plans that educators often struggle to decide which programs may be appropriate for a given subject or class. Following are the methods of integrating computers in education towards achieving the milestones of learning process: -

Table 1. Role of Computers in Achieving Educational Milestones

	Milestones	***Role of Computers***
a.	Vocabulary	Computer games, Thesaurus
b.	Pronunciation	Talking Dictionary
c.	Understanding meanings and flavors of words	Synonyms, Antonyms, Thesaurus
d.	Sentences – collection of words	Spelling and Grammar Checks
e.	Concepts and Ideas	Internet and World Wide Web, Surfing Websites
f.	Manipulating learnt knowledge	Computer Simulations, Modeling, Analysis
g.	Generating new knowledge	Computer Programming, Discussion Forums, Online Wksps

Ultimate Education System Of E-Learning

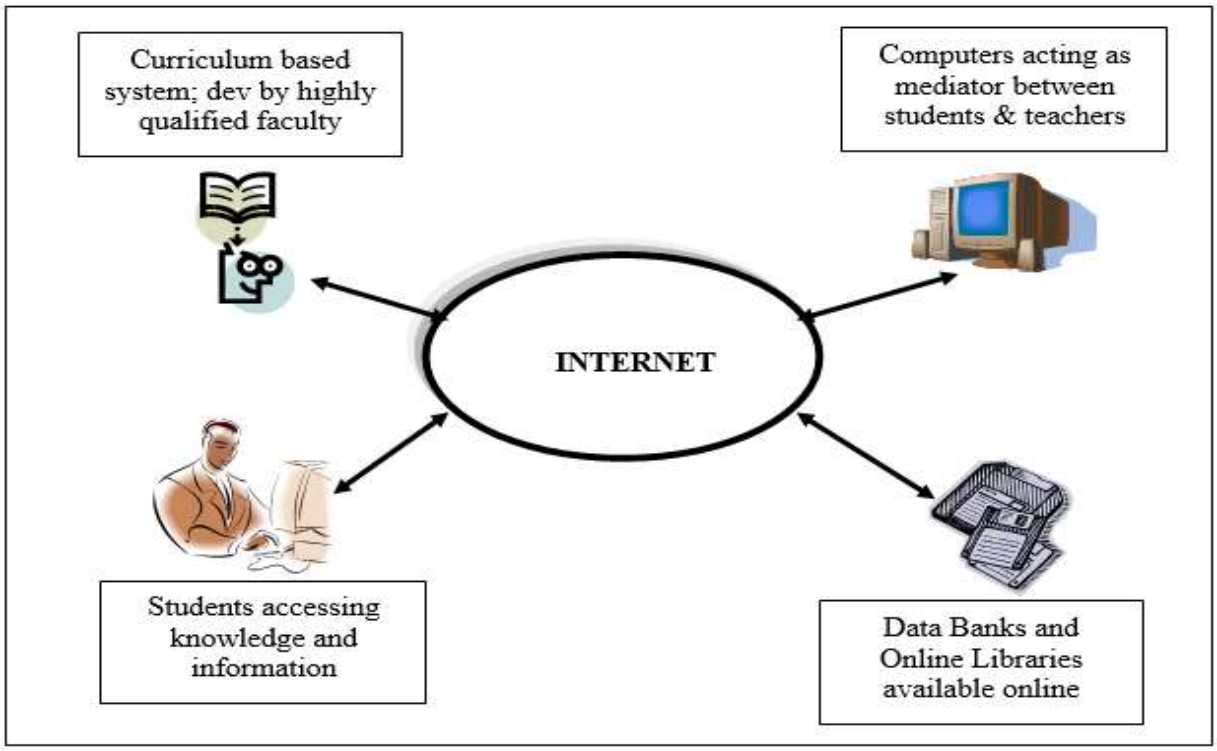
Education and training in a modern education system needs to respond in the following ways:

- Highly focused on needed information and skills.
- Provided at the right time in the cycle of work and other activities for a student.
- Structured to respond to personnel who begin at different points in the learning cycle - for example, some people have more mathematics than others, some need more drill and practice to understand an issue, and others need more writing practice.
- Easily modified and quickly mounted training which can be reconfigured and delivered rapidly.

Traditional training and education, delivered most often in a face-to-face mode, has had trouble adjusting to the above pressures. While face to face training can be rapidly modified (with good instructors) such training may have a limited audience or access, and cost pressures can become intense. E-Learning and E-Training offers an opportunity to respond more cost effectively to the pressures noted above. Figure 2 illustrates the architecture of a modern E-Learning system, where educational delivery is mediated by computers and supported by digital platforms. This structure enables real-time communication, online assessment, and access to diverse educational resources through local area networks (LAN) and the Internet. The integration of these components ensures continuous interaction, flexibility, and scalability in computer-based education (16).

Figure 2. Structure of an E-Learning System.

Figure 2 shows the interconnection between learners, instructors, content databases, and digital



learning tools within a modern E-Learning environment. The figure depicts how computer networks enable remote learning, resource sharing, and individualized educational experiences.

In most instances, as long as E-Learning can provide equivalent or superior outcomes such as improved retention of knowledge, enhanced skill development, and higher levels of problem-solving ability at the same or lower cost compared to traditional training, its widespread adoption becomes inevitable. The key advantage of E-Learning lies in its flexibility and accessibility, allowing it to reach a broader audience across diverse geographical and socio-economic contexts. Moreover, the organization and technology underpinning E-Learning continue to evolve rapidly, leading to the emergence of several defining features that make it increasingly effective and relevant. E-Learning systems are designed to be audience-appropriate, ensuring that educational materials are accessible to learners of varying backgrounds and competency levels (22). They are also cost-effective, aligning with the economic realities of different

educational and institutional settings. Furthermore, E-Learning approaches are teaching- and learning-appropriate, accommodating various learning styles through multimodal content delivery and interactive interfaces. Such systems are inherently interactive and user-friendly, fostering engagement and participation, while remaining organizationally appropriate, fitting seamlessly within institutional frameworks. Additionally, the dynamic nature of E-Learning technologies makes them innovative and engaging, continuously generating interest and enthusiasm among learners. Importantly, they are highly adaptable, capable of being rapidly updated and reconfigured to meet evolving educational needs and technological advancements (23).

Table 2. Role of Computers in Achieving Technical and Vocational Standards

	Standard To Be Achieved	***Role of Computers***
a.	Basic knowledge about theories.	Accessing Required Info on Internet, CBT Application Packages
b.	Tools and diagnostic equipment – introduction, recognition and physical operation.	Tools & Diagnostic Equipment data bank on LAN and students accessing relevant info.
c.	Identification of components – familiarization with different conventions.	Components data bank on LAN and students accessing relevant info.
d.	Types of errors, various common errors occurring in equipment.	Equipment error data bank on LAN and students accessing relevant information.
e.	Consulting diagnostic literature / Manuals.	Electronic Manuals
f.	Proper use of test equipment and diagnostic Tool for tracing faults	Tools & Diagnostic equipment data bank on LAN
g.	**Repairs Theory** i. Maintenance During Operation ii. Up Gradation iii. Making it Operational	Online Maintenance/ Up-gradation Instructions
h.	Types / Classification Of equipment.	Equipment data bank on LAN and students accessing relevant info.
i.	Operating Characteristics.	do
j.	Technical Specifications.	Data Dictionary
k.	Limitations & Safety Precautions	do
l.	Preventive Maintenance – Maintenance Before Occurrence of Faults.	Online Maintenance Instructions
m.	Corrective Maintenance	do

n.	Maintenance Checklists	Equipment Maintenance Checklists on LAN and students accessing relevant info.
o.	Visual Inspection / Detailed Insp.	Equipment Picture-banks/ Short Films on LAN
p.	Independent Fault Diagnosis.	Faults data bank on LAN and students accessing relevant info.
q.	Consulting Technical Manuals.	Electronic Manuals
r.	Reaching Out to Market	Internet & E-mail

CONCLUSION

The role of computers in education extends beyond automation or convenience—it represents a paradigm shift toward more adaptive, accessible, and learner-centered education systems. Computers should complement rather than replace teachers, reinforcing the social and intellectual dimensions of learning. By integrating digital tools into curricula, educators can promote interactive engagement, enhance conceptual understanding, and provide flexible learning opportunities for diverse learners. For developing nations such as Pakistan, the effective use of computer-based education and E-Learning offers a pathway to overcome resource constraints, expand educational outreach, and cultivate technological literacy. However, this potential can only be realized through coordinated efforts between public and private sectors, investment in infrastructure, and capacity building of educators and learners. Ultimately, the fusion of human intellect with computational capability promises not only to improve educational outcomes but also to drive innovation, inclusivity, and lifelong learning in the digital era.

References

1. Kharatova S, Tulaboeva G, Xusanova I. The role of computers in education2022. 060006 p.
2. Nur Fitria T. The Use of Artificial Intelligence in Education (AIED): Can AI Replace the Teacher's Role? Epigram. 2023;20:165-87.
3. Gautam KK, Agarwal R. The Concept of Facilitator in Constructivist Teaching. 2024;13:47-54.
4. Jha S. Management Philosophy of Peter F. Drucker: A Critique. 2009.
5. Day R. Computer-Managed Instruction: An Alternative Teaching Strategy. Journal of Nursing Education. 1987;26:30-6.
6. Rutten N, van Joolingen W, Veen J. The learning effects of computer simulations in science education. Computers & Education. 2012;58:136-53.
7. Sly J. Computer managed learning assessment in higher education: the effect of a practice test. 2000.
8. Giannoukos G. Main Learning Theories in Education. European Journal of Contemporary Education and E-Learning. 2024;2:93-100.
9. Saarsar P. Exploring the Constructivist Approach in Education: Theory, Practice, and Implications. 2018;05:717-25.

10. Krishna K, Chetry K. Formal vs. Informal Education: Impacts on Cognitive Development and Learning Outcomes. INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS. 2024;11:659.
11. Mote A. Impact of Technology-Enhanced Learning on Student Outcomes. 2024;14.
12. Mamaqi E. The Role of Trainings in the Development and Enhancement of Work Performance in the Public and Private Sector. Interdisciplinary Journal of Research and Development. 2023;10:107.
13. Bergamo P, Streng E, Carvalho M, Rosenkranz J, Ghorbani Y. Simulation-based training and learning: A review on technology-enhanced education for the minerals industry. Minerals Engineering. 2022;175:107272.
14. Yalçınkaya T. The Tension Between Pedagogical Indoctrination and Mental Freedom. 2023;56:813-77.
15. Le HV, Nguyen LQ. Promoting L2 learners' critical thinking skills: the role of social constructivism in reading class. Frontiers in Education. 2024;Volume 9 - 2024.
16. Karima T, Hellalet S, Breeze P. The Use of Language Learning Strategies to Develop Learners' Vocabulary Knowledge and Writing Proficiency The Case of Third Year Students of English in Written Expression Co-supervised by 2022.
17. Al-Harbi S. Language development and acquisition in early childhood. Journal of Education and Learning (EduLearn). 2019;14:69.
18. Rahman G, Zaigham MS, Umer M. A Study of Cohesive Devices in Students' Academic Writing. Qlantic Journal of Social Sciences and Humanities. 2023;4:372-84.
19. Sorvatzioti DF. THE SOCRATIC METHOD OF TEACHING IN A MULTIDISCIPLINARY EDUCATIONAL SETTING. 2012;International Journal of Arts & Sciences:61-71.
20. Chong P, DeVries P, DenHoek A. The information superhighway: The golden spike of the 21st century. International Journal of Innovation and Learning. 2005;2.
21. Ness P, Joseph S. Computers' Essential Role in Society and Health. 2023.
22. Elfaki N, Ahmad I, Abdelrahim R. Impact of e-learning vs traditional learning on students' performance and attitude. International Medical Journal (1994). 2019:13412051.
23. Bani Bakkar I, Ziden A. Analysis of Perceptions and Insights of E-Learning Implementation in Educational Institutions by Educators, Students, and Parents. International Journal of Academic Research in Progressive Education and Development. 2023;12.