THE REALITY OF PRACTICAL TRAINING PROGRAMS FOR TEACHERS IN LIGHT OF TECHNOLOGICAL DEVELOPMENT AND CONTINUOUS MODERN INNOVATIONS: CHALLENGES AND OPPORTUNITIES

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Abstract: *To meet labor market demands, teachers must stay updated with technological advancements as technology has become a crucial part of life. To remain relevant, they must engage in specialized training programs. The success of these programs relies on trainees' basic technological skills. To attain effective educational results, educators must recognize the influence of technological advancements and innovations on the relationship between instructors and students. This study investigated the most successful design techniques for practical teacher training programs in the age of the technological revolution. It recognizes the problems and opportunities associated with adopting new technological developments in educational operations. By analyzing the current state of training programs for teachers, this study seeks to identify the obstacles faced in acquiring modern technological skills and the subsequent benefits to educational systems. In addition, practical recommendations were provided to address these challenges. Furthermore, this study will investigate the main components that should be included in the content of training programs, considering the technical skills expected by both teachers and learners. Drawing from previous studies on teacher training in modern technology, this study hopes to offer unique insights and recommendations for future programs. The opportunities offered by technological developments to enhance the quality and effectiveness of practical training programs have been explored, including online and blended learning, virtual simulation, augmented reality, data-driven assessment, collaboration and communication tools, personalized learning experiences, access to open educational resources, and mobile learning. The integration of these components into practical training programs equips teachers with the skills necessary to effectively integrate technology into their teaching practices,*

ultimately improving the quality of their education and learning outcomes.

An explanatory introduction to the purpose of the research title

Technology has occupied a central and important place in all areas of life of all ages. Currently, those who do not find ways to keep up with technological changes can no longer keep up with the changes and requirements of the labor market in many professions, unless they participate in programs tailored to a specific field, to provide continuous vocational training that will enhance the position of the trainees in the labor market and thus ensure the need for their expertise. However, as is clear, the prerequisite for benefiting from these programs is that trainees must have a minimum level of basic technological skills so that they can be trained to acquire modern technology skills specific to a field in itself.

The educational field is one of the most important sectors that must determine the impact of technological development and modern innovations on it, especially as it is based on the interaction between the teacher and the learner to achieve the educational goals related to teaching learners the skills that will enable them to integrate into society and thus in the labor market, which is constantly changing. It is based on the development of modern technology and innovation. We must not forget that learners are always looking forward to everything new and are always up-to-date with the latest trends in modern technology. Therefore, will a teacher with modest technological skills and information be able to keep up with the needs of the learners and thus carry out his "teaching" function by achieving effective and long-term educational outcomes? (Alkhalidi, 2018) (Al-Shihabi, 2008)

The great importance of this question, and the statement of solutions to the problem it raises, is the main motive for this research, which aims to answer the following question: What is the best design mechanism for practical training programs for teachers in the era of the technology revolution, taking into account the challenges and opportunities that will appear by applying educational activities that include the latest innovations of modern technology that are compatible with the educational field?

Therefore, the main objective of this research is to " analyze the reality of practical training programs for teachers, theoretically, in the era of continuous technological changes, by highlighting the benefits that will be achieved for educational systems, taking into account the obstacles that may appear in different stages of teachers' acquisition of the skills of modern technology and their application within the course of the educational process ".

Therefore, the content was designed to include the most important elements that achieve the research goals, which are as follows:

- The impact of modern technological developments on practical training programs for teachers.
- Challenges and obstacles faced by practical training programs for teachers in the information revolution era.
- Practical recommendations to address obstacles teachers may face in practical training programs.
- Opportunities for technological development and recent innovations can improve the quality and effectiveness of practical training programs for teachers.
- These components must be included in the content of practical training programs for teachers according to the technological skills that must be present for teachers and learners at the same time.

Previous studies on the topic of research
Many recent educational studies have focused on the impact of the information revolution and e-learning tools on the course of the educational process to determine the best ways to benefit from the positive aspects of this revolution in terms of the output of educational systems. Therefore, searching for ways to train teachers to acquire technological skills is necessary to keep pace with these changes, that is, updating training programs to match the data of this age.

As examples of studies that dealt with the field of teacher training on the skills of modern technology, the following two studies are discussed: the first, conducted by Muhammad Samia Abdullah Issa and Al-Siddiq Mukhtar Othman, was published in the Journal of Graduate Studies at Tow Niles University in 2019. This study aimed to propose a vision for the optimal use of technological innovations in professional educational development. The study used descriptive and verification methods, and the theories were tested on a sample of 250 male and

female secondary school teachers in Khartoum, the capital of Sudan. The study found that teachers were highly motivated to use modern technology in the educational process. Therefore, the effective use of modern technological techniques in the educational process will ensure that the educational process keeps pace with the changes of the times, and to ensure teachers' ability to develop professionally in an effective manner, it is necessary to design appropriate training programs, including skills for modern technological technologies.

In light of these results, the researchers made the following recommendations:

- Training teachers on the use of modern technological techniques in the educational process according to a scientific vision, with clear goals and content.

- Establishing a department of modern technology in education within the Ministry of Education.

- Providing schools with modern technical tools.

The second study we will be reviewing is an article by Van Wyck Khopede Mbabazi Chikasanda, Kathrin Otrel Cass, John Williams, and Alastair Jones, titled "Enhancing teachers' technological pedagogical knowledge and practices: a professional development model for technology teachers in Malawi". It was published in 2013 in the twenty-third issue of the" International Journal of Technology and Design Education" 23, pages 597–622. The article dealt with writing about educational professional development trends and the mechanism of designing and implementing teacher training programs aimed at expanding teachers' knowledge and skills of the nature of technology and also enhancing their technological educational practices. The research also included the stages of designing and implementing a teacher-training program on the skills of using modern technology. The researchers mentioned that the program was divided into four stages, where each stage provided topics for discussion and reflection, paving the way for the last stage, which focused on training teachers practically on several skills, under Information that was provided to them in the initial stages of the program. It is worth noting that the training program also focused on training teachers on creative thinking methods, which is necessary to use modern technology tools in educational activities. The program focused on the need to follow up teachers' reactions to the information and skills that will be used to

enhance their horizons in setting aside and developing traditional ways of thinking and methods in education to encourage them to implement new practices in their classrooms. Through this program, teachers collaboratively explored new concepts, in particular, by reading research and scientific studies that were carefully selected. All stages of the program were accompanied by continuous evaluation processes that allowed recording and examining trainees' opinions about all the skills and experiences they went through within the various stages of the program. This showed that, although the teachers had experience and technological skills, they focused on following traditional teaching strategies to teach educational materials. This was explained by the fact that teachers fear stepping out of the safety zone represented by the traditional methods of education. Despite their training in the skills of modern educational technology and displaying positive results in the educational process, the researchers recommended taking gradual steps to expand their horizons and ways of thinking in conjunction with training programs. If making effective changes to teaching strategies is something he seeks, realistically.

Terms and definitions
According to the thesaurus, a training program refers to a course designed to train specific skills. (Vocabulary.com). According to UNESCO, the Institute of Statistics, a Teacher training program is "any pre-service or in-service teacher-training program that is accredited or sanctioned by the relevant national education authorities or equivalent authorities." (UNESCO, the Institute of Statistics, n.d.)

Education technology or EdTech refers to the educational process in which technology is used in education. Technical programs and devices are used in the context of the educational process to improve learning environments and outcomes. The inclusion of modern technology tools in education strategies that can arouse the interest of the learner to motivate him to actively participate in the classroom, as well as the scientific skills that the learner intends to acquire through curricula and formal courses within an educational system, will acquire additional skills related to information technology. (Al-Shihabi, 2008)

The EdTech app has many benefits for learners, teachers, and educational institutions. For learners, one of the most important benefits is improving their participation in educational activities and motivating them to participate and search for learning topics, to facilitate their acquisition of new educational experiences, and commensurate with their learning mechanism, type, and speed of

learning, because it gives learners access to more diverse educational resources, and thus prepares them to accept any changes that will happen in the future, not those that are happening in their present time.

While it saves time and effort, it also allows them to better follow the progress of all their students, while on a personal and professional level, it allows them to exchange (pedagogical expertise and experiences), collaborate with their colleagues, and see the latest educational studies.

These benefits, if achieved by teachers and learners, will be reflected in the educational facility by increasing its efficiency, reducing waste of material and human resources, improving educational results, and reducing school dropouts.

EdTech is a fast-growing and ever-evolving field. Specific examples of how EdTech can be used in the classroom are Virtual Classrooms, Online Learning Platforms, Instructional Design, Educational Planning and Management Applications, Educational Assessment and Statistics Tools, and Gamification, which refer to the use of elements such as those used in electronic games in educational contexts. The educational game is designed on several levels, and as the student skips each level, he approaches finding a solution to the problem that represents the content of the lesson as a whole or only part of it (learning). It is an engaging yet fun way to achieve the effective learning of new concepts. (Florence Martin, Ting Sun, Carl D. Westine, 2020)

EdTech is a powerful tool that encourages various educational technology professionals to use it to improve educational processes. As it is linked to modern technology and its tools, it will continue to update and develop, so its impact will often increase, as will the reasons for its use in the coming years in the educational process.

Educational VR is a type of Virtual Reality used in educational environments that allows students to experience different environments and situations in a realistic and immersive way. Educational VR can be used to teach students interactively about different cultures, historical events, scientific concepts, and other topics that were previously taught theoretically, and students rely on repetition and research to learn about them. This tool can help learners develop different skills, such as problem-solving and critical thinking, by creating simulations that allow students to solve problems and make decisions in real-time. It also has an impact on developing the ability to create virtual learning

environments by using virtual reality, which allows learners to express their creativity. This helps them develop their imagination and develop new ideas. Therefore, this tool can be said to allow learners to develop their personality better if applied for proper use.

In addition, the use of virtual reality in educational activities helps learners learn more attractively and effectively. Because it provides them with a hypothetical experience that represents the phenomena or events that are the subject of the study, which makes learning more interesting, the learner will be able to retain this information and experience for a long time in his memory and retrieve them to be used when necessary.

Despite these advantages, however, to use the virtual reality educational tool, several obstacles must be overcome, such as its high cost for some schools. The difficulty in using it and the need to train teachers and learners to use it, especially because it is classified as a complex technology in preparation and management.

In addition, the availability of a limited amount of educational VR content is an obstacle to its adoption as an educational tool compared to other tools that are flexible and easy to use to be included in educational activities.

In general, educational virtual reality is a promising technology with the potential to revolutionize education. However, some challenges must be addressed before VR can be widely adopted in schools.

The impact of modern technological developments on practical teachers' training programs

Modern technological developments are among the most important factors that affect laboratory practicum programs. Thanks to rapid technological progress, advanced technologies and tools are being used in many areas of laboratory work. These developments have played a decisive role in improving the quality of practical training and enhancing its effectiveness. It is necessary to understand the impact of modern technological developments on laboratory practicum programs, and how to exploit these developments to elevate education and training in the fields of science and technology (Gage ٠N., 1964). Recent technological developments may affect practical training programs for teachers in the following ways:

Facilitating access to advanced technologies: Provides training programs that include building technical skills for teachers to learn about the latest technologies and how to use them in education. They can acquire advanced technical skills, such as designing teaching plans through the various currently available applications, learning how to design content through interactive electronic games (gamification in education), VR for education, educational robotics, and using artificial intelligence to design interactive educational activities, among others.

Expanding interactive learning: new technologies enable teachers to design educational activities that require active participation of learners in interactive and exciting learning experiences. Therefore, teachers must be trained in the skills of using multimedia such as virtual reality, augmented reality, and distance learning (which positively enhances interaction and practical experience for learners) so that they can later apply them in the educational environment.

Enhancing Collaboration and Participation: Modern technologies allow teachers to communicate and collaborate with colleagues and educational experts faster and more effectively. With teachers' possession of skills and knowledge that enable them to use modern technologies, especially those related to research and the use of educational applications, they will be able to share and exchange their educational experiences and present the obstacles they face in finding innovative and more effective solutions by benefiting from the experiences of others or from the results of the latest studies discussing similar phenomena, which were published on reliable educational platforms that promote collaborative learning and contribute to the exchange of knowledge and innovation.

Developing capabilities and skills related to data analysis and processing: Modern technologies allow for faster and more accurate data analysis using specially designed tools. These tools are necessary for the course of the educational process because of their ability to provide both the teacher and learner with accurate results in record time, which increases the effectiveness of the educational process, especially if it is applied in evaluation and educational design. Machine learning, deep learning, and statistical analysis techniques can be used to extract valuable patterns and insights from big data used in the educational process. (Popovici, D.V., Costache Colareza, C., 2023)

Continuing education that is particularly related to modern education technology and adopting a behavior based on continuous research and

curiosity to get to know everything new and interesting, especially for the group of learners, which facilitates the process of communicating with them and understanding their needs and ways of thinking, so that it becomes realistically possible to support them in achieving effective learning.

Recent technological developments have a significant impact on teacher training programs, providing new opportunities to enhance the educational experience and develop the skills of those in charge of the educational process and thus its beneficiaries. However, to keep pace with the rapid changes of our time, educational institutions must, through educational policies, support ways to take advantage of the advantages of modern technology. This requires the joint efforts of all beneficiaries of educational systems to bear the requirements of integrating modern technologies in the course of the educational process. The starting point is the inclusion of teachers in training programs based on the foundations of comprehensive quality, including technical educational skills in addition to traditional skills, and simultaneously providing material resources to provide all educational facilities with the latest modern techniques.

Challenges and obstacles facing practical training programs for Teachers in the era of the information revolution
The article, written in 2013 by Rebecca Ratcliffe for the Guardian, discusses the challenges and opportunities in professional development for teachers in the context of the information revolution. The lack of regulations and guidelines surrounding professional development through educational technology has contributed to reducing the effectiveness of teacher training programs on modern educational technologies. In addition, the following factors must be considered:

Lack of organization and guidance: The article indicates that there are no specific rules or regulations governing the technical professional development of teachers. This means that anyone can claim to provide teacher training, which leads to inconsistencies and uncertainty in the quality of the available training.

Allocating insufficient periods for teachers to acquire the basic technological skills that programs should emphasize in training teachers.

The directions and goals of educational policies dominated the educational goals of educational programs instead of reflecting the personal and professional needs of trainees.

Lack of financial and human resources capable of activating trainees' participation in various training programs on the skills of modern educational technology.

Relying on local training programs or educational institutions of average quality, even without experts or specialists in modern educational technologies. Notably, internal training programs may provide trainees with a better opportunity to acquire skills because they provide the opportunity to train within a well-known environment, which facilitates the emergence of existing skills and capabilities. Therefore, if similar programs are supported by trainers and appropriate tools, their outputs of similar programs may be significantly improved.

Training programs in the shadow of information technology are needed to contain academic research skills and critical thinking methods, regardless of whether the training is inside or outside the educational institution; thus, trainers in this field must be sought. (Vaughan, N. D., Cleveland-Innes, M., Garrison, D. R, 2013)

The need for training programs to contain basic modern technological skills, in addition to those related to the educational field, also requires the use of trainers in this field.
Similar teacher training programs should include collaborative activities and provide trainees with the opportunity to participate in activities related to the exchange of experiences with various educational institutions, because it is a type of direct application of the desired skills, especially through learning about the experiences of others.
In addition, one of the most important challenges is ensuring that similar programs can support continuing professional development. (Ratcliffe, 2013)

All previous challenges must be overcome and included in the training programs because they exceed the teacher's professional educational needs to facilitate the learner's attainment of more effective learning outcomes. Each skill that the teacher masters correctly increase his chances of effectively delivering it to the learner.

The researcher emphasized the need for better organization, increased investment, and professional development opportunities based on research and sensitivity to the context in which trainees learn and their professional and individual needs. Therefore, she emphasized that

collaborative learning, internships, and research participation could enhance the quality of professional development and ultimately benefit student learning outcomes.

Opportunities that technological developments and recent innovations can provide to improve the quality and effectiveness of practical training programs for teachers

Josephine Wolff wrote an article discussing the opportunities and challenges created by the use of technology in various aspects of society. From his point of view, the most important of these opportunities and challenges are as follows.

By increasing the complexity of the basics of the various professional fields and facilitating work in them, it is necessary to resort to additional skills related to other fields.

The necessity of monitoring and organizing the information flowing through various means of communication and search engines and rethinking the rules governing the flow of global data.

Emphasizing that technology has two aspects, one is positive and the other is negative, and awareness of the difference between them must be made, which allows positive use of information technology.

The emergence of two streams regarding the impact of the information technology revolution on the future of humans, where the first stream sees it as a tool for human progress and the other sees it as beyond human control. Scholars argue that a purely optimistic or pessimistic view is not sufficient to address the complexities of our relationship with technology.

Modern technological tools have effects and results that cannot always be expected. In particular, some modifications were made to the inputs. Anticipating and understanding the mechanisms of these effects of changing inputs are crucial for making correct and safer decisions.

Control of private sectors and emerging companies in the development of modern technology.

Information technology has become a reason for countries to compete to find innovative updates that enable them to excel and distinguish themselves, and thus control technology politically.

To understand the impact of technology on our lives, we must have knowledge and skills of various technological skills; therefore, by

projecting the data provided by this research and others in the field of education, we find that modern educational technologies might come with the following opportunities that can enhance the quality and effectiveness of practical training programs for teachers:

- Online and blended learning.
- Virtual Simulation and augmented reality.
- Data-driven commentary and analytics.
- Cooperation and communication.
- Personal learning experiences.
- Access to Open Educational Resources (OER): Facilitating teachers' access to various open educational resources enables them to design teaching strategies that include interactive educational plans based on combining traditional and modern teaching methods using various educational technology tools. OER platforms allow teachers to adapt and customize resources to meet their own needs, thus saving time and effort in lesson planning and curriculum development. Access to diverse and updated resources enhances the quality and effectiveness of our internship programs.
- Mobile learning and micro-learning: Through devices that support this type of education, teachers and learners become able to participate online in experiments, events, and educational activities from anywhere the Internet is available, which allows access to special educational applications. This makes modern educational technology suitable and flexible for continuing professional and educational development.

Integrating the skills associated with realizing these technological opportunities into practical training programs will expand access, improve participation, and support teachers' continuing professional growth. Therefore, it is essential to provide appropriate support, resources, and training to ensure that teachers can use these technologies effectively and maximize their potential to enhance hands-on experiences.

These components must be included in the content of practical training programs for teachers according to the technological skills that must be present for teachers and learners at the same time

Both educators and learners require specific technology skills; therefore, practical training programs for educators must encompass these skills. The following components should be included in the content of these programs.

Educators must possess a solid base of digital literacy, encompassing fluency in computer usage, operating systems, and prevalent software applications. It is also imperative that they acquire fundamental technical skills such as Internet navigation, email communication, and file management. This bedrock knowledge empowers teachers to effectively incorporate technology into their instructional methods. (Boudreau, 2020)

To improve learning results, instructors must be educated on the pedagogical integration of technology. Understanding the use of digital tools and resources in teaching techniques is required. Key tactics include selecting appropriate digital tools, devising technology-enhanced classes, and measuring student learning by using technology-based methodologies.

Educators should be trained in various educational technology tools and platforms that can support teaching and learning. It may encompass virtual learning environments, learning management systems, digital content creation tools, collaboration platforms, and educational applications. Training should focus on how to use these technologies successfully to engage students, create interactive learning experiences, and tailor instruction. (Wolff, 2021)

In today's technologically driven world, educators must grasp the concept of digital citizenship and impart knowledge of responsible and ethical technology usage to students. This entails teaching them about online safety, respecting privacy, and behaving courteously on the Internet, as well as developing the skill to critically evaluate digital content. Teachers must be prepared to address digital citizenship concerns and foster a constructive digital environment in the classroom.

To effectively use data generated through technology-based assessments and learning analytics, educators must develop data literacy skills. This includes the ability to interpret and analyze student data to make informed educational decisions and personalize learning experiences. Training should prioritize the use of technical tools for formative and summative assessments, tracking student progress, and delivering timely feedback.

To effectively cater to the varied needs and styles of students, educators should prioritize their knowledge of personalized learning styles and adaptive learning techniques that exploit technology. Their training should emphasize the implementation of adaptive learning platforms, data-guided differentiation, and instructional methods that

facilitate personalized learning experiences. (Vaughan, N. D., Cleveland-Innes, M., Garrison, D. R, 2013)

Educators must understand various digital technologies to promote cooperation within the education community. Video conferencing, online debates, document sharing, and educational social media are some examples of this. Facilitating successful online collaboration and communication is critical for educators seeking to increase learners, instructors, and parents' involvement and engagement.

In the realm of educational technology, practical training programs must emphasize lifelong learning and professional growth. Educators should be encouraged to continually improve their knowledge and understanding of developing technologies, pedagogical approaches, and successful strategies for incorporating technology into their education. Resources and opportunities for continual professional development in the use of technology in education should be made accessible to support ongoing progress.

Educators will be successfully prepared with important technological abilities if these components are included in the educator training programs. Educators will be able to support the development of 21st-century pupils' abilities by properly incorporating technology into their teaching techniques. As a result, students will be well prepared to succeed in a world dominated by technology. (Wolff, 2021)

Conclusions

Technology has become an integral part of all aspects of life and has significantly impacted the field of education. To keep up with technological changes, teachers must acquire and develop their technological skills through practical training programs. However, these programs face various challenges and obstacles, including a lack of organization and guidance, limited resources, and the need for continuous professional development.

Despite these challenges, there are numerous opportunities for technological development and recent innovations to improve the quality and effectiveness of practical training programs for teachers. These opportunities include online and blended learning, virtual simulation, and augmented reality, data-driven feedback and analytics, collaboration and communication tools, personalized learning experiences, access to open educational resources, mobile learning, and microlearning. By integrating these components into training programs, educators can enhance their teaching methods and engage their students more effectively.

Practical training programs should encompass essential technological skills for both teachers and learners. These skills include digital literacy, pedagogical integration of technology, proficiency in educational technology tools and platforms, an understanding of digital citizenship, data literacy, personalized learning approaches, collaboration and communication skills, and a mindset of lifelong learning.

To maximize the potential of technology in education, it is crucial to address challenges, provide adequate support and resources, and ensure continuous professional development for teachers. By equipping educators with the necessary technological skills and fostering a positive learning environment, practical training programs can empower teachers to create engaging and effective educational experiences that meet student's needs in the ever-changing digital age.

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