Journal of Education, Society and Behavioural Science

Volume 37, Issue 6, Page 187-201, 2024; Article no.JESBS.84621
ISSN: 2456-981X
(Past name: British Journal of Education, Society & Behavioural Science,
Past ISSN: 2278-0998)

A Review on the Effectiveness of Distance Learning through E-platforms on Training Quality at the Technical and Vocational Training Corporation

Thowg Alrasheed [a*]

[a] *Technical and Vocational Training Corporation, Saudi Arabia.*

Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

Article Information

DOI: https://doi.org/10.9734/jesbs/2024/v37i61338

Open Peer Review History:
This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://www.sdiarticle5.com/review-history/84621

Systematic Review Article

Received: 12/01/2022
Accepted: 15/03/2022
Published: 28/09/2024

ABSTRACT

As a result of the advancement in technology, distance learning has been made possible using platforms that employ virtual services of e-Platforms. This type of learning has also been named as E-learning where knowledge is exchanged between the student and the teacher using an electronic source of e-Platform. Distance learning has mostly been studied under the academic reference whereas the effectiveness of distance learning in corporate and vocational institutes lacks research. This limitation in research needs to be resolved in order to compliment the strategies adopted by vocational institutes to impart knowledge. The main goal of this study is therefore to address the quality of training being provided to individuals through E-platforms at the Technical and Vocational Training Corporation. The review adopts the approach of a literature review using electronic data bases such as EBSCO, JSTOR and Google Scholar. These databases collectively helped to

**Corresponding author: E-mail: t.alrasheed55@gmail.com;*

Cite as: *Alrasheed, Thowg. 2024. "A Review on the Effectiveness of Distance Learning through E-Platforms on Training Quality at the Technical and Vocational Training Corporation". Journal of Education, Society and Behavioural Science 37 (6):187-201. https://doi.org/10.9734/jesbs/2024/v37i61338.*

provide relevant research papers that have formed the basic foundation of concepts including distance learning, E-platforms and Vocational Training in terms of theory. The review creates a significant understanding of how E-platforms enable distance learning to be effective in terms of training quality at the Technical and Vocational Training Corporation present in Saudi Arabia. It concludes that there might be disparity in the quality of education being provided to individuals based on a number of reasons including that of ambiguity and absence of effective infrastructure etc. In order to reduce this disparity, vocational institutes need to adopt a proactive strategy to overcome these challenges.

Keywords: Distance learning; E-Learning; E-Platforms; vocational training; technical training; technical and vocational training corporation.

ABBREVIATIONS

TVTC : Technical and Vocational Training Corporation
TVET : Technical and Vocational Education and Training

1. INTRODUCTION

Effectiveness of Distance Learning through E-Platforms has been discussed and researched over by a number of scholars. As early as 2004, it was observed that students enrolled in distance education were performing better as compared to the students enrolled in traditional education. Different metrics were also employed within the study to ensure that the results could be generalized which included the type of platform being used to convey education as well as the personal intellect of the individual [1]. Likewise, more recently, social media being an electronic and virtual platform was found to be of optimum use during the pandemic where student were socially and physically restricted from gaining education at their respective schools. Conversely, social media only proved to be helpful in theoretical courses, practical courses required actual implementation of the theories being taught over social media. Different electronic platforms therefore exist and can be used by a number of institutes to spread information that may also vary in terms of their effectiveness [2]. The respective studies however have been limited in terms of their scope, being restricted towards academic studies only [1].

In terms of professional development and training, the effectiveness of distance learning through E-platform has only been studied in brief. A concise and detailed paper discussing the phenomenon is the need of the hour due to the situation formed by the pandemic and its restrictions. Different factors have been identified through a variety of papers, to influence the quality of education [3] and training being provided to professionals [2] during the pandemic. These challenges may differ in nature i.e. financial, pedagogical, social and organizational etc. [3]. These challenges also conclude a deteriorating influence over quality of training being provided through E-platforms in the form of distance learning as supported by Nadeak [4] which requires a practical approach. This ongoing debate requires a more intensive approach that is yet not present in existing literature studies. Organizations continue to increase their use of smart technologies and E-platforms as a bid to improve professional trainings despite the on-going restrictions, without understanding whether these platforms are effective [5]. The main argument that is presented here is that existing studies lack a more concise and detailed account of the effectiveness of distance learning through E-platforms over training quality where most of the organizations are repeatedly increasing their use of smart technologies to improve their professional trainings without evaluating the effectiveness of the platform.

The main objective of the review is to evaluate the effectiveness of distance learning through E-platforms over the quality of training. The review, therefore, also focuses specifically over the Technical and Vocational Training Corporation currently operating in Saudi Arabia to evaluate the quality of training being provided through distance learning. Meanwhile, other relevant concepts have also been presented in detail using a literature review approach based over a number of research papers selected from three different electronic data bases including EBSCO, JSTOR and Google Scholar, to address the research objective. It has been ensured that a number of insights and thought processes by each scholar be presented within the paper so that it provides a generalized and a significant view of the entire concept being studied in detail.

1.1 Distance Learning

Distance Learning is a concept that has emerged among continuous setbacks facing the education system that included higher tuition fees, a reduced budget and narrow range of courses available to be opted. Meanwhile, in the year 2020, the pandemic forced the entire world towards online learning as a means of emitting online knowledge [6]. Recent studies mainly talk about the pandemic shifting the focus from a traditional classroom to a remote one; however, none talk about how distance learning was already a part of the educational sector which only recently has been acknowledged worldwide during the pandemic. Many schools, until now, have adopted TEDL "Technology enhanced distance learning" simply to reach a larger student population of around 1.5 billion individuals. Thus, technology has remained the main facilitator of distance learning globally [7]. The online sector has accounted to be one of the fastest growing sectors in the entire world [8].

Distance learning has been described as an exchange of information between the teacher and student but remotely instead of the usual, physical, face to face orientation. When the same learning process is adopted using an electronic medium or electronic solution, it can also be called as e-learning. Conversely, different platforms are now being created, based on the advancing technology such as the virtual laboratory, proposed by Lei Chen (Georgia Southern University, USA). The laboratory acts as a practical solution towards providing tools and technologies that portray the scenario of an actual laboratory in real time that improves the effectiveness of distance learning [9]. Similarly, another source defines distance learning as a platform that is adopted to meet the emerging needs of the students in terms of learning. The approach has been observed to be effective at almost educational levels [10] however does not consider the effectiveness at a professional level.

In terms of distance learning as mentioned above, a number of mediums are being used that include video conferencing to deploy distance learning during the coronavirus pandemic. Google Meet and Zoom were among the top contenders of mediums used to carry out distance learning however, the result was not that very effective initially as students lack the competencies to become acquainted with digital technology swiftly [11]. In Ukraine, teachers resorted towards YouTube and TV Broadcast to carry out their everyday classes. Most of the teachers also utilized Viber, Prometheus platform and EdEra for course content as well, however, the students were most benefitted by the use of lessons on YouTube [12]. Similarly, in Indonesia, Zoom was used for video conferencing whereas WhatsApp was the main medium of communication between the teachers and students [13]. Several tools such as AutoCAD, AutoCAD architecture are softwares that help students train on their skills within a controlled environment. Various virtual laboratories have been also created to cater the practical skills of students through the distance learning mode. Assessing individual work has however been challenging within distance learning classes which has been resolved through point rating system where the designs provided by the students or the skills performed can be rated. Quizzes and assessments can also be easily carried out over Google forms and other such platforms enabling easy distance learning [14].

Despite a number of studies exhibiting a more beneficial outlook of distance learning [10, 6], distance learning has been rendered ineffective in terms of quality by Markova et al. [8]. It has been claimed that since the same level of education is being imparted through the electronic medium, the quality of education should not be influenced however, the communication and personal interaction between a teacher and student remains the most significant factor in satisfying the needs of the students. This leads to students feeling more confused, irritated and annoyed during their online class which leads to ineffectiveness and a reduced quality of education. The on-going debate over the effectiveness of distance learning remains significant in literature since it highlights that the nature of distance learning is quite complex depending on how it is utilized, and the teaching practice adopted within [8]. In order to further evaluate the effectiveness of distance learning in general, the paper has considered a further review of relevant papers within the next section.

1.1.1 Effectiveness of distance learning

Majority of the research studies focus over the effectiveness of distance learning over the academic performance of students. Mirkholikovna [6] evaluated the effectiveness of distance learning from both a positive and negative perspective. He observed that

availability, flexibility, savings on money and time, and the relevance of the courses remain the most significant advantages towards distance learning. Remote learning allows an individual to access knowledge beyond geographical barriers thus, allowing access to the entire world. Meanwhile, courses also offer flexibility in terms of convenience and time thereby saving on commutation as well as time itself. Conversely, relevance of the course remains the top priority since individuals get what they pay for, saving on costs. Recently, technical knowledge and training is being provided exceptionally through distance learning such as navigating new learning management systems, converting videos into assignments and completing online training sessions such as programming a new course etc. However, amongst the negative factors, distance learning offers a limited choice in terms of courses and faculty, a lack in personal communication and a lack in control by the teacher over a virtual gathering that limits its effectiveness [6].

In order for distance learning to be effective, the teacher needs to have a control over the class as well as the ability to integrate virtual solutions with the course being offered. The quality of education being imparted through distance learning is being influenced by the communication pattern and teaching strategy adopted by the teachers, proving to be ineffective [15]. One of the concerns being pointed out in literature is the fact that since students use their electronic devices to take classes, they can get easily distracted and teachers find it harder to engage students. Conversely, teachers have found relief in synchronous media that can easily be integrated into their distance courses such as chat discussions or interactive webinars. Moreover, as technology advances it is now more than easy for teachers to give immediate feedback through integration of synchronous media such as collaborative whiteboards online [16].

Abuhammad [10] has presented a number of barriers that limit the effectiveness of distance learning which can be categorized into personal, technical, logistical and financial obstacles. Distance learning has been proved to be beneficial at all academic levels yet a few challenges and issues that if not resolved, can cause a lot of damage. Students and individuals themselves lack ability and competency to suddenly adapt towards a distance learning module or technology. Most of them miss the personal interaction they received from the teacher, feeling ambiguity in distance learning. Moreover, the courses being offered due to a cutback in budget are not able to effectively meet the needs of the students either of learning or of infrastructure. Table 1 provides an overview of the barriers identified by Abuhammad [10].

1.2 E-Platforms

E-Platform is a concept that is being adopted worldwide irrespective of the nature of industry. Within the financial industry, E-Platforms act as a unified front in providing information to legal entities and other companies that are interested in investing within the organization [17]. For the commerce industry, E-commerce has been identified as an E-platform that allows the selling of products or services over an electronic medium. The same study also mentions that the marketing for e-commerce platforms is done over other e-platforms such as social media in order to directly divert the focus of the individuals towards the platform over the internet [18]. Hence, the use of e-platforms can be found in a variety of industries irrespective of its functions and nature.

Ali and Mohammad [19] mention that E-Platforms have emerged as a bid to resolve a number of problems including that of increased costs, inaccessibility of universities and lack of qualified professors etc. since it helps to connect with other universities and their faculties quite easily. It acts as a trustworthy tool in imparting knowledge however, disparity also exists among these platforms because of which students need to associate themselves with university recognized platforms. The E-platform has enabled e-learning or in other terms, distance learning, making it accessible for all despite the challenges being faced in terms of the quality of education being provided. These platforms are bounded by a network and its importance increase with every new visitor. A learning e-platform consists of audio-visual lectures, curriculum, books and assignments [19]. Other platforms have been observed to include a variety of information and communication technology applications including augmented reality software, podcasts, MOOCs (massive open online course), blogs, videos, phones, radios etc. All of these applications, act as a medium through which learning is disseminated [20]. E-Platforms are being currently adopted to promote education among the masses

Table 1. Obstacles in Effectiveness of Distance Learning

Obstacles Category	Factors
Personal Obstacle	• Lack of Training regarding Distance Learning • Lack of Technical Education regarding technology being used • Inadequate communication between the students and teacher • Lack of expertise by parents in teaching individuals
Technical Obstacle	• Lower budget reduces user interface friendliness • Internet connections and Infrastructure
Logistical Obstacles	• Cannot adapt to sudden change • Dissatisfaction with course content • Does not meet needs
Financial Obstacles	• Lacking Infrastructure • Expensive internet connectivity

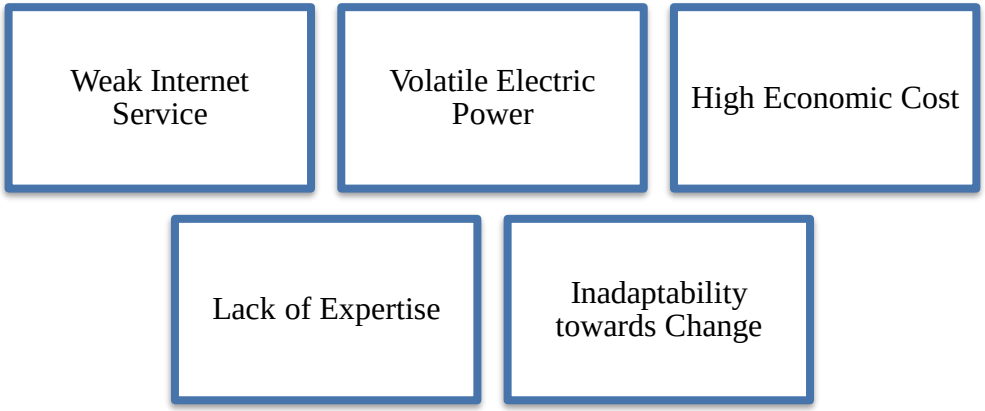

Fig. 1. Challenges regarding E-Platforms

due to the rising preference of digital technologies among the students. The digital advancement has also caused a significant change in how education is imparted among the masses. A major portion of the studies existing in literature talk about how there are more disadvantages of the technology that there are advantages because of which the effectiveness of the distance learning program is also short lived [21,19].

The platform may be of different kinds out of which a few have been discussed in the next section of the paper.

1.2.1 Categories of E-platforms

Advancement in technology has allowed E-platforms to evolve that can be classified into a number of E-platforms based on its basic functions. The following four E-platforms have been recognized by Ali and Mohammad [19].

1. Innovation Cloud Platforms – Tools and features are present on the cloud that allows individuals to collaborate with each other to produce new creative programs and ideas. E-learning systems can be accounted as Innovation Cloud Platforms since they allow teacher and students to collaborate with each other adopting different tools and features.
2. Transactional Platforms – Allows users to receive a service in exchange of money such as e-commerce [18,19].
3. Integration Platforms – Such platforms are integrated with other partners as well as end-consumers to provide a full 360-degree solution such as Amazon [19,22].
4. Investment Platforms – Such platforms receive investment in order for them to further advertise their products.

1.3 Effectiveness of Distance Learning through E-platforms

Koceva Lazarova et al. [21] mentions that the utilization of E-platforms has had a highly positive impact over the students of the future whereby the level of socialization has increased, technical skills have further developed and also learn how to manage time. Conversely, every technology, no matter how advanced, can be rendered ineffective if it has a set of challenges that are not catered towards properly. Ali and Mohammad [19] have mentioned some of the challenges that are being faced by students in terms of E-platforms, as presented in Fig 1.

On analyzing the type of e-platforms that are the most effective in terms of distance learning it was mentioned that the platforms are required to be more user friendly since its competence motivates the students to acquire more knowledge through the application. Conversely, virtual competencies remain the most significant asset in ensuring that the students face no obstacle in receiving effective knowledge. Therefore, e-platforms need to have a user-interface that caters to the challenges being produced by such platforms [23]. Heng and Sol [24] also mention how a sudden adaptation towards e-platforms is highly difficult since it involves teachers that lack training in providing education to the students through such a platform whereas they also face difficulties in making a course that utilizes the full abilities of the virtual e-platform. These issues subsequently prove to be a hindrance in providing effective knowledge to the students [24, 25].

Meanwhile, technical and vocational training such as surgical and anatomy training requires a more effective approach in terms of distance learning. It has been observed that despite a number of studies mentioning how E-platforms are not that effective in terms of educational learning, it has been proved that distance learning through E-platforms in terms of surgical training ensures a more effective approach. Around 5 studies had been analyzed by Co et al. [26] concluding how students' performance significantly increased due to distance learning through E-platforms [26].

Petrenko et al. [25] analyzing the perception of the teachers over the effectiveness of distance learning through E-platforms mentioned a number of factors that reduce its usefulness that includes the inability to carefully design the course requirements on the basis of the virtual platform, identify earning styles that can best relate to the learning styles adopted by the students that are taking the course over the platform, inability to integrate ICT within the courses offered over the platform and motivate students to equally interact over the virtual class as in a traditional class within a vocational institute.

The tools and features offered within an e-platform are specifically designed in such a way that they improve the engagement of the learner

further by offering an interactive environment which has been identified as a single major factor in reducing satisfaction regarding distance learning programs within vocational training institutes. Scholars state that the effectiveness of E-platform mainly relies over its features and attributes. Moodle and WIZQ are such two platforms that are being used for educational programs. Moodle offers teachers to create online courses and content for students whereas WIZQ offers collaborative features that allows teachers to interact with their students [27].

1.4 Technical and Vocational Training

The 21st century has caused sudden yet significant changes in the world that have influenced social, political and economic aspects globally. The advancement in technology has however remained at the root of all this upheaval since it has led to the increment in globalization that has allowed significant economic challenges as well which have developed how technical and vocational training for individuals takes place at present. The training program is so designed in order to make each individual ready and prepared for all the competencies that may be required worldwide [28,29].

An individual can be acknowledged as employable when he has a certain set of skills that enables him to contribute productively to the workforce. Based on globalization and its influence [23], an employable person needs to have skills that prepare him for the requirements imposed by the sudden changes globally. The working conditions or the economy of the world changes dynamically and so does the requirements of skills within one person who needs to continuously adapt towards new changes in order to ensure his productivity. Technical and Vocational training, therefore, is to provide such a training that ensures the employee develops these skills in time [30].

Countries continue to emphasize over the importance of technical and vocational education since employees prove to an important asset in the productivity of the entire economy. Vocational Education alone has been considered and observed to be a competitive advantage for the country. These countries also continue to develop a number of institutes that ensure that vocational training be provided to all that are in need of it. On the international level, for example UNESCO has created an International Center for Training and Vocational Education and Training named as the UNESCO-UNEVOC [31,32].

TVET “Technical and Vocational Education and Training” similarly has been observed in Africa to contribute towards national development as observed in other countries as well. It has been seen as a proactive strategy in reducing the overall poverty that exists within the country that also highlights its importance. TVET itself is associated with the skills required within employees as based on the positions present in the world, globally. Each country has its separate strategy through which they tend to provide education to its individuals [33]. UNESCO has also communicated such advantages associated with TVET calling it as a source of employment growth, economic growth and national competitiveness. Meanwhile, such as poverty it also serves as method of ensuring social equity. These significant advantages therefore have made countries and organizations inclined towards developing each and every individual residing within the country on global levels. Conversely, it is to note that only increasing the curricula in TVET is not enough, but the nature of training should also be improved upon [34].

The recent decade has seen a major shift in technical and vocational education where technology has enabled organizations to provide education through various advanced technologies. Therefore, different platforms are being used to exchange information among their workers despite the geographical barriers that exist between them. Technology has been integrated in different levels of vocational training allowing for a much better approach to provide vocational training to employees that work for multinational organizations [35].

1.5 Technical and Vocational Training Corporation

TVTC “Technical and Vocational Training Corporation” is an institute that is currently operating within Saudi Arabia. The main focus over the institute currently is over memory, problem solving, experimentation and group study. In order to ensure that the education being provided in the institute, specific partners were being signed up as a bid towards forming a competent faculty that knows how to administer education through various platforms offered within the Institute. The institute has already reported on a reduced training equality due to increase in absenteeism, lack of understanding

in terms of students and their study habits etc. Conversely, all of these were a result of the lack that the teachers had regarding having a control over the classroom [36]. The Technical and Vocational Training Corporation is a highly standardized institute where all of its academic trainers are first trained on the code of conduct and requirements of the courses being offered to ensure that their standards do not falter because of a trainer. However, a number of obstacles have also been found that limit the training quality of the trainers themselves which have been accounted to be associated with the laws and regulations existing within the country [37].

Discussing the effect of the Technical and Vocational Training Corporation over the individuals that receive training, Rivera et al. [38] stated that its effect was felt over a long period of time as after their successful training, their earning starts to increase annually. However, the nature of the program does seem to influence this success rate. Individuals that are already working within a respective organization report a low level of advantage as compared to the individuals that are currently studying since as a student, they receive additional skills that separate them apart from the rest of the labor market. Initially, as globally the labor dynamics changed, students lost interest within the courses provided by the Institute however gradually, the institute as well adopted various reforms including different orientation of programs and private tutors as bid to attract the youth towards them. Conversely, a variation does exist among the outcome of the courses in respect to employment.

1.6 Evaluating Effectiveness of Distance Learning through E-platforms over Professional Training Quality at TVTC

In an interview, the manager of the TVTC stated,

"One of the essential objectives for TVTC is to promote educational plans and make the best use of innovative technologies. Huawei's work helps us with this object, by building a new platform. We are enabled to promote a series of educational projects and prepare our students for the future." [39].

The quote clearly implies how the institute is striving to provide the latest skills and competencies to its students through the latest technology to ensure that they are prepared for future requirements. The facility that offers courses in around more than 142 affiliated colleges has over the years invested in technology that can help improve their teaching practices. Conversely, the institute faced a number of issues including no proper administration and lack of effective infrastructure [39]. Recently, they have also solved the lack of proper administration issue by providing their trainers proper education over the practices first [37]. The TVTC has also found relief in the Huawei Fusion Access cloud platform that has allowed them to replace their traditional hardware and broadcast high mb files easily. Different multimedia tools are now being easily used over the said platform. The benefits include an effective and interactive education system that can easily engage and prepare the youth for the future [39].

A large majority of the world only carries out theoretical learning over e-platforms still whereas practical knowledge is still disseminated through traditional physical mediums [20]. As students prefer online over offline, digital and distance learning has become a preferred route among individuals in the case of educational programs. Conversely, even distance learning or remote learning cannot reach the level of effectiveness that is found in the traditional mode of education. Institutes are attempting to integrate the latest technology within their courses as a bid towards upgrading their distance learning courses. The main basis is over the integration of ICT technology within E-platforms that allow and ensure the effectiveness of distance learning programs at vocational institutes [40]. The most significant advantage, however, that distance learning through e-platforms holds is the access by everyone ensuring a proper internet access and the hardware that supports the software or content [20]. Similarly, Kotsik [41] mentioned that in order to meet the vocational needs of the entire world it is important that the platform through which this education is emitted should also be upgraded to a higher level such as E-platforms in order to ensure that the skills achieved are effective in nature. This statement itself implies the effectiveness and training quality achieved by individuals in distance learning through E-platforms [41].

As recent as 2021, Huawei in association with the TVTC announced the launch of the Techtrack program in order to increase awareness among 20,000 students regarding the utilization of the

latest ICT technologies available. The certification itself was to be achieved through an online three-day program making use of the e-platform designated by the TVTC. The program has already been recognized to successfully change the lives of those students, making them a future leader [42]. The Saudi government also aims to replace its workforce by Saudi citizens instead of foreign workers that have migrated to the land for work. The movement is called Saudization of which the TVTC is an important part [43]. Similar to other academic institutes, the TVTC also had to direct its course from a physical medium towards an online medium among the coronavirus pandemic. However, realizing the lack of ability to understand practical applications, the courses offered for remote, or distance learning were only limited towards theoretical subjects whereas the other training and practical courses were being taught physically at the institute [44].

As mentioned earlier, TVTC has launched a number of distance learning programs digitally over e-platforms due to the restrictions being imposed by the coronavirus pandemic. One of its programs Otqen that has courses designed specifically to be provided over e-platforms, remotely. The program already has reported training around more than 45000 individuals [45]. The course previously has also helped several people recover from substance abuse based on the self-development skills being offered by the program [46].

Previously, the institute also made use of an E-portfolio management system that recorded the entire journey of the students in regard to the education being received however that too, was prone towards the lack of administrative skills among the trainers. Another challenge that was being faced by the users was the lack of understanding regarding the technology being adopted since only with an ease of use other people can get acquainted with the technology as well [47].

In 2016, the TVTC launched their own learning management system called Doroob that enabled a more interactive learning environment. However, the use of the learning management system was limited only towards reviewing the course content. Similarly, project submissions were made through email or dropbox. Meanwhile, Rayat, another software to record attendance and grades was being used by the trainees in TVTC. It has already been observed globally that due to the lack in awareness regarding usability of the e-platforms, it is hard for students to immediately adapt themselves towards an online system [48]. Currently in Saudi Arabia, Blackboard, Moodle and D2L are popular e-platforms used for distance learning [49] whereas Doroob was launched only recently. The TVTC was gradually shifting its students from the traditional education system to the Blackboard LMS but due to the pandemic, the shift was quite sudden disabling students to adapt themselves towards this change [50].

In terms of effectiveness of E-platforms during the coronavirus pandemic, it was observed that many people lack awareness regarding the usage of such digital learning platforms because of which they refrained from using e-platforms. In Morocco, many students and teachers could not access equipment that can gain them access to the internet or to the LMS (Learning Management System). Ecuador reported that students and teacher still did not have an appropriate platform to utilize for distance learning. An individual from Kenya mentioned that the absence of proper and effective infrastructure ensures disruption within the e-learning process, abstaining the population from distance learning. Students within Srilanka also mentioned the lack of a medium that can gain them access to the internet and therefore, limited access to remote courses [48].

Social Networking sites are being used in Nigeria for the purpose of exchanging vocational education. Platforms such as Google, Facebook and LinkedIn are being effectively LinkedIn with educational platforms as means of utilizing them as a source of education as well. However, there are a number of constraints that exist and prevent effective collaborate learning in regards to TVET. The major hindrance was the development of soft skills through virtual platforms that are hardly developed over e-platforms [51]. Video based instructions provided through E-platforms have however been more effective in terms of developing practical skills in individuals as compared to the students that were only communicated through audio, therefore, highlighting how features of an e-platform may influence the effectiveness of distance learning [52].

In order for a Learning Management System such as Moodle to be effective it needs to be equipped with psychomotor factors such as interactive features that allow students or

individuals to be effectively engaged with the content of the course. Otherwise, the course in distance learning would be rendered in effective at large [53]. Africa currently faces extreme poverty and a higher unemployment rate because of which based on a number of studies, Lee [54] provided a number of recommendations that included providing training regarding use of technology to the individuals that allows them to access vocational education from even the remotest region. One of the significant factors that influences the effectiveness and quality of technical and vocational education through E-platforms in distance learning program is the lack of expertise in regards to the use of technology that allows an access towards distance learning at first [54]. Even in South Korea, a number of companies and institutes were using a variety of Learning Management Systems to aid with vocational training through remote courses [55].

Armenia and Morocco reported using Moodle and MOOCs as e-platforms for distance learning whereas a majority used video simulators. In Chile, in order to evaluate the practical skills of an individual, a platform called the Padlet tool was being used which recorded the response of the participant and then evaluated it on the basis of the individual's skills. Even in China, virtual reality and simulations were being used to provide practical training. Teachers also continue to encourage student to use the theoretical knowledge provided by themselves. In Lebanon, virtual workshops were being used, whereas DIY (Do it yourself) vides are also shared through YouTube to provide practical knowledge [48].

Virtual campuses have now been created that offer practical knowledge to individuals at a distance as well such as the Telelearning center at the Indira Gandhi National Open University [56]. The quality of the programs being offered however needs to be improved worldwide where Nigerian TVET programs have reported a lack in facilities, infrastructure and a lack of expertise among teachers and students in regard to the E-platforms being used that reduce the quality of training as well [57]. On improving the quality and effectiveness of training, it is important for institutes to be in careful partnership with employers, pay attention to the requirements and needs of the learners and engage in an innovative leadership approach. All of these factors together would ensure an appropriate and effective TVET system as noticed in Canada [58].

Moreover, Aljedaani et al. [59] studying the influence of digital courses offered by the TVTC over individuals that are disable reported problems with internet access, social support, lack of ease of use and inaccessibility of the content from courses since the content was designed for individuals without disability, thus, influencing the quality of training over the disabled as well. Initially the students could not even use the Blackboard LMS to gain access to course material since their department and teachers had conflicting opinions regarding the source of medium. Moreover, the user interface was also not friendly for new users. WhatsApp was the most common platform used to share course material instead of the LMS. At the TVTC, most of the training was done through Google Meet followed by Zoom and then Blackboard. Weak Internet has however been reported to a major drawback in the effectiveness of e-platforms since users had to navigate between their laptops and phones to access the internet and support the software yet the files provided could only be accessed by a laptop. Meanwhile, acknowledging the fact that TVTC has a majority of Arabic students, the captions provided in Zoom for classes were in English that could not be understood by their students to comprehend. Videos and graphics were also not utilized that otherwise increase the effectiveness of distance learning. The LMS software used that is Blackboard was also not simple to be used by fresh students that lacked digital literacy. Meanwhile, students also lacked laptops that could support the software and the files shared online [59]. The lack of required hardware has been a source of challenge worldwide in the context of distance learning [48]. Thus, these were major drawbacks highlighted by Aljedaani et al. [59] regarding effectiveness of distance learning through e-platforms in TVTC. Dilmurod and Elmira [60] note that the use of multimedia technology such as videos and graphic images have been useful in creating an attractive and interactive discussion online. Moreover, simplifying the LMS for students that are unprepared and lack awareness regarding usability can improve the effectiveness of distance learning through e-platforms [61].

Training that is done solely online can pose a number of challenges such as the lack of discipline and digital literacy. Institutes are catering the issue through new types of teaching models including '*blended learning*' that involves physical and distance learning both. The role of a

teacher however is different in both the types of learning when in training, since a physical training involves direct interaction but an online training requires the teacher to become a designer, designing programs and assessments that can best reflect the skills of each individual student. Moreover, autonomous programs based on learning analytics are also being adopted that utilize technology to analyze the strengths and weaknesses of each student, providing them further material to progress with. It has also been observed that wherever learning has been integrated with graphics and images, trainees have been able to respond quickly towards the lesson. Augmented and Virtual reality are also helping to reduce the lack of practicality within remote courses, helping trainees to apply their knowledge practically in a controlled simulation [20]. Similarly, for employees to be developed it is necessary to cater programs that identify with their job categorization and aptitude. Augmented Reality and simulations have been useful in catering the bridge between practice and reality however, skills relevant to mechatronics, computer science and electrical engineering still require practical training because of which distance learning is still difficult [55].

The challenges occurring within the Saudi TVTC and its compliance to digital platforms only after the coronavirus pandemic implies how the Saudi institute is still behind a number of vocational institutes that had already initiated e-platforms as bid to provide education to all. Meanwhile, the challenges such as the lack of understanding and the ease-of-use technology has greatly influenced the training quality of the course where the institute still relies over physical courses for technical and practical training workshops [44]. However, the Otqen course and its success still provides hope regarding the effectiveness of the Huawei Fusion Access course being offered by the TVTC in terms of its quality that it was able to recover people from substance abuse on the basis of its self-development course [46].

2. CONCLUSION

Pertaining to previous studies [59, 39, 54] among others, the studies relevant to the effectiveness of distance learning through E-platforms over training quality highlight the fact that there are several challenges yet that need to be resolved before the training quality can be improved substantially. These challenges significantly influence the training quality since e-platforms are still not equipped with features that can provide an interactive experience to the students for practical knowledge. As can be observed in the TVTC, the institute was still providing physical classes for practical courses and remote classes for theoretical subjects [44]. Technology advancement globally has ensured that several technical and vocational education and training institutes be developed on the same line, however, ease of use and a lack of understanding of the technology along with an access to the infrastructure and content can cause a constraint over the institutes in the form of internal and external factors that limit the quality of training being provided despite making a lot of efforts. A similar case can also be observed in the case of the Technical and Vocational Training Corporation.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Allen M, Mabry E, Mattrey M, Bourhis J, Titsworth S, Burrell, N. Evaluating the effectiveness of distance learning: A comparison using meta-analysis. Journal of communication. 2004;54(3:402-420. Available:https://doi.org/10.1111/j.1460-2466.2004.tb02636.x
2. Al-Balas M, Al-Balas HI, Jaber HM. et al. Distance learning in clinical medical education amid COVID-19 pandemic in Jordan: current situation, challenges, and perspectives. BMC Med Educ, 2020;20:341. Available:https://doi.org/10.1186/s12909-020-02257-4
3. Lassoued Z, Alhendawi M, Bashitialshaaer R. An Exploratory Study of the Obstacles for Achieving Quality in Distance Learning during the COVID-19 Pandemic. Education Sciences. 2020; 10(9):232. Available:https://doi.org/10.3390/educsci10090232

4. Nadeak B. The Effectiveness of Distance Learning Using Social Media during the Pandemic Period of COVID-19: A Case in Universitas Kristen Indonesia. International Journal of Advanced Science and Technology, 2020;29 (7):1764-1772. ISSN 2005 4238
5. Kopotun IM, Durdynets MY, Teremtsova NV, Markina LL, Prisnyakova LM. The use of smart technologies in the professional training of students of the Law Departments for the development of their critical thinking. International Journal of Learning, Teaching and Educational Research. 2020;19(3):174-187. Available:https://doi.org/10.26803/ijlter.19.3.10
6. Mirkholikovna DK. Advantages and disadvantages of distance learning. Наука и образование сегодня, 2020;7(54):70-72.
7. Surma T, Kirschner PA. Virtual special issue computers in human behavior technology enhanced distance learning should not forget how learning happens. Comput Human Behav. 2020;110: 106390. DOI:10.1016/j.chb.2020.106390
8. Markova T, Glazkova I, Zaborova E. Quality issues of online distance learning. Procedia-Social and Behavioral Sciences. 2017;237:685-691.
9. Liu S, Li Z, Zhang Y, Cheng X. Introduction of Key Problems in Long-Distance Learning and Training. Mobile Netw Appl, 2019;24:1–4. Available:https://doi.org/10.1007/s11036-018-1136-6
10. Abuhammad S. Barriers to distance learning during the COVID-19 outbreak: A qualitative review from parents' perspective, Heliyon. 2020;6(11):e05482, ISSN 2405-8440. Available:https://doi.org/10.1016/j.heliyon.2020.e05482.
11. Nguyen XA, Pho DH, Luong DH, Xuan-thuc-anh CAO. Vietnamese students'acceptance of using video conferencing tools in distance learning in COVID-19 Pandemic. Turkish Online Journal of Distance Education. 2021;22(3):139-162. Available:https://doi.org/10.17718/tojde.961828
12. Ivaniuk IV, Ovcharuk OV. The response of Ukrainian teachers to COVID-19: Challenges and needs in the use of digital tools for distance learning. Information Technologies and Learning Tools. 2020:77(3):282-291.
13. Utomo MNY, Sudayanto M, Saddhono K. Tools and strategy for distance learning to respond COVID-19 pandemic in Indonesia. Ingénierie des Systèmes d'Information. 2020;25(3):383-390.
14. Maksimenko L, Korobova O, Kalyuzhin V, Ivantcivskaya N, Makarikhina I. Tools of distance learning educational process at an Engineering University. In E3S Web of Conferences. 2020;210:22011. EDP Sciences. Available:https://doi.org/10.1051/e3sconf/202021022011
15. Zaborova EN, Glazkova IG, Markova TL. Distance learning: students' perspective. Sotsiologicheskie issledovaniya [Sociological Studies]. 2017;2:131-139.
16. Watts L. Synchronous and asynchronous communication in distance learning: A review of the literature. Quarterly Review of Distance Education, 2016;17(1):23.
17. Morkovina SS, Kolesnichenko EA, Spesivtsev VA, Ivanova AV. Principles of Innovational Startup Selection for E-Platforms Placement. Mediterranean Journal of Social Sciences. 2015;6(6):201.
18. Okiyi GO, Odionye C, Emutumah F, Awobamise AO. Influence of advertising on Abuja women's choices of e-commerce platforms. KIU Interdisciplinary Journal of Humanities and Social Sciences. 2020;1(2):53-67.
19. Ali AH, Mohammad OKJ. Impacting of the E-Platforms on the 4.0 th Industrial Educational Revolution. In Proceedings of the 9th International Conference on Information Systems and Technologies. 2019:1-7.
20. Unesco. Distance and E-learning in TVET. Social Justice Decent Work. n.d. Accessed 8th March 2021. Available:https://en.unesco.org/sites/default/files/wcms_732618.pdf
21. Koceva Lazarova, L, Miteva M, Stojanova A. Modernization of Mathematics Education by Using Educational E-platforms;2019.
22. West E. Amazon: Surveillance as a service. Surveillance & Society, 2019;17(1/2):27-33.
23. Insha A, Anish Y, Sandeep W, Makhmoor B. What Shapes E-Learning Effectiveness among Tourism Education Students? An Empirical Assessment during

COVID19, Journal of Hospitality, Leisure, Sport & Tourism Education. 2021;100337. ISSN 1473-8376,
Available:https://doi.org/10.1016/j.jhlste.2021.100337

24. Heng K, Sol K. Online learning during COVID-19: Key challenges and suggestions to enhance effectiveness. Cambodian Journal of Educational Research. 2021;1(1):3-16.
25. Petrenko L, Kravets S, Bazeliuk O, Maiboroda L, Muzyka I. Analysis of the current state of distance learning in the vocational education and training institutions. In E3S Web of Conferences. 2020;166:10010. EDP Sciences.
26. Co M, Cheung KYC, Cheung WS, et al. Distance education for anatomy and surgical training - A systematic review [published online ahead of print, 2021 Sep 2]. Surgeon. 2021;S1479-666X(21)00133-5.
DOI:10.1016/j.surge.2021.08.001
27. Ahmed AM, Osman ME. The effectiveness of using WiziQ interaction platform on students' achievement, motivation and attitudes. Turkish Online Journal of Distance Education. 2020;21(1):19-30.
28. Rojewski JW. A Conceptual Framework for Technical and Vocational Education and Training. In: Maclean R., Wilson D. (eds) International Handbook of Education for the Changing World of Work. Springer, Dordrecht; 2009.
Available:https://doi.org/10.1007/978-1-4020-5281-1_2
29. Riyanda AR, Jalinus N, Abdullah R, Ranuharja F, Islami S, Adi NH, Aminuddin FH. The New Paradigm of Technical and Vocational Education and Training (TVET). Edukatif: Jurnal Ilmu Pendidikan. 2022;4(1):364-371.
30. Kazilan F, Hamzah R, Bakar AR. Employability skills among the students of technical and vocational training centers in Malaysia. European Journal of Social Sciences. 2009;9(1):147-160.
31. Rauner F, Maclean, R. (Eds.). Handbook of technical and vocational education and training research . Dordrecht: Springer. 2008;49.
32. Maclean R, Lai A. The future of technical and vocational education and training: Global challenges and possibilities. International Journal of Training Research. 2011;9(1-2):2-15.
DOI: 10.5172/ijtr.9.1-2.2
33. Union A. Strategy to revitalize technical and vocational education and training (TVET) in Africa. In Meeting of the Bureau of the Conference of Ministers of Education of the African Union (COMEDAF II+). 2007:29-31.
34. Marope PTM, Chakroun B, Holmes KP. Unleashing the potential: Transforming technical and vocational education and training. UNESCO Publishing; 2015.
35. Akhmetov LG, Kirillova OV, Kirillova TV, Varlamov AV, Kashina SG, Safin RS, et al. The managerial mechanism of future competitive technical specialists vocational training: The russian experience. International review of management and marketing. 2016:6 (2S):34-39.
36. Anicas RP. Learning Styles and Learning Strategies of Students in Technical Institutes Accredited by Technical and Vocational Training Corporation (TVTC) in Saudi Arabia. SMCC Higher Education Research Journal. 2016;2(1):1-1.
37. Al Shehri AMAK. The extent to which training centers are committed to the standards of Technical and Vocational Training Corporation (TVTC) from the viewpoint of training supervisors in the Kingdom of Saudi Arabia;2021.
38. Rivera N, Azam M, Ajwad MI. Tracing Labor Market Outcomes of Technical and Vocational Training Graduates in Saudi Arabia;2022.
39. Huawei. TVTC Innovates eLearning with FusionAccess. Huawei. n.d. Accessed 20 February 2021.
Available:https://carrier.huawei.com/en/success-stories/it/en/cloud-computing/TVTC-Innovates-eLearning-with-FusionAccess
40. Zurina Y, Maizam A. ICT Integrations in TVET: Is it up to Expectations?, Procedia - Social and Behavioral Sciences. 2015;204:88-97. ISSN 1877-0428.
Available:https://doi.org/10.1016/j.sbspro.2015.08.120.
41. Kotsik B, Tokareva N, Boutin F, Chinien C. ICT application in TVET. In International handbook of education for the changing world of work. Springer, Dordrecht. 2009:1879-1894.
42. TVTC. Huawei and TVTC launch the TechTrack initiative to train 20,000 Saudi students on the latest information and communication technologies. TVTC. 2021. Accessed 20 February 2022.

Available:https://www.tvtc.gov.sa/news/en/news-details-33-en.html
43. International Trade Administration. Saudi Arabia - Country Commercial Guide. International Trade Administration;2019. Accessed 20 February 2022. Available:https://www.trade.gov/knowledge-product/saudi-arabia-education-and-training-services
44. Argaam. Saudi education ministry to continue distance learning in second semester. Argaam. 2021;Accessed 20 February 2022. Available:https://www.argaam.com/en/article/articledetail/id/1435523
45. TVTC. TVTC Announces the Launch of "Otqen" Program, in Its Sixth Stage, with Quality Programs. TVTC; 2021. Accessed 20 February 2022. Available:https://www.tvtc.gov.sa/news/en/news-details-22-en.html
46. Arab News. Saudi Technical and Vocational training program aims to empower youth. Arab News; 2018. Accessed 20 February 2022. Available:https://www.arabnews.com/node/1406491/saudi-arabia
47. Alshahrani SM, Mohamed H, Mukhtar M, Mokhtar UA. Electronic Portfolio Management System (EPMS) in Saudi Technical and Vocational Training Corporation (TVTC) Sector: A Conceptual Framework. International Journal of Advanced Trends in Computer Science and Engineering. 2020;9(5). ISSN 2278-3091. Available:https://doi.org/10.30534/ijatcse/2020/231952020
48. ILO, UNESCO, WBG. Joint Survey on Tehnical and Vocational Education and Training (TVET) and Skills Development during the time of Covid-19. 2020. Accessed 8th March 2021. Available:https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/genericdocument/wcms_742817.pdf
49. Aldiab A, Chowdhury H, Kootsookos A, Alam F, Allhibi H. Utilization of Learning Management Systems (LMSs) in higher education system: A case review for Saudi Arabia. Energy Procedia, 2019;160:731–737.
50. Almekhlafy SSA. Online learning of English language courses via blackboard at Saudi universities in the era of COVID-19: Perception and use. PSU Res. Rev. 2020;5:16–32.
51. Olelewe CJ, Orji CT, Osinem, EC, et al. Constraints and strategies for effective use of social networking sites (snss) for collaborative learning in tertiary institutions in nigeria: Perception of tvet lecturers. Educ Inf Technol. 2020;25:239–258. Available:https://doi.org/10.1007/s10639-019-09963-7
52. Donkor F. The Comparative Instructional Effectiveness of Print-Based and Video-Based Instructional Materials for Teaching Practical Skills at a Distance. International Review of Research in Open and Distributed Learning. 2010;11(1):96–116. Available:https://doi.org/10.19173/irrodl.v11i1.792
53. Ahmad NA, Elias NF, Sahari N. The Importance of the Psychomotor Factors for Effective Learning Management System Use in TVET. In: Badioze Zaman H. et al. (eds) Advances in Visual Informatics. IVIC 2019. Lecture Notes in Computer Science, Springer, Cham. 2019; 11870. Available:https://doi.org/10.1007/978-3-030-34032-2_55
54. Lee J. Partnerships with industry for efficient and effective implementation of TVET. International Journal of Vocational Education and Training. 2010;17(2):45-46.
55. Im T. Online and blended learning in vocational training institutions in South Korea. Knowledge Management & E-Learning: An International Journal. 2021;13(2):194-208.
56. Goel V. Student support in open and distance learning for TVET. Skills Development through Distance Education. 2002;51.
57. Ayonmike CS, Okwelle PC, Okeke BC. Towards Quality Technical Vocational Education and Training (Tvet) Programmes in Nigeria: Challenges and Improvement Strategies. Journal of Education and Learning. 2015;4(1): 25-34.
58. Brennan P. Raising the quality and image of TVET: Lower-level training or motor for inclusive and sustainable growth? Prospects. 2014;44: 183–195. Available:https://doi.org/10.1007/s11125-014-9312-3

59. Aljedaani W, Aljedaani M, AlOmar EA, Mkaouer MW, Ludi S, Khalaf YB. I Cannot See You—The Perspectives of Deaf Students to Online Learning during COVID-19 Pandemic: Saudi Arabia Case Study. Education Sciences. 2021; 11(11):712.
60. Dilmurod R, Elmira N. The use of multimedia technologies in the educational system and teaching methodology: Problems and prospects. International Journal of Discourse on Innovation, Integration and Education. 2020;1(2):28-32.
61. Maliki BI, Kusuma JW, Tabrani MB, Hamidah H. Identification of Education In Indonesia And Learning Models In Student Learning With Learning Management System (LMS). International Journal of Economy, Education and Entrepreneurship. 2021;1(1): 37-46.

Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle5.com/review-history/84621