The Use of E-learning Platforms in Teaching Students with Visual Impairments from their Teachers' Perspective

Prepared by

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Abstract

Background: Limited research exists on the use of E-learning platforms in educating students with visual impairments in Kingdom of Saudi (KSA) and Egypt.

Aim: This study aimed to assess the status of E-learning platform (ELP) utilization in teaching students with visual impairments and to identify the obstacles faced by teachers in implementing ELP. Additionally, it aimed to analyze variations in teachers' responses based on region, school type, and school stage among teachers of students with VI in the KSA and Egypt.

Methods and Procedures: Employing a mixed-method approach, the study conducted a quantitative survey with 326 teachers and supplemented it with interviews with 11 experienced teachers of students with VI. Participants were selected from schools in the KSA and Egypt.

Outcomes and Results: The study found that teachers perceived the use of ELP in teaching students with visual impairments to a moderate degree. The main obstacles identified included the weak partnership between the Ministry of Education and electronic application companies, inadequate teacher training on E-learning platforms, and limited parental involvement in monitoring their children's ELP use.

Recommendations: The study suggests implementing training programs for teachers and providing technical support for students to effectively utilize E-platforms for learning. Additionally, it recommends involving key stakeholders such as the Ministry of Education, e-learning equipment companies, teachers, and parents in developing customized E-platforms for students with VI.

Keywords: E-learning Platforms, students with visual impairment, teachers.

توظيف المنصات الإلكترونية في تعليم الطلاب ذوي الإعاقة البصرية من وجهة نظر معلميهم

مستخلص البحث

ثمة ندرة في الأبحاث حول استخدام منصات التعليم الإلكترونية في تعليم الطلاب ذوي الإعاقات البصرية في المملكة العربية السعودية ومصر. لذا هدفت الدراسة الحالية إلى تقييم توظيف المنصات الإلكترونية (ELP) في تعليم الطلاب ذوي الإعاقات البصرية من وجهة نظر معلميهم، وتحديد العقبات التي يواجهها المعلمون في استخدام تلك المنصات. كما سعت الدراسة إلى التعرف على الاختلافات في استجابات معلمي الإعاقة البصرية تبعًا لمتغيرات: نوع المدرسة، والمرحلة الدراسية، في المملكة العربية السعودية ومصر. وباستخدام منهجية البحث المختلط، أجرت الدراسة مسحًا كميًا شمل ٣٢٦ معلمًا، وأتبعته بمقابلات مع ١١ معلمًا من ذوي الخبرة في تعليم الطلاب ذوي الإعاقة البصرية، وتم اختيار المعلمين من مدارس في المملكة العربية السعودية ومصر. وتوصلت الدراسة إلى أن درجة توظيف المنصات الإلكترونية في تعليم الطلاب ذوي الإعاقة البصرية جاءت متوسطة، وكان من أبرز معوقات استخدامها: ضعف الشراكة بين وزارة التعليم وشركات التطبيقات الإلكترونية، وعدم كفاية تدريب معلمي الإعاقة البصرية على استخدام منصات التعليم الإلكترونية، ومحدودية مشاركة الآباء في متابعة استخدام الطلاب للمنصات الإلكترونية. لذا أوصت الدراسة بتنفيذ برامج تدريبية لمعلمي الإعاقة البصرية حول توظيف المنصات الإلكترونية في تعليم طلابهم، وتوفير الدعم الفني للطلاب لاستخدامها، ومشاركة الجهات المعنية الرئيسية مثل وزارة التعليم، وشركات التعليم الإلكتروني، والمعلمين، وأولياء الأمور في تطوير منصات إلكترونية مخصصة للطلاب ذوي الإعاقة البصرية.

الكلمات المفتاحية: منصات التعليم الإلكتروني، الطلاب ذوو الإعاقة البصرية، المعلمون.

1. Introduction

Education is a pillar of life, as it enables people to achieve goals that are otherwise unattainable without knowledge (Rodrigues, 2021). E-learning environments play a fundamental role in education, aiding students in passing their courses and graduating on schools. Despite the availability of guidelines and methods aimed at developing accessible E-learning environments for digital inclusion, implementing them remains challenging. Accessibility metadata emerges as a solution, offering improved descriptions of adapted educational resources and facilitating tailored searches based on students' needs and preferences, especially those with disabilities (Ingavélez-Guerra et al. 2023). To ensure an efficiently educational process to students with visual impairments, access to proper education is necessary, regardless of their impairment (Miyauchi, 2020).

The COVID-19 pandemic has led to a shift towards online learning, which has both advantages and potential drawbacks. On the positive side, online learning platforms offer flexibility and accessibility, allowing for continuous learning during and after the pandemic. However, the increased reliance on digital screens has raised concerns about visual function impairments, such as myopia, due to prolonged near-work activities and limited time spent outdoors (Hamid, 2020).

E-learning platforms have revolutionized education by providing a flexible and convenient way for individuals to access educational resources. While offering promising avenues for enhancing educational quality, these platforms may pose challenges for individuals with visual impairments due to accessibility issues. Students with VI often encounter barriers when using E-learning platforms that are not designed with their needs in mind (Ravichandran et al. 2022) and neglect the unique requirements of individuals with disabilities (Jemni et al., 2014).

When learning, especially in a digital environment, many students with visual impairments rely on assistive technologies to access their educational resources (Hüllen, 2012). Students with low vision commonly utilize screen magnification software, which enlarges the display to a comfortable size while minimizing distortion. With this software, users navigate the screen by moving the mouse cursor, viewing one portion of the display at a time (Kharade & Peese, 2012). Conversely, students with VI often use screen reader software, which verbally describes on-screen elements as the user navigates using keyboard commands.

The literature Review

The Convention on the Rights of Persons with Disabilities, specifically Article 9, emphasizes the rights of individuals with disabilities to live independently, fully participate in society, and have equal access to various aspects of life. This includes ensuring their access to the physical environment, transportation, information, communication technologies, and other services available to the general population. The convention calls for identifying and eliminating barriers to accessibility, as well as providing assistance and support to individuals with disabilities to ensure their access to information and services. (United Nations, 2006).

Numerous studies underscore the significance of E-learning as a valuable tool for educating individuals with visual impairments, facilitating their academic progress, and enhancing their overall achievement levels. Research conducted by Singh (2019), Youssef (2008), Mahfouz, and Al-Akkad (2015), as well as Zaitoun (2004), affirms that individuals with VI can achieve academic results comparable to those of their sighted peers when provided with accessible educational resources. Access to such materials enables them to effectively acquire and communicate information, thereby allowing them to harness their potential and achieve integration into society across various fields.

Al-Hefnawy's study (2017) recommended expanding research on educational platforms for individuals with impairments and emphasized the need to train students with impairments to benefit from open-source educational platforms. This recommendation resonates with the findings of Jad's study (2010), which highlighted the lack of necessary qualifications among teachers of students with VI to utilize devices and technological tools in teaching. Jad recommended specialized training programs to address this gap in educational technology expertise. Building on this, Balasuriya et al. (2017) proposed leveraging advancements in computer vision technologies and artificial intelligence to create interactive learning experiences tailored to individuals with visual impairments.

Lin et al. (2017) found that digital learning positively impacts learning motivation compared to traditional teaching methods, suggesting that integrating technology into education can enhance student engagement. However, concerns persist regarding the insufficient utilization of assistive technology in teaching students with VI, as highlighted in the study by Abdel-Gawad, et al. (2020). Finally, Battistin

et al. (2021) explored the importance of integrating the Internet into academic programs and support systems for individuals with visual impairments, emphasizing the need for holistic approaches to enhance their education and care.

Reviewing previous research and studies revealed a significant focus on ELP, E-learning, and distance education for individuals with visual impairments. For instance, Balasuriya et al. (2017) conducted a study aimed at designing electronic systems to be more accessible for those with VI.

A study by Gill et al. (2017) investigated the challenges faced by 10 university students with VI in Delhi as they pursued higher education through E-learning. The study identified several significant obstacles, including a lack of familiarity with E-learning systems and inadequate training, financial barriers to program access, limited availability of textbooks in accessible formats, challenges in describing images, and the absence of effective screen readers.

The systematic review of Miyauchi, (2020), examined inclusive education for students with visual impairment, focusing on general education teachers' perceptions and challenges faced by these students in accessing academic subjects. It found teachers' attitudes towards inclusion varied, influenced by multiple factors. While students with visual impairment appeared to perform well academically, they faced exclusion from classroom activities. These challenges have short- and long-term consequences, underscoring the need for teachers to possess effective pedagogical strategies, teaching tools, and external support. The study highlights the importance of teacher training and a comprehensive support system in enhancing accessibility to academic subjects.

Denisova et al., (2020) examined the problems and level of satisfaction with E-learning for impaired students during the COVID-19 pandemic using the descriptive approach and a questionnaire that was applied to (230) students with multiple impairments in the northwestern sector. In Russia, the study found that it is difficult for students to use E-learning platforms, and that the majority are not completely satisfied with E-learning platforms, for reasons related to universal access to those platforms. The study recommended the need to provide psychological and social support to achieve the highest levels of benefit from E-learning platforms.

Al-Suwailem (2022) investigated parental satisfaction with E-learning platforms during the COVID-19 pandemic using a descriptive

approach and a questionnaire administered to 220 parents in Riyadh. The study found low satisfaction levels and identified statistically significant differences in responses based on academic level, educational program, and educational stage. However, no statistical differences were observed based on sex, age, or status.

Based on the above, the previous studies showed that there was minimal interest in utilizing ELP in educating students with visual impairment from the perspectives of their teachers. They also highlighted the importance of assistive technology in teaching students with special needs (Siu, & Morash, 2014). Some studies also aimed to identify the level of satisfaction of parents of students with impairment with the use of E-learning platforms during the COVID-19 pandemic.

This study aims to enhance existence of E-platforms in the education of students with VI, as perceived by their teachers. Therefore, the research objectives are outlined as follows: 1) assess the factual status of ELP in teaching students with visual impairment from the perspectives of their teachers. 2) Identify the obstacles encountered in using ELP for teaching students with visual impairments from the perspectives of their teachers. 3) Analyze variations in responses among teachers of students of VI based on country (KSA - Egypt), school type (inclusion - special education institutes), and the school stage (Elementary - Intermediate – Secondary).

1.1 Problem statement

The advancement of technology and its integration into education represents an ongoing exploration of increasingly diverse innovations. However, it's imperative to establish an assessment framework that supports the entire process, encompassing both pedagogical and technological aspects (Denise & Shannon, 2012). Various institutions and nations have endeavored to institute accreditation and quality assurance systems within e-learning environments tailored to their specific requirements. For instance, (Jung et al. 2013) highlight how numerous countries in Asia have adopted diverse approaches to distance education, aiming to cultivate a culture of quality through hierarchical processes. These approaches seek to empower professionals to assume responsibility and foster enduring dedication among them (Ossiannilsson et al. 2015) Within this context, accessibility emerges as a critical concern that must be addressed across multiple domains, including educational, social, and cultural realms (Temesio & Motz, 2015).

Accessibility, disability, and inclusion are interconnected in

several respects, such as ethically (expanding perspectives beyond oneself), socially (engaging a broader audience to enhance diversity), politically (actively participating in societal matters), and economically (avoiding the loss of potential customers) (United Nation, 2009). Concerning disability, approximately (1) billion people worldwide, representing 15% of the global population, live with some form of disability, with higher prevalence rates observed in developing nations. Since the frameworks for healthcare, rehabilitation, and education tailored to diverse student needs are not fully established, the prevailing direction appears to be unfavorable (Stanford, 2020). Therefore, there is a requirement for assessment procedures that promote educational inclusivity.

World Health Organization (WHO) statistics indicate that there are approximately 36 million people suffering from different degrees of visual impairment, and they receive different levels of support to overcome their own and professional obstacles. Therefore, the WHO urges all countries to ensure access to education for those with visual impairments to help them overcome the barriers they face in accessing public services, education, health care, employment, and mobility in their environments (Anđić et al., 2022, p 2).

According to the 2013 WHO report, about 80% of individuals with visual impairment live in third -world countries. Educational platforms serve as the foundation for providing education, training resources, and E-learning programs through the web. Furthermore, they offer the benefits of E-learning for students with impairments, providing them with designed accessibility features for videos, images, graphics, sounds, and interactions. Moreover, educational platforms deliver educational content to students using multiple display mediums. However, E-learning platforms may not be effective for those with visual disabilities if they are not developed by appropriate programmers or properly utilized by their professional teachers.

Research Questions

1. What is the factual status of using electronic learning platforms (ELP) in teaching students with visual impairment from the perspectives of their teachers?
2. What are the obstacles to using ELP in teaching students with visual impairment from the perspectives of their teachers?
3. To what extent do teachers differ in using ELP in teaching students with visual impairment according to country (KSA -

Egypt), school type (inclusion – Special education institutes), and school stage (Elementary - Intermediate - Secondary)?

2. Method

2.1. Design and Procedure

The primary objectives of the current study assess the factual status of ELP in teaching students with visual impairment and identify the obstacles encountered in using ELP for teaching students from the perspectives of their teachers; and analyze variations in responses among teachers of students with VI according to following variables (country, school type, and the school stage).

The study adopted a mixed-method approach with an explanatory theme, utilizing a survey (questionnaire) and semi-structured interviews. This approach was applied to a sample of teachers of students with VI in Egypt and KSA (329 participants) to determine the factual status and obstacles of using ELP in teaching students with visual impairment. An interview was conducted with a purposive sample of 11 teachers from Egypt and KSA, selected based on their minimum of five years of experience in teaching students with visual impairment.

The qualitative data from the interviews were analyzed alongside the questionnaire results. Interviews were conducted electronically via telephone and email, each lasting 30-40 minutes. Before each session, participants were briefed on the research objectives and significance, and consent was obtained for audio recording. Notes were taken during the interviews, and a set of open-ended questions guided the discussions (Belisle, 1998; Creswell, 2012).

2.2. Research Instruments

2.2.1 First Instrument: The Questionnaire

Based on reviewing the literature in the field, this questionnaire was developed consisting of 44 elements in two sections. The first section conclude 30 items that measured the factual status of using E-learning platforms in teaching students with visual impairments. The second section consisted of 14 items that measured the obstacles encountered in using ELP for teaching students from the perspectives of their teachers. Items can be scored on a 5-point Likert-scale with response options ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Questionnaire scores range from 44 to 220, and higher scores indicate higher using E-learning platforms in teaching.

The numerical value for each statement =

  (5 × number of Strongly Agree) + (4 × number of

Agree) + (3 × number of Moderate) + (2 × number of
Disagree) + (1 × number of Strongly Disagree)

Number of sample participants

The level of agreement among the study sample was determined (estimating the duration over which agreement can be assessed) in terms of strongly agreeing, agree, neutral, disagree, or strongly disagree through the following relationship.

Approval Level =

$$\frac{N - 1}{N}$$

Where (n) refers to the number of responses, equal to (5), the following table illustrates the level and extent of agreement with the statement among the study sample for each response from the questionnaire:

Table (1)
Shows the level of approval among the study sample

Value	Rating
Strongly Disagree	**Less than 1.8**
Disagree	**1.8 to less than 2.6**
Moderate	**2.6 to less than 3.4**
Agree	**3.4 to less than 4.2**
Strongly Agree	**From 4.2 and above**

Validity and Reliability

-Validity of the Questionnaire:

Table (2)
Questionnaire validity

Scales	Pearson Correlation	Sig. (2-tailed)
Factual status of using E-learning platforms in teaching students with visual impairments from the perspectives of their teachers.	**0.962**	**0.0001**
Obstacles facing teachers of students with visual impairment in using E-learning platforms to teach their students.	**0.862**	**0.0001**

The table (2) shows that the Pearson correlation coefficients (validity) for the domains of the questionnaire are high which stated clearly in statistical treatment when Pearson correlation coefficient took place showing the total score for each domain of the questionnaire and the total score of the questionnaire being (0.962 - 0.862) which is clearly illustrated the validity of the questionnaire.

Reliability of the Questionnaire

Table 3
Reliability of the Questionnaire:

Scales	Number of items	Alpha Cronbach's
Factual status of using E-learning platforms in teaching students with visual impairments from the perspectives of their teachers	30	0.81
Obstacles facing teachers of students with visual impairment in using E-learning platforms to teach their students.	14	0.7
the total score	44	**0.972**

Table 3 shows that all values of the Cronbach's alpha coefficient in the two sections of the questionnaire are acceptable, as the reliability coefficient values range from 0.81 to 0.69. This indicates the validity of the questionnaire.

2.2.2. The Population

The study population included 89 teachers of students with VI students in the KSA, specifically in Jeddah region schools, based on data from the General Administration for Special Education in Jeddah Education. In Egypt, there were 670 participants, according to the Central Agency for Public Mobilization and Statistics in 2022. A sequential sampling approach was utilized, with the initial step informing the selection of participants for subsequent phases of the research. This approach aimed to refine data collection findings and achieve a comprehensive understanding of the research topic (Collins et al., 2006).

2.2.3. The Sample

The study sample followed a sequential pattern, starting with a quantitative assessment and then moved to a qualitative evaluation. For the quantitative stage, random sampling was used, with a stratified random sampling approach applied among teachers of students with VI in Egypt and KSA. The sample size was proportionate to the total population size, determined using the methodology of the American Association and the Krejcie and Morgan (1970) equation:

$$s = X^2 NP(1 - P) \div d^2(N - 1) + X^2 P(1 - P).$$

The final sample consisted of 329 teachers of students with VI, with 84 from KSA and 245 from Egypt. The demographic characteristics of the participants, including their resident region, school type, and school stage, are shown in Table (4).

Table 4

Demographic Characteristics (N = 329)

Variables	Characteristic	N	%
Country	Saudi Arabia	84	25.5
	Egypt	245	74.5
School stage	Elementary school	58	17.6
	Intermediate school	176	53.5
	High secondary school	95	28.9
School type	Integration school	200	60.8
	School for teaching students with VI	129	39.2

Table 4 indicate that 74.5% of the teachers reside in Egypt, with the remaining 25.5% residing in KSA. In terms of the school stage, 53.5% of the teachers work at the high secondary level, followed by 28.9% at the intermediate stage, and 17.6% at the elementary stage. Regarding school type, 60.8% teach at integrated schools, while 39.2% work at schools

specifically for students with VI.
2.3. The second Instrument (interview tool):

The second stage in the current study was reliant on the explanatory qualitative approach, which means exploring and interpreting the phenomena to be studied and delving into understanding them in their natural context. It is also intended to collect deep and realistic data, stemming from the participants' points of view, to identify the meanings and implications they have (Al-Zahrani, 2020). At this stage, the researchers used the interview tool to verify the results of the questionnaire tool that were reached and compare them with the results of the interview tool. The interview also allows for obtaining explanations and a deep understanding of the study problem and collecting detailed and deep information that is difficult to reach with the questionnaire tool (Al-Abdul Karim, 2012). Accordingly, the researchers were keen on conducting semi-structured individual interviews as a tool that allows for reaching knowledge and viewpoints in a more accurate manner.

2.3.1. Procedures for implementing individual interviews
2.3.2 The interview tool preparation stage

Reviewing the quantitative results of the questionnaire, the question preparation stage focused on the participants' most agreeable responses to reach a deeper understanding of the data. The researchers also reviewed scientific references regarding how to formulate interview questions and reviewed previous studies related to the topic of the current study. In light of this, the questions to be highlighted in the interview were identified. After that, the interview guide was designed in its initial form, which included presenting the title of the study and the purpose of its implementation. The participants informed the expected time that would be taken to conduct the interview, which approximately take 30-40 minutes, and it was noted that the interview would be recorded for scientific research purposes only, and it was illustrated clearly to subjects that the information confidential and data will be destroyed after completing the study. The interview guide contained of (3) general questions about the use of electronic platforms in teaching students with visual impairments.

2.3.3. The implementation of the interview
Obtaining the participants' verbal and written consent to conduct

the interview via a Zoom meeting, the appropriate time and day were determined with them. Then, the researchers conducted the interviews with participants, as they were assured that their participation was voluntary and not mandatory. To create an atmosphere of familiarity with the participants and break the barrier of seriousness with them, the interview questions began with general demographic information and their background on electronic platforms, so that the participant could continue and provide more data during the interview. Next, the interview questions were asked to the participants who were asked if they wished to add any other information, and then the participants were thanked for accepting to participating in the interview.

It was applied in the second semester of the year (2023), during the period between March and April, and the average interview time was 35 minutes, as the longest interview took 40 minutes and the shortest (30) minutes. After completing each interview, it was directly emptied into a (word) file for each participant separately, and the time and date of the interviews were recorded in a table designated for that purpose. To maintain the confidentiality and identity of the participants, symbols were used instead of names, where the symbol (EM1) represented the first Egyptian Male participant, and (EF1) stands for Egyptian Woman, and (SM1) represents Saudi Male participant, where (SF1) represents a Saudi Female Participant.

2.3.4. Qualitative Data Analysis:

Qualitative data analysis is a process dependent on breaking down data and dividing it into small units and determining a classification for each unit, with the aim of exploring topics by collecting codes into similar units. The coding process is one of the basic features of qualitative data analysis (Abu Alam, 2021; Creswell and Clark, 2019/2011). Through the coding process, topics, patterns, and concepts are searched for to move from dealing with data in its raw form to interacting with it in the form of concepts and topics that are easy to classify and then write about it (Al-Quraini, 2020). Al-Abdul Karim (2012) defines qualitative data analysis as searching for the meaning contained in the data, organizing it, and examining it in ways that enable researchers to identify patterns or central themes, as the analysis process is a process based on giving meaning to the data by processing it and reconciling it.

2.3.5. Data Analysis Process:

Qualitative data were analyzed using thematic analysis, and the

researchers analyzed the data manually. According to Braun and Clarke (2012), thematic analysis is defined as a method of identifying patterns of topics across a data set in order to organize and provide insight into it. This focuses on the meaning of the data, allowing researchers to see and understand collective meanings and experiences. This method is one of the most common methods of qualitative data analysis which allows researchers to analyze patterns of topics and see the common relationship between them (Sawan, 2017). Braun and Clarke (2012) identified six stages of qualitative data analysis, which are: familiarizing with the data, generating initial codes, searching for themes, reviewing themes, identifying and naming themes, and writing the report. While following the organized steps in data analysis, this process was not done in a linear manner, but the researchers needed to go back and forth between the stages on an ongoing basis.

The choice of the Braun and Clarke (2012) thematic analysis method in analyzing the qualitative data of the current study is crucially important due to: its suitability for answering the qualitative question, which is consistent with its explanatory purpose, as the thematic analysis seeks to discover the main themes that emerged from the participants' answers to reveal the participants' point of view towards the reality of using electronic platforms in teaching students with visual impairments.

2.3.6. Phases of analyzing qualitative data

The first phase: Familiarizing Yourself with the Data

This is the stage that represents immersion in the data, as the recorded audio data was converted into text data immediately after the interview was completed. Each interview was transcribed separately into a (word) file, and then the researchers listened to the audio data again and compared it with the written text data to ensure the accuracy of the transcription, and then the data of each interview was printed separately. After the data became familiar and common, the texts were re-read several times, no less than 4 times, to enhance understanding of the data and immersion in it and prepare it for the coding process. Abu Alam (2021) recalled that whenever the researchers re-reads the data derived from the interviews, he has a deeper understanding of this data.

Phase Two: Generating Initial Codes:

During this stage of initial analysis, which corresponds to the open

coding process, the data were read line by line to assign a code to each phrase, sentence, or word, dependent on its meaning, without being bound by coding specific categories. This was to generate the largest possible number of new codes without being influenced by preconceived judgements, whether derived from previous studies or a pre-prepared list. During the coding process, notes were written; this was to be referred to during the analysis of the results.

Phase Three : searching for themes:

The previous stage helped generate the initial codes to reveal many patterns. In this stage, the codes were re-read, and their codes were verified correctly. Accordingly, some codes were merged, similar ones were deleted, and some of their names were modified to form coherent categories with appropriate codes and placed in domains. Thus, the researchers created a set of codes through which themes were formed.

Phase Four : reviewing themes:

In this stage, the researchers reviewed the themes that were extracted from the codes and verified the consistency between them in order to ensure the quality of the analysis, as this was done by verifying that the small particles within each code belong to these codes, and also verified the internal consistency through the consistency of the data within the themes and ensuring its support for other data, which resulted in the creation of a conceptual map that contributed to organizing the codes and arriving at the main themes.

Phase Five : defining and naming themes:

This is a stage connected to the previous one, where the researchers conducted continuous analysis to improve the consistency of the categories with the main themes and then come up with coherent results related to the subject of the study.

Phase Six: Writing the Report:

In this stage, the final report was prepared, which is known as the results presentation stage. The researchers were keen to pay attention to all data and ensure its accuracy in order to obtain credible results. The main and sub-topics that emerged from the final analysis were presented, as well as the categories that emerged from these topics. The main and sub-topics were supported by quotes from the participants that fit these topics in order to produce coherent and logical results that are free of repetition and based on facts. The researchers were also keen to present the similarities and differences between the participants' points of view in order to achieve a high level of credibility.

2.3.7. Trustworthiness of Interview Tool

Qualitative research adopts a set of different methods and procedures to ensure honesty and consistency, which is known as trustworthiness in qualitative research. Bryman (2016) defined the reliability of results as a set of standards and procedures for evaluating the quality of qualitative research. In light of this, the researchers followed some procedures to reach the reliability of the results, which were as follows:

First: credibility, which means internal honesty. To achieve this, the following procedures were implemented:

- **Create an audit trail**: which includes the audio recordings obtained by the participants, Al Zahrani (2020), where the researchers recorded the interview audio using the Voice Memos application on the iPhone in order to verify and review it while analyzing and interpreting the data.

- **Member checking:** it is one of the criteria for achieving quality in qualitative research (Al-Hussaini, 2020). All interviews were sent directly to the participants after they were transcribed, and they were asked to read them, comment on them, and verify the accuracy of the transcribed data and its conformity with their statements. They were also given the opportunity to modify or add to the data. One participant modified some of the data, as he clarified some of the data texts and modified their wording, while all other participants expressed the accuracy and correctness of the data and its suitability to their statements.

Second: Dependability, which illustrates to the concept of stability in quantitative research, as it aims to reach a similar result when repeating methods under the same conditions. However, reapplying the study poses a difficulty in qualitative research (Al-Abdul Karim, 2012). To achieve this, the researchers tried to accurately describe the procedures followed in designing the study methodology, clarifying the methods of selecting

participants, in addition to presenting the methods of collecting and analyzing data in a more detailed and clear manner.

Third: Triangulation: this means a strategy that provides a broad description and comprehensive analysis of the results that are more accurate while ensuring validity and strength of interpretation. It is a strategy used to increase the credibility of the qualitative results of the research. Al-Fadhli et al. (2023) defined it as a strategy that includes more than one research method and tool, with the aim of raising the level of stability and validity of the study by presenting real results that reflect the true reality of the phenomenon and are confirmed and supported by evidence.

2.3.8. Participants

The interview tool was utilized for a sample of those who participated in the questionnaire tool, which consisted of 11 male and female special education teachers in Egypt and the Kingdom of Saudi Arabia. The participants were selected using the snowball sampling method, and thus the researchers were able to reach the appropriate number, through which saturation was reached, which is the stage that is repeated in the data so that no new information appears (Al-quraini, 2020). In selecting the intentional sample, the diversity of the characteristics of the study participants was considered, as the participants were selected according to pre-determined criteria, which are: (that the participants be specialists in visual impairment, and diversity in the gender of the participants between males and females).

Table (5)
Distribution of the interview sample according variables and its coding

Region	Gender		Coding	Job class	Gender	Teacher code	Number	
							Egypt	KSA
Saudi Arabia	Male		Expert Teacher of students with VI		Male	EM1	1	-
			Expert Teacher of students with VI		Female	Ef2	1	-
			Teacher of students with VI		Male	EM3	1	-
			Expert Teacher of students with VI		Male	EM4	1	-
			Expert Teacher of students with VI		Male	EM5	1	-
S	M		Senior Teacher of students with VI		Female	Ef6	1	-
Egypt	Female	F	Senior Teacher of students with VI		Female	Ef7	1	-
E			students with VI Impaired		Male	EM8	1	-
			Teacher of students with VI		Male	SM9	-	1
			Advanced teacher of students with VI		Male	SM10	-	1
			Practitioner teacher of students with VI		Male	SM11	-	1
			11	11		-	8	3

Table 5 reveals that the majority of the participants in the interview consisted of males, comprising 8 teachers, or 72.72% of the total, while

females accounted for 3 teachers, representing 27.28% of the sample. Additionally, most of the sample members were Egyptian, numbering 8 and constituting 72.72% of the total, whereas 3 teachers were from KSA, making up 27.28% of the sample. The participants were selected using the snowball sampling method, and thus the researchers were able to reach the appropriate number, through which saturation was reached, which is the stage that is repeated in the data so that no new information appears (Al-Quraini, 2020).

3. Results

In this section, the researchers illustrated the results of the participants of this study for each question starting with the participants' answers on the questionnaire and then stating the answer from the second instrument which is the interview.

Results of the first question

3.1. The factual status of using ELP in teaching students with visual impairment from the perspectives of their teachers. The descriptive statistics for the factual status of using ELP in teaching students from teachers' perspectives are shown in Table 6.

Table 6

The factual status of using ELP in teaching students from teachers' perspectives.

No.	Items	MD	SD	Level of response	Ranking
1	The Ministry of Education is aware of the training needs of teachers who work with students with VI in using ELP.	3.36	1.51	Moderate	7
2	I am trained to use E-learning platforms for teaching students with visual impairments.	2.86	1.79	Moderate	27
3	There is a technical support team that specializes in assisting students with visual impairments via ELP.	2.32	1.16	Weak	30
4	E-learning platforms require technical modifications to suit the abilities of students with visual impairments.	4.04	1.44	High	2
5	Students with visual impairments need the technical skills to benefit from E-learning platforms.	4.25	1.21	Very high	1
6	E-learning platforms provide clear instructions for students with visual impairments.	3.14	1.63	Moderate	20
7	The E-learning platform achieves the expected goals of the courses and subjects for students with visual impairments.	3.25	1.76	Moderate	15
8	The E-learning platform links the course with classroom and non-classroom practical activities.	3.29	1.65	Moderate	11

9	E-learning platforms allow the use of several methods to display information related to the lesson for students with visual impairments.	3.29	1.55	Moderate	12
10	E-learning platforms for students with VI facilitate access to learning resources and references.	3.21	1.66	Moderate	16
11	E-learning platforms support effective communication between students with visual impairments and their teachers.	3.21	1.67	Moderate	17
12	E-learning platforms help students with VI to conduct individual and group research and work projects.	3.18	1.74	Moderate	19
13	E-learning platforms provide teachers of students with VI with feedback on the strengths and weaknesses points of their students.	3.29	1.64	Moderate	13
14	E-learning platforms continuously evaluate the performance of students with visual impairments.	3.04	1.70	Moderate	24
15	E-learning platforms help create an active and attractive learning environment for students with visual impairments through audio stimuli, interactive activities, and others.	3.07	1.51	Moderate	23
16	E-learning platforms facilitate communication between teachers of students with VI and their students.	3.46	1.33	High	3
17	E-learning platforms help support communication between teachers of students with VI and parents of students.	3.18	1.43	Moderate	18
18	E-learning platforms facilitate the downloading, transfer, and sharing of topics related to educational content (text - image - video - link).	3.42	1.36	High	5
19	E-learning platforms save time, effort, and cost when teaching students with visual impairments.	3.46	1.38	High	4
20	E-learning platforms meet the desires and tendencies of learners with visual impairments.	3.04	1.67	Moderate	25
21	E-learning platforms consider individual differences among students with visual impairments.	3.11	1.61	Moderate	21
22	Teachers of students with VI can record, store, and review lessons for students with VI.	3.36	1.43	Moderate	8
23	E-learning platforms suit the nature of the academic content for students with visual impairments.	3.00	1.52	Moderate	26
24	E-learning platforms provide a flexible environment in terms of time and space for students with visual impairments.	3.39	1.45	Moderate	6
25	E-learning platforms increase the motivation of students with visual impairments.	3.30	1.47	Moderate	10

26	Teachers of students with VI can record, store, and review lessons for students with VI.	3.36	1.40	Moderate	9
27	E-learning platforms provide an opportunity for teachers of students with VI to exchange teaching experiences with each other.	3.09	1.35	Moderate	22
28	Websites specializing in teaching students with visual impairments can be linked to E-learning platforms.	3.25	1.43	Moderate	14
29	E-learning platforms support the basics of universal access for students with visual impairments.	2.82	1.46	Moderate	28
30	Students with visual impairments can apply the skills provided to them through E-learning platforms.	2.71	1.58	Moderate	29
	Overall mean value	3.23	1.04	Moderate	

Table 6 shows that the overall mean perception score among participants is ($MD = 3.23$; $SD = 1.04$), suggesting moderate agreement among teachers regarding the utilization of various ELP in teaching students with visual impairment. Additionally, the study findings highlight the top three factors in the current state of using ELP for teaching students with VI, as perceived by teachers: Students with visual impairments need the technical skills to benefit from E-learning platforms, which facilitate the downloading, transfer, and sharing of topics related to educational content (text, image, video, and link).

Furthermore, E-learning platforms require technical modifications to suit the abilities of students with visual impairments, and they facilitate communication between teachers of the students with VI and their students. Among the advantages of platforms moderately used in teaching students with visual impairments, according to teachers' perceptions, are their ability to link courses with practical activities both in and out of the classroom, increase student motivation, provide valuable feedback on student performance, and offer various methods to display lesson-related information. The mean value supporting the participants' responses reaches 3.29.

Regarding statement 29, the overall mean value of participants is ($MD = 2.82$; $SD = 1.46$). This indicates that most participants moderately agreed that ELP supports the basics of universal access for students with visual impairments. Regarding statement 30, the mean value of their perceptions is ($MD= 2.71$; $SD = 1.58$) this mean value indicates that most respondents confirmed that the students with visual impairments can moderately apply the skills provided to them through E-learning platforms.

In conclusion, utilizing E-learning platforms for teaching students with visual impairments offers significant benefits, including saving time, effort, and costs. Additionally, these platforms enable easy access to educational content through downloading, transfer, and sharing features. Moreover, they enhance communication between teachers and students with VI, thereby fostering a more inclusive and effective learning environment.

Results of the Second Question
3.2. The obstacles of using ELP in teaching students with visual impairment from the perspectives of their teachers

Table 7

The obstacles to using ELP in teaching students from the perspectives of their teachers

	Obstacles	MD	SD	Level of response	Ranking
1	Poor training of teachers of students with VI on the use of E-learning platforms.	4.14	1.19	High	2
2	The school's limited financial resources to purchase equipment for the use of E-learning platforms in teaching.	3.79	1.50	High	10
3	Weakness of teaching culture using E-learning platforms among teachers of students with VI.	3.82	1.61	High	8
4	The teacher's lack of awareness of the importance of using E-learning platforms in teaching students with visual impairments.	3.58	1.38	High	14
5	Poor awareness of students with visual impairments of the usefulness of using E-learning platforms in education.	3.90	1.32	High	4
6	Multiplicity in the tasks and roles of teachers of students with VI within the school.	3.75	1.65	High	12
7	The reluctance of students with VI to use ELP.	3.72	1.67	High	13
8	The poor skills of students with VIin using ELP.	3.87	1.51	High	5
9	Difficulty considering the individual needs of students with VI.	3.83	1.60	High	7

10	Parents of students with VI are not busy following their children through ELP.	4.04	1.39	High	3
11	The poor technological culture among parents of students with VI.	3.79	1.30	High	11
12	Lack of E-learning platforms that consider the privacy of dealing with students with visual impairments.	3.86	1.47	High	6
13	Poor keeping pace with programs for preparing special education teachers for technological innovations.	3.79	1.29	High	9
14	The weak partnership between the Ministry of Education and companies that produce electronic applications for students with visual impairments.	4.18	1.22	High	1
	Overall mean value	3.86	1.20	High	

The results in Table 7 indicate that the overall mean value of participants' perceptions is ($MD = 3.86$; $SD = 1.20$), suggesting that most teachers strongly agree that numerous obstacles exist when teaching students with visual impairments while using ELP. One significant obstacle highlighted is the weak partnership between the Ministry of Education and companies producing electronic applications for students with visual impairments, with a mean value of ($MD = 4.18$; $SD = 1.22$), according to participants' perceptions. Additionally, poor training of teachers of students with VI on the use of E-learning platforms emerges as another major obstacle, ranking second highest, with a mean value of ($MD = 4.14$; $SD = 1.19$). The third highest obstacle identified is the lack of active engagement by parents of students with VIin monitoring their children through ELP, with a mean value of ($MD = 4.04$; SD 1.39).

Finally, the results found that the lack of teachers' awareness regarding the importance of using E-learning platforms in teaching students with visual impairments is considered one of the obstacles facing the implementation of E-learning platforms for teaching students with VI, with a mean value of ($MD = 3.58$; $SD = 1.38$).

Results of the Third question
3.3. Differences among Teachers in Using ELP for Teaching Students with Visual Impairment Based on Region, School Type, and School Stage"

Statistical analysis was employed to identify significant variations among teachers based on their region, school type, and school stage. To address this research question, the ANOVA test was utilized to examine significant variations related to the school stage, as depicted in Table 8.

Table 8
Variation in teachers' utilization of ELP for teaching students

	Variables	*N*	Mean	*SD*	T-test	*D.F*	*P*-Value
Region	Saudi Arabia	84	90.55	27.49	-2.126**	327	0.034
	Egypt	245	98.88	32.11			
School type	Integration	200	99.69	32.15	2.135**	327	0.033
	School for teaching Students with VI	129	92.21	29.13			
					F-test		
School stage	Elementary	58	74.31	15.39		2	
	Intermediate	176	110.16	30.28	48.09**	326	0.00
	High secondary school	95	85.62	27.72		328	

** *Significant at the level (0.01).*

The results in Table 8 indicate significant differences among teachers based on their country of origin, school type, and school stage. The variation is more pronounced among teachers from Egypt, while the significant difference related to school type favors integrated schools. To examine the significant difference related to school stage, multiple comparison analysis was conducted, and the findings are shown in Table (9).

Table 9

Examine the significant difference in the use of ELP related to school stage.

School stage	Mean	Mean difference by school stage		
		Elementary	Intermediate	High school
Elementary	74.31	-	-35.85*	-11.3*
Intermediate	110.16	35.85*	-	-
High school	85.62	11.3*	-	-

The results in Table 9 demonstrated a positive trend among intermediate and high school teachers. This suggests that teachers at the intermediate and high school levels use ELP at a higher and more moderate level compared to teachers who teach at the elementary school level.

Table 10

Differences in the obstacles to using ELP from the perspectives of teachers

Variables		N	MD	SD	T-test	D.F	P-Value
Country of origin	Saudi Arabia	84	50.06	18.85	-2.548**	327	0.011
	Egypt	245	55.43	15.87			
School type	Inclusion	200	56.02	16.02	2.181**	327	0.03
	Special Education	129	51.02	17.63			
					F-test		
School stage	Elementary	58	33.97	13.55		2	
	Intermediate	176	62.51	11.83	108.5**	326	0.00
	High secondary school	95	50.67	14.85		328	

Table 11

Obstacles using ELP from teachers' perspectives across academic stages

School stage	Mean	Mean difference by school stage		
		Elementary	Intermediate	High school
Elementary	74.31	-	-28.5*	-16.7*
Intermediate	110.16	28.5*	-	-
High school	85.62	16.7*	-	-

Table 11 highlights significant differences at a significance level of 0.05 between members from middle schools and those from primary and secondary schools. The findings favor sample members from secondary schools over those from primary schools.

Results of the Interview
Results of First Question
3.4. What is the factual status of teachers of students with VI use of electronic platforms in teaching students with visual impairment from their perspectives?

Most teachers from Egypt (54.54%) indicated that they did not use electronic platforms in teaching their students with visual impairment, or that they used them to a very limited extent (EM1, EF2, EM3, EF6, EF7, EM8), despite their emphasis on the importance of electronic platforms. In teaching students with visual impairment, it was observed that the participants' answers agreed on the limited use of electronic platforms in teaching students with visual impairment. In this context, the teacher (EF2) indicated, "I use electronic platforms to a limited extent, because students with visual impairment need to move around." The teacher (EM3) also added that he "uses electronic platforms to teach his students poorly, because they require training by specialists, so that the student is able to rely on himself in using these platforms and does not need the help of a sighted person".

The teacher (EM4) said that there is "a lack of awareness of the platforms used in teaching students with visual impairment by the teacher, student, and parents, and sometimes I use these platforms to prepare interactive lessons that contribute to enhancing students' participation and understanding of academic materials." (SM9) noted that he uses "electronic platforms because they help students with visual impairment to become independent, self-reliant, and communicate with each other and with others. They also alleviate the severity of disability and overcome the problem of mobility. They are convenient and meet their educational desires."

This is consistent with the questionnaire results regarding the answer to the first question: about the factual status of teachers of students with VI use of electronic platforms in teaching their students, as the results showed that teachers of students with VI generally agree to a medium degree that they have been trained to use electronic platforms in teaching their students. With an overall average of 3.27, and a standard deviation of 0.54. Students with visual impairment need technical skills to benefit from e-learning platforms.

The results of the questionnaire also confirmed that most of the participants, teachers of visual impairment, believe that e-learning

platforms need technical modifications to suit the capabilities of students with visual impairment. This is supported by the arithmetic mean value of 4.04, and a standard deviation of 1.09. This confirms the necessity of providing technical modifications to the platform to suit the needs of students with visual impairment.

The majority of teachers with VI participating in the research also indicated, with an average of (2.32), that there is no specialized technical support team to help students with visual impairment via electronic platforms, and a standard deviation of 1.16. Most of the teachers participating in the research also believe that e-learning platforms provide clear instructions for students with medium visual impairment, as the average was 3.14, and a standard deviation of 1.22. Hence, there is a need to make more technical efforts to provide clear instructions to facilitate the use of electronic platforms by students with visual impairment.

While some teachers of students with VI from Egypt and Saudi Arabia (45.45%) confirmed that they use electronic platforms effectively and significantly with their students with VI:

(EM5) indicates that he "is increasingly using electronic platforms in teaching his students with visual impairment, because they provide the teacher and student with the ability to access educational content easily via the Internet and improve their interaction and understanding of the academic content." (EF6) indicates that he "uses electronic platforms with his students, for their easy access to content and effective participation in lessons."

(EM8) also indicates that he uses "the electronic (Ain) platform; Because of its clarity, and because it provides opportunities for good interaction with students, it needs more technical development in terms of arranging the materials available on the platform and adapting it to speaking programs for the blind. He also confirms that "using the platform facilitates the teacher's work by sending and receiving assignments and assignments from and to students, Electronic platforms also use artificial intelligence and improve communication between sighted and blind teachers."

(SM10) indicates that "the use of electronic platforms during the Corona pandemic and distance education was better compared to their use after returning to in-person schools, because the lessons were linked to the platform with mandatory attendance, preparation of lessons, and uploading of scientific material and assignments. It was also used to evaluate students, and it was motivational." Students and their ability to

deal with the platforms are better, but after returning to schools, there was a reluctance among students to use electronic platforms, especially in the primary stage, because they are in the foundation stage for reading and writing, and therefore their benefit from the platforms is weak."

This is what (SM11) indicated when he was asked about the factual status of his use of electronic platforms in teaching his students with visual impairment. He indicated that "the use of electronic platforms at the time of the Corona pandemic was successful, and that they were adapted to the educational needs of students. But now they are being used in a way less".

This is consistent with the results of the questionnaire, as the results of the research confirmed that among the most important advantages of using electronic platforms in teaching students with visual impairment are the following:

- E-learning platforms save time, effort and cost when used in teaching students with visual impairment.
- E-learning platforms facilitate uploading, transferring and sharing topics related to educational content (text - image - video - link).
- E-learning platforms facilitate communication between teachers of the visually impaired and their students.
- The previous three statements are supported by the responses of sample members from visual impairment laboratories to the questionnaire statements, with a mean of 3.46, 3.42, and 3.18 and a standard deviation of 1.38, 1.36, and 1.43, respectively. Most teachers participating in the research, with an average of 2.82 and a standard deviation of 1.46, also confirmed that e-learning platforms support the basics of comprehensive access for students with visual impairment.

This is consistent with the results of some studies that emphasized the importance of electronic platforms in educating students with visual impairment, including (Abu Melhem, 2005), (Youssef, 2008), (Mahfouz, and Al-Aqqad, 2015). Zaitoun (2004) emphasizes that the performance of students with VI is similar to that of their normal peers in terms of achievement, if educational materials are available that help them receive and express information, which helps them invest in their potential and achieve their societal integration in all fields.

In general, it is clear that the factual status of teachers with visual impairment in Egypt and the Kingdom of Saudi Arabia using electronic platforms in teaching students with visual impairment has ranged between

limited or medium use, and that people with impairment in the Kingdom have supported the use of electronic platforms in teaching their students with visual impairment better than their peers are teachers of students with VI in Egypt, and this may be due to the availability of digital infrastructure and the trend towards digitizing education at the various stages of education in the Kingdom, which was confirmed by the Kingdom's Vision 2030, while in Egypt the teacher of students with VI schools may suffer from limited capabilities and a decline in digital infrastructure in public schools and schools for the blind.

<div align="center">

Results of Second Question
</div>

3.5. Obstacles while teachers of students with VI using of electronic platforms:

When teachers of students with VI were asked about the obstacles to their use of electronic platforms in teaching their students with visual impairment, they emphasized several obstacles, as follows:

- Teachers of students with VI were asked about the factual status of using electronic platforms in teaching students with visual impairment. To answer this question, an examination, organization, and coding of the data was conducted. It was noted that the teachers' answers were consistent with the factual status of use, and this is analyzed as follows:
- Approximately (45.45%) of the students with VI in the interview sample confirmed the lack of an educational resource room equipped with the Internet, and the lack of smart devices (EM1), (EF2), (EF6), (EF7), and (EM8).
- (45.45%) of students with VIin the interview sample confirmed that students with VI are not trained to use electronic platforms in teaching their students, and to adapt research materials to the nature of students with visual impairment (EM1), (EF2), (EM4), and (EM5) and (EF6).
- (27.27%) of the students with VIin the interview sample confirmed that the content on some electronic platforms is not appropriate for the nature of the visually impaired (EM1), (EM5), and (EF7).
- (18.18%) of the students with VIin the interview sample confirmed that students with VI are slow in accessing the electronic platforms (EF2) and (EM3).
- (45.45%) of the students with VIin the interview sample confirmed that the Internet network was weak or interrupted (EF2), (EM4), (EM5), (SM9), and (SM10).

- (72.72%) of the students with VIin the interview sample confirmed the difficulty of students with VI accessing some platforms due to entry requirements, such as a verification code that is in the form of letters or a collection of images, and this is something that the screen reader program does not support. If there is an audio reader, it would be Words are unclear for students with VI, and images are unclear for students with VI(EF2), (EM3), (EM4), and (SM9). In this context, SM10 confirms: "Some electronic platforms are weak. For example, the (My School) platform, I do not know how to deal with it, nor how to upload the lesson and assignments to the platform, and I need help, in addition to the account being suspended sometimes, and the platform's weak ability to adapt to... Speaking programmes. (SM11) indicates, "A student with a visual disability needs sighted assistance to access the electronic platform and does not rely on himself to use modern devices."
- (18.18%) of students with VIin the interview sample believe that some electronic platforms do not support the Arabic language (EM3) and (EM5).
- While (9.9%) of the students with VIin the interview sample were pleased that one of the most important obstacles to using electronic platforms in teaching students with visual impairment is the total reliance on school education using Braille books (EM8).
- (9.9%) of the students with VIin the interview sample believe that the most important obstacles are focusing education for the of students with VI on memorization and ensuring that information is memorized and retrieved using the textbook (EM8).
- (9.9%) indicate that one of the most important obstacles is: weak cooperation between administration, specialists and teachers in schools for the blind (EM8).
- (27.27%) believe that the teacher of students with VI and students lack modern devices and Braille Sense devices for the blind, and their high cost (SM9) and (SM10), and (SM11) also indicates that if the research is suspended for any reason (such as suspension of the research due to rain), Students may not be committed to coming to the platform, because they do not have a smartphone or internet.

These results are consistent with what was confirmed by the results of the quantitative data (questionnaire), as the students with VI participating in the research confirmed, by answering the questionnaire,

that they indicated that the most important obstacles facing students with VIin teaching their students using electronic platforms are:

- Weak partnership between the Ministry of Education and companies producing electronic applications for students with visual impairment, with an average of 4.18 and a standard deviation of 1.22.
- Weak training for students with VIin the field of using electronic learning platforms, with an average of 4.14 and a standard deviation of 1.19.
- Weak perception of students with visual impairment of the usefulness of using electronic platforms in education, with an average of 3.90, and a standard deviation of 1.32.
- Weak skills of students with VIin using electronic platforms, with an average of 3.87, and a standard deviation of 1.51.
- Weak culture of teaching using electronic platforms among teachers of students with VI, with an average of 3.82, and a standard deviation of 1.61.
- Weakness in special education teacher preparation programs keeping pace with technological innovations, with an average of 3.79, and a standard deviation of 1.29.
- Weak technological culture among parents of students with VI, with an average of 3.79, and a standard deviation of 1.30.
- Reluctance of students with VI to use electronic platforms, with an average of 3.72, and a standard deviation of 1.69.
- Weak teacher awareness of the importance of using electronic platforms in teaching students with visual impairment, with an average of 3.58, and a standard deviation of 1.38.

These results are consistent with the findings of Gill et al.'s research (Gill, K., Sharma, R., & Gupta, R., 2017), the results of which confirmed that most of the problems faced by students were due to lack of knowledge of e-learning systems or poor training. appropriateness, inability to afford software, and issues that still need to be addressed are lack of online e-learning resources, poor accessibility of websites, unavailability of books in all formats, difficulty describing images, and lack of screen readers The good one. It also agrees with the research of Denisova et al. (Denisova et al., 2020), which found that it is difficult for students to deal with electronic education platforms, especially when facing technical problems, and that most of the sample members are completely dissatisfied with electronic education platforms, for reasons

related to the comprehensive access to those platforms. And the research of Abdel-Gawad, Sharaf, and Shaaban (2020), the results of which confirmed the shortcomings of employing assistive technology in teaching students with VIin classrooms, which requires supporting this factual status with all assistive technology related to the curricula of teaching this category, and training teachers on how to employ it in those classrooms considering community partnership.

Results of Third Question

3.6. What are your proposals to enhance teachers of students with VI use of ELP in teaching students with visual impairment?

When asked teachers about suggestions to improve their use of ELP in teaching students with VI, the majority of students with VI provided the following recommendations which stated in percentages in answering this question. 45.45% proposed training students with VI on using ELP and adapting research materials for visual impairment. 36. 36% emphasized the need for technical support to assist teachers and students with technical issues, as well as highlighting the importance of adapting ELP to meet the needs of such students. 27. 27% stressed the significance of providing adequate funding for teachers of students with VI. 18. 18% advocated for delivering content through ELP in Arabic, suggested in-person training sessions for students to learn how to use the platforms and recommended the Ministry of Education provide tablets or computers for students with VI. 9. 9% emphasized collaboration among teachers of students with VI, suggested promoting ELP across various media, making ELP available on the Knowledge Bank, aligning electronic platform content with educational curricula, and creating speaking ELP for students with VI. highlighting the importance of addressing the students' needs and parries, and educating parents about the use of ELP in their children's education.

4. Discussion

E-learning platforms are considered one of the important foundations of modern technology in the field of education process. E-learning platforms positively contribute to reshaping the educational environment by providing modern means that make it more attractive. This study emphasizes the importance of equipping teachers of students with VI with technical skills for utilizing E-learning platforms effectively. It also underscores the necessity for technical adjustments to suit the needs of students with VI. Additionally, it identifies obstacles like weak

partnerships between educational authorities and technology companies, as well as low awareness and proficiency in using E-learning platforms for education. Addressing these challenges through technical training and awareness improvement is crucial for enhancing E-learning effectiveness for students with VI.

Finding of the first question about the factual status of teachers with visual impairments in Egypt and KSA using Electronic Learning Platforms (ELP) in teaching students with visual impairments has ranged between limited to medium use. Interestingly, individuals with impairments in KSA have shown greater support for the use of ELP in teaching their students with visual impairments compared to those in Egypt. This observation aligns with the findings of previous studies, such as Singh Senjam et al. (2019) and Youssef, (2008), which underscored the significance of leveraging ELP in education, particularly for students with visual impairments. Additionally, Mahfouz and Al-Aqqad, (2015) emphasized the potential of ELP to enhance educational outcomes for students with disabilities, further supporting the importance of promoting its use among educators.

The use of Electronic Learning Platforms (ELP) by teachers in Egypt and KSA for students with VI, especially during the COVID-19 pandemic, has shown significant benefits. These platforms have been instrumental in adapting to the educational needs of students, facilitating the transfer and sharing of educational content, and enhancing communication between teachers and students. This aligns with the broader context of the pandemic's impact on education, where web-based online learning has become the mainstream public learning mode, leading to changes in daily life, including less physical activity, prolonged screen time, and psychological changes (Fan et al. 2021).

Most teachers from Egypt (54.54%) indicated that they did not use ELP in teaching their students with visual impairment, or that they used them to a very limited extent (EM1, EF2, EM3, EF6, EF7, EM8), despite their emphasis on the importance of ELP. In teaching students with visual impairment, it was observed that the participants agreed on the limited use of ELP in teaching students with visual impairment. The teacher (EF2) said, "I use ELP to a limited extent, because students with visual impairment need to move around." Teacher (EM3) revealed that he "uses ELP to teach his students poorly, because they require training by specialists, so that the student is able to rely on himself in using these platforms and does not need the help of a sighted person".

The teacher (EM4) said there is "a lack of awareness of the platforms used in teaching students with visual impairment by the teacher, student, and parents, and sometimes I use these platforms to prepare interactive lessons that contribute to enhancing students' participation and understanding of academic materials." Teacher (SM9) noted that he uses "ELP because it helps students with visual impairment to become independent, self-reliant, and communicate with each other and with others. They also alleviate the severity of disability and overcome the problem of mobility. They are convenient and meet their educational desires."

This is consistent with the questionnaire results regarding the answer to the first question, as the results showed that students with VI agree to a medium extent that they have been trained to use ELP for teaching their students, with an average (MD = 3.27, SD = 0.54). The results also confirmed that most of the participants believe that E-learning platforms need technical modifications to suit the capabilities of students with visual impairment, supported by a mean value (MD = 4.04, SD = 1.09). Additionally, most teachers indicated that there is no specialized technical support team to help students with visual impairment via ELP, as evidenced by an average (MD = 2.32, SD = 1.16). Furthermore, the majority of teachers believe that E-learning platforms offer clear instructions for students with moderate visual impairment, evidenced by an average score of (MD = 3.14, SD = 1.22). Therefore, there is a recognized need for increased technical efforts to ensure clear instructions and facilitate the utilization of ELP by students with visual impairment.

(45.45%) of teachers from Egypt and KSA confirmed that they effectively and significantly utilize ELP with their students with VI. One participant (SM10) noted that during the COVID-19 pandemic and distance education, ELP usage was more successful compared to its use after returning to in-person schools. Another participant (SM11) mentioned that while ELP were successful during the pandemic and adapted to students' educational needs, their usage has decreased significantly since then. These findings are consistent with the questionnaire results, which highlighted the advantages of using ELP in teaching students with visual impairments, such as saving time, effort, and costs, facilitating the transfer and sharing of educational content, and enhancing communication between teachers and students.

The results of the second question aligned with the findings of Gill et al. (2017), study which confirmed that many problems faced by

students stemmed from a lack of knowledge of E-learning systems or inadequate training. They also resonate with Denisova et al. (2020), who found that students encounter difficulties with electronic education platforms, especially when confronted with technical issues, leading to widespread dissatisfaction among the sample members. Additionally, Abdel-Gawad, et al., (2020) results corroborate the shortcomings in implementing assistive technology in classrooms for students with VI and underscore the importance of training teachers to effectively integrate it into their teaching practices, emphasizing the need for community partnership.

Furthermore, the study highlights the absence of specialized technical support teams for students with VI, emphasizing the need for such support to improve educational processes in Jeddah and Egypt. These findings align with Jads' research, which revealed insufficient teacher qualifications in utilizing technology for teaching students with VI, stressing the importance of teacher training in this aspect.

Moreover, the study's conclusions resonate with Abdel-Gawad, et al (2022) findings on the underutilization of assistive technology in teaching students with VI. Similarly, it supports Al-Suwailem's (2022) observation of parental dissatisfaction with distance education platforms during the COVID-19 pandemic for students with impairments.

When asked about the obstacles to their use of ELP in teaching students with visual impairment, students with VIidentified several challenges. A significant concern, noted by 45.45% of teachers, was the lack of an educational resource room equipped with the Internet and smart devices. Similarly, 45.45% confirmed that students with VIlack training in using ELP. Additionally, 27.27% highlighted that the content on some ELP is not suitable for the visually impaired, while 18.18% mentioned that students face difficulties in accessing ELP due to slow internet speeds. Moreover, 45.45% of teachers reported weak or interrupted internet networks and 72.72% highlighted the difficulty students face in accessing platforms due to entry requirements. Furthermore, 18.18% of teachers noted that some ELP do not support the Arabic language. Other obstacles included reliance on Braille books for education (9.9%), a focus on memorization in education for the visually impaired (9.9%), weak cooperation between school administration, specialists, and teachers (9.9%), and the lack of modern devices for the blind (27.27%).

To sum up, providing training sessions for teachers of students with VI and offering technical support for these students in using ELP are

essential. Based on data analysis, the current study has derived a set of findings. This also consistent with the study of Hamid (2020) which explored the perception of Visual Impairment (VI) students towards the use of digital platforms in online learning, focusing on Google Classroom, WhatsApp, and Zoom and identified challenges like slow internet connectivity, extended learning times, and unclear instructions.

4.1. Limitations

This study found some limitations that could restrict the generalizability of the results to the general population of teachers of students with visual impairment, the first was;

- Difficulty in communicating with some teachers of students with VI in the study sample in Egypt and Saudi Arabia.
- Incomplete responses from some members of the sample.
- Reluctance of some teachers to participate in answering the questionnaire and the interview.
- A Limited number of participants in Egypt and the Kingdom of Saudi Arabia.
- Use of a mixed-methods approach with its quantitative and qualitative tools.

4.2. Conclusion and Recommendations

The research investigated the utilization of E-learning platforms for students with visual impairments, particularly in the context of the educational changes brought about by the COVID-19 pandemic in KSA and Egypt. It found that most participants confirmed the need for students to acquire technical skills to benefit from E-learning platforms. E-learning platforms require technical modifications to suit the abilities of students with visual impairments. Additionally, there is a lack of a specialized technical support team to assist these students via ELP. Finally, participants confirmed that E-learning platforms offer time, effort, and cost-saving benefits in learning and facilitate communication between teachers and students. Statistically significant differences were found among teachers of students with VI regarding their use of ELP based on country of origin and school type. The research recommended providing training programs for teachers and technical support for students to effectively use e-platforms for learning purposes. Engage various stakeholders involved in the education process of students with VI, including the Ministry of Education, companies providing E-learning equipment, teachers, and parents, to contribute to the development of e-platforms   tailored   to   the   students'   needs.

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