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THE REALITY OF SCIENCE TEACHERS' USE OF E-LEARNING PLATFORMS AND THE OBSTACLES THEY FACE

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Abstract

The study aimed to identify the reality of science teachers' use of electronic educational platforms and the obstacles they face, and the study relied on the descriptive and analytical approach, and the study population consisted of (185) teachers working in public schools in Karak governorate, and the study sample reached (81) teachers And a teacher, they were randomly assigned. The results of the study showed that the reality of science teachers' use of electronic educational platforms came with a positive level, with an arithmetic average (3.53). The obstacles facing science teachers in using electronic educational platforms came in a high degree with a mean of (3.90). The results also showed that there are no statistically significant differences in the reality of Science teachers use online platforms according to variables: (gender, educational qualification, and job experience). The study recommended the necessity to hold courses and workshops for teachers and students to enhance their use and practice of electronic educational platforms, and to train them on the methods of their use, and the study also recommended the necessity of modifying science curricula to match their application through electronic educational platforms in an interactive manner.

Key words: Reality of Use, E-Learning Platforms

Introduction:

The world is witnessing rapid technological developments and changes in various fields, and in the midst of this rapid technological progress, educational institutions must keep pace with these rapid and growing changes. To develop teaching and learning methods that guarantee the quality of education outcomes; Therefore, many educators believe that the use of modern

educational technologies is an urgent necessity because of its many advantages. Educational practices in general, and science education in particular, are witnessing tremendous leaps for the better to keep pace with this era that is characterized by scientific and technical progress.

Science is one of the most important fields in which the computer and its applications have made a great revolution in its education, as science is one of the subjects most need in its teaching and teaching, and the interpretation of its concepts to use educational platforms to help teachers reach the learning goals and outcomes that they seek to achieve with their students and also to help students to Acquiring multiple and varied experiences (Al Shehri, 2009).

Electronic educational platforms have a number of practical and educational benefits, especially in teaching science, through their characteristics and components, which stand out by providing the ability to browse the Internet, in addition to providing access to the total network, and the possibility of using e-mail to enter the educational platform. It also provides an opportunity for better communication between learners and teachers in virtual rooms that have unlimited numbers, rather than classrooms that can accommodate only a very limited number, as it is added to that allows the teacher to use the lecture management system, and allows students to record and store lectures It also contributes to displaying slides of various presentations and software with the ability to explain and comment on them, in addition to the possibility of being used by teachers in programming science materials and courses in an interactive electronic way, which contributes to simplifying scientific concepts and presenting them in a way far from complex (Horton & Horton, 2003).

The electronic platforms use computer programs that include software and multiple media that can be downloaded and used through the personal computer, or through the Internet, which are mostly self-operating programs and do not require operational programs. These programs consist of a main screen through which experiments are conducted on someone Its aspects are all the tools, devices and materials needed to conduct experiments in any branch of science (Llu et at, 2015).

Despite the continuous seminars by educators to use new methods in teaching science, such as the use of electronic platforms, this topic has not received what it deserves in Jordan

from the study and research, and accordingly the study came to know the reality of science teachers' use of electronic educational platforms and the obstacles they face, being A new method that poses an explicit challenge to using the regular method is worthy of research and study.

The study Problem:

With the closure of universities and schools in most countries of the world due to the widespread spread of the Corona epidemic, many schools, whether governmental or private, have rushed to electronic educational platforms to provide educational materials through them, and based on the role of technology and electronic education and its necessity in facilitating science and understanding it in a theoretical and procedural way, and according to The prescribed curricula are full of educational learning experiences that stand in the way for teachers to teach science subjects. The matter that prevented the giving of the scientific material except through the electronic educational platforms or with its assistance so that it has a fundamental role in completing the educational process, whether education is face-to-face or remote, and in line with global trends towards the use of computers in the field of education in general, and teaching methods in particular. ; This came to know the reality of science teachers' use of electronic educational platforms and the obstacles they face, by answering the following questions.

Therefore, from this standpoint, this study comes to discuss this issue by answering the following questions:

- What is the reality of science teachers' use of electronic educational platforms and the obstacles they face?
- What are the obstacles that face science teachers in the Southern Mazar District Education Directorate in Karak governorate in using electronic educational platforms?
- Does the reality of science teachers' use of electronic educational platforms in the Southern Mazar District Education Directorate in Karak governorate differ according to different variables: (gender, academic qualification, and job experience)?

The importance of the study:

The advantage of this study is that it examines an important topic, which is the reality of science teachers' use of electronic educational platforms and the obstacles they face, and it is hoped

that this study will be able to achieve its desired goals and be able to:

1. Highlighting the importance of electronic educational platforms because of their great importance in facilitating science education in general, as it is one of the modern strategies in science teaching.
2. Knowing the reality of science teachers' use of electronic educational platforms and the obstacles they face in teaching science.
3. The importance of this study also lies in the fact that it is one of the few studies conducted in Jordan - according to the researcher's knowledge - in the field of research into the reality of science teachers' use of electronic educational platforms and the obstacles they face, which may enrich the educational literature related to electronic educational platforms.

Objectives of the study

The study seeks to achieve the following objectives:

1. Exposing the reality of science teachers' use of electronic educational platforms and the obstacles they face.
2. Identify the obstacles that face science teachers in the Southern Mazar District Education Directorate in Karak governorate in using electronic educational platforms from their point of view.
3. Exposing the different attitudes of science teachers in the Southern Al-Mazar District Education Directorate in Karak governorate with different variables: (gender, academic qualification, and job experience).

The limits of the study

Spatial boundaries: This study was applied in governmental schools affiliated to the Southern Mazar District Education Directorate in Karak governorate.

Temporal boundaries: This field study was conducted during the 2020-2021 academic year.

Human borders: all science teachers in government schools affiliated to the Education Directorate of the Southern Mazar District in Karak Governorate.

Objective boundaries: This study dealt with the reality of science teachers' use of electronic educational platforms and the obstacles they face.

Terminology of study:

Procedural educational platforms: What is meant in this study is that it is a screen that is used to display the material related to science subjects through programming the scientific material and storing it with text, image and movement, according to a web system, and the combination of these elements to display the content in its final form.

Procedural obstacles facing teachers: It is the total score that the subject gets through his response to the paragraphs of the scale used in the current study, (and it is represented by a group of obstacles that hinder science teachers from using electronic educational platforms to give educational material or conduct scientific experiments.

Theoretical framework and previous studies

E-learning platforms:

The use of computers and technology is one of the most important educational means in overcoming many of the problems facing the usual methods of teaching in general and in teaching science in particular, based on the role of computers and technology in helping the learner to interact with the educational material to a high degree, and this is what distinguishes the use of computers and technological programs Different from other educational devices, and its use allows the learner to provide self-learning opportunities, which are achieved by expanding training, practice and feedback (Al-Ajlouni, 2007).

Given that science curricula contain abstract concepts and experiments that may take additional time and effort and the necessary tools are not sufficiently available, the use of computers, programs, technological applications and virtual laboratories present in the electronic educational platforms in the teaching of the scientific material contributes to the embodiment of the concepts interactively and sensually, and because of progress The rapid technology witnessed in the educational field, programs were designed to facilitate the teaching and learning of educational material and facilitate communication and interaction with teachers through it, the most important of which are electronic educational platforms (Al-Hafiz and Amin, 2013).

With the emergence of electronic learning and its tools, and the continuous increase in the number of learners, and based on the

principle of "lifelong learning", e-learning using electronic platforms was considered one of the most important educational innovations in the contemporary educational learning process (Al-Taher and Attia, 2012).

Because of the existence of the Internet, electronic educational platforms were available, and their users and dependents multiplied, and many uses emerged for them, as they provide services to obtain information and learn what is new, and as a result, many programming languages have been developed, on which they rely in dealing with interactive web pages as a resource for appropriate information (Strataiks, 2003).

Educational platforms are a free educational network, used to exchange ideas and share educational content, and the platforms use non-traditional teaching methods such as virtual and traditional collaborative work, which increases the ability to solve educational problems among learners, and opens up areas of dialogue and discussion to expand their mental perceptions (ivers& Barron, 2002).

The role of electronic educational platforms for the teacher is by facilitating his role in the educational process, to open the way for dialogue and discussion between the student and his colleague, the student and his teacher, which reduces the burden on the teacher, and makes his role based on educational supervision, as the teacher is not linked to a specific time and place for students to learn (Al-Omari, 2014).

In view of the effectiveness and importance of electronic educational platforms in providing teaching methods in line with the current scientific development, ease of use, saving time and effort by addressing the limits of time and place, and their impact on the learner, we are looking forward that the platforms play a vital and tangible role in the field of teaching educational materials. We singled out the different kinds of science education for what it needed in terms of new and advanced methods and techniques to understand its content and reach the goals it aspires to achieve (Haddad, 2000).

The role of electronic educational platforms in the educational process is also evident through the educational contributions they provide for the various stages of study and academic courses, as these platforms provide students with various information that can contribute to raising their level of

achievement, in addition to developing their perceptions, and increasing their educational yield in Various fields (Estetiyeh and Sarhan, 2007).

The different scientific activities can be understood in a distinctive way in the field of science education through the electronic educational platforms, which are considered a fertile environment for activating the uses of the laboratory in the educational process, due to the great diversity of educational experiences and skills that should be provided to the learner, which is what these laboratories provide of realistic experiences It is tangible, and it has potential to overcome practical application problems in schools, such as: risk, high cost, insufficient class time to perform the experiment and note its results, and the lack of adequate laboratory equipment for the quality of the buildings, most of which are rented for teaching and school purposes (Salah, 2017).

Among the teacher's tasks in the environment of electronic educational platforms is that he (Khaled, 2008; Tracey &Stuckay, 2007).

1. Researcher: his role as a researcher is to search within electronic libraries and databases spread over the network to bring what is appropriate for his students.
2. Designer: Has to consider the audience, educational goals, and content provided through the virtual lab.
3. Technician: the importance of possessing the skills related to the use of the Internet, operating systems, network requirements, and some technical problems.
4. Coordinator: his role is to support communication and interaction between users and each other, as is the case in traditional educational situations, and supports interactive and competitive learning.
5. Mentor: is to guide and direct the learners as they interact with the content or with each other.
6. A learning facilitator: is responsible for creating both group and individual learning processes, and creating a safe environment worthy of the learners 'respect.
7. Directed to the education process: is to define a detailed framework for the agenda of the educational session.
8. An appraiser of learners' actions: evaluation takes many forms. If teaching takes place in the method of guidance, the teacher can evaluate exercises, discussions and interactions that take place during the direct session.

9. Manager of Live Online Sessions: Good session management is one of the roles of particular importance to the teacher.

Previous studies

Al-Dosari study (2015) aimed at revealing the reality of using electronic educational platforms in teaching English at King Saud University and the obstacles to their use, and to achieve the objectives of the study, two tools were used, the first a questionnaire to reveal the reality of using the platforms in teaching English, and the second a questionnaire to reveal obstacles The use of electronic platforms in teaching the English language, the study sample consisted of (70) members of the faculty, the results showed that the degree of use of electronic platforms by faculty members was moderate, and the results showed statistically significant differences in the degree of using electronic educational platforms in language teaching. English attributed to variable teaching experience.

Falah (2015) conducted a study aimed at exploring the role of electronic educational platforms in classroom interaction among students of the College of Computer Science and Engineering at the University of Hail from the viewpoint of the faculty members. To achieve the objectives of the study, a questionnaire was prepared to reveal the role of electronic educational platforms in classroom interaction. The study sample consisted of (87) members of the faculty, and the results of the study showed that the role of electronic educational platforms in classroom interaction from the viewpoint of the faculty members in the College of Science And computer engineering at the University of Hail, came with a moderate degree.

Also each of Stergioulas and others (Stergioulas, et al, 2014) conducted a study in the United Kingdom aimed at exploring the use of electronic educational platforms and their impact on the learning process. The sample of the study consisted of (82) students, who were distributed into two experimental groups that studied using educational platforms. Electronic, and the control subjects were examined using the standard method. In order to achieve the objectives of the study and collect data, a test was conducted to reveal the effect of the platforms and the nature of their use. The results of the study showed the ease of using electronic educational platforms, and the results also showed a positive impact of electronic educational platforms on the learning process.

Bina, Bologna, and Dzitac (Benta, Bologna&Dzitac, 2014) conducted a study aimed at uncovering the effect of using electronic educational platforms in developing and activating the process of education and participation. (98) male and female students were taught using the electronic educational platform, and the control group consisted of (104) male and female students who were taught using the usual methods. The results of the study showed that the e-learning platform has an effect on motivating students and increasing their participation in cognitive tasks.

Commenting on previous studies

After reviewing the previous studies, the researcher found that it presented many important results, and the most prominent of these results are: The teachers' insufficient experience with the mechanism of using electronic educational platforms.

And that the role of electronic educational platforms in classroom interaction from the viewpoint of the faculty members in the College of Computer Science and Engineering at the University of Hail, came with a medium degree, and also showed the ease of using electronic educational platforms, and that they have a positive impact on the educational process. It also showed an impact of the e-learning platform in motivating students and increasing their participation in cognitive tasks.

This study is consistent with previous studies in the main goal that it seeks, which is electronic educational platforms, and this study benefited from the results of previous studies in enriching its theoretical framework and interpretation of its results, and perhaps what distinguishes this study from previous studies, it was dealt with by an important group in society, namely: Teachers' category, as well as their handling of variables: (gender, academic qualification, and job experience).

Study methodology:

To answer the study questions and achieve its objectives, the researcher used the descriptive and analytical approach. In proportion to the nature of this study, which aims to uncover the reality of science teachers' use in public schools affiliated to the Education Directorate of the Southern Mazar Brigade in Karak governorate of electronic educational platforms in teaching science and the obstacles they face.

Study population and sample:

The study population consists of all science teachers affiliated with the Directorate of Education in public schools in the Southern Mazar District in Karak governorate, for the year (2020/2021), and their number reached (185) male and female teachers, and the study sample consisted of (81) teachers, and they were selected Randomized, and Table (1) shows the division of the study sample.

Variable	Variable class	Number	Percentage
Sex	Male	38	46.91%
	female	43	53.09%
Total		81	100.00%
Qualification	BA	61	75.31%
	M.A.	15	18.52%
	PhD	5	6.17%
Total		81	100.00%
Job experience	Less than 5 years	18	22.22%
	5- 10 years	35	43.21%
	11 years and over	28	34.57%
Total		81	Percentage

Study instrument:

There are many scientific research tools that are used to collect information and data, and depending on the nature of the data to be collected, and the methodology followed in the study, it appeared that the most appropriate tool to achieve its objectives is: the questionnaire, as it was designed after reviewing the literature, scientific research methods, and relevant field studies. Relevance to the subject of study.

The instrument consisted of (36) paragraphs, concerned with knowing the reality of science teachers 'use of electronic educational platforms and the obstacles they face, and the paragraphs (1--19) were concerned with the reality of science teachers' use of electronic educational platforms, and in front of each paragraph there were five alternatives, which are: (always, Often, sometimes, rarely, never), and the following grades were

given in order (5, 4, 3, 2, 1) respectively, while paragraphs (20-36) measured the obstacles of electronic educational platforms from the viewpoint of science teachers and in front of each paragraph five Alternatives: (Strongly agree and give five scores, agree and give four scores, neutral and give three grades, disagree and give two degrees, strongly disagree and give one score), and to understand the meanings of the arithmetic averages for each of the two scales, the following criterion has been relied upon: (less than 2.33: a poor degree of approval, from 2.33 to 3.66: a medium degree of approval, higher than 3.66: a high degree of approval.

Validity of the study tool:

The instrument was presented to (8) experienced and specialized arbitrators. In order to know their views on the extent of the consistency, clarity, and comprehensiveness of the questionnaire, as this included the paragraphs belonging to the scale as a whole, and the questions were modified and formulated based on the arbitrators' recommendation, and in light of the proposals made by the arbitrators of amendment, the amendments were made that were agreed upon by the arbitrators. Amending and deleting a number of them, in addition to reformulating some paragraphs to directly and briefly indicate what the paragraph aims for, thus achieving its apparent validity.

Stability of the study tool:

To verify the stability of the internal consistency of the tool, the Cronbach S Alpha coefficient was calculated on an exploratory sample from the study population and outside its sample consisting of (15) male and female teachers, and the value of the reliability coefficient for the Reality of Use scale was (0.89) and for the constraints scale (0.91), which indicates a high stability of the resolution, which is an appropriate value for the purposes of the study.

Presentation and discussion of results:

Results related to the answer to the first question: What is the reality of science teachers' use of electronic educational platforms and the obstacles they face?

To answer this question, arithmetic averages and standard deviations were calculated for the responses of the sample members, and Table (2) shows the results.

No	Items	Arithmetic Mean	Standard Deviation	Level
1	The use of electronic educational platforms as they contribute to the development of science teaching methods.	2.87	0.98	Average
2	I am good at designing the activities included in the e-learning platform programs	2.84	1.08	Average
3	I feel that the use of electronic educational platforms provides more effective, exciting and motivating scientific content for learning.	3.00	1.20	Average
4	I am continuously following courses on the technology of the electronic educational platforms.	3.18	1.11	Average
5	I believe that educational platforms provide learners with positive experiences that enhance dialogue and discussion in the virtual rooms on the educational electronic platforms.	3.21	1.28	Average
6	I motivate students when they use the e-learning platforms in preparing various assignments.	3.20	1.26	Average
7	I believe that online educational platforms are one of the most good alternatives to educational development.	3.43	0.96	Average
8	Use the online educational platforms regularly and regularly.	3.48	0.99	Average
9	I believe that the use of electronic educational platforms contributes to the spread of science and knowledge.	3.81	0.91	High
10	Allow students to obtain more explanations about the topics taught through online educational platforms.	3.55	1.13	Average
11	Use the electronic educational platforms continuously in the educational process.	3.60	1.11	Average
12	Enough time to discuss work outcomes on the e-learning platforms.	3.73	0.96	High
13	I see online educational platforms as stressful and tiring when teaching science.	3.84	0.84	High

14	I encourage the use of programs and sites linked to electronic educational platforms.	4.03	1.12	High
15	Record the lessons and store them when using the electronic educational platforms to help in self-review.	3.96	1.07	High
16	Through the use of electronic educational platforms, I provide opportunities for communication between learners to solve academic problems.	3.74	0.74	High
17	Using online academic platforms, realize the principle of learning from anywhere, anytime.	3.97	1.06	High
18	I carry out, through the educational electronic platforms, the electronic tests related to the science subject.	3.81	0.81	High
19	Using online educational platforms, assess and review students' work and assignments.	3.78	0.78	High
	Total Score	3.53	1.02	Average

Table (2) shows that the arithmetic averages of the answers of the study sample members of the reality of science teachers' use of electronic educational platforms ranged between medium and high level, with an arithmetic average ranging between (2.84 - 4.03), and the total score of the tool came at a medium level, and with an arithmetic average (3.53), With a standard deviation (1.02), where the paragraph was at the top of the paragraph "I encourage the use of programs and sites linked to electronic educational platforms," then followed by "I see that electronic educational platforms are tiring and tiring when teaching science, while the paragraph" I am good at designing the activities included in the educational platforms' programs) Electronic ", on the lowest arithmetic mean (2.84), and with a deviation (1.08).

The present study concurs with the study of Bena, Bologna and Dzitac (Benta, Bologna&Dzitac, 2014) and the study of Stergioulas et al. (Stergioulas, at al. 2014), which showed a positive level towards the use of electronic educational platforms.

The results showed the reality of science teachers 'use of electronic educational platforms at an average level, and the researcher attributes the result: to teachers' awareness of the requirements of science education using electronic educational platforms, and their experience in this field to facilitate the learning

and teaching process, and the spread of technology increases and encourages the use of electronic platforms, which indicates To an agreement and to a (positive) degree the importance of electronic educational platforms in science teaching.

Results related to the answer to the second question: What are the obstacles that science teachers face in the Education Directorate of the Southern Mazar District in Karak governorate in using electronic educational platforms from their viewpoint?

To answer this question, arithmetic averages and standard deviations were calculated for the responses of the sample members, and Table (3) shows the results

No	Items	Arithmetic Mean	Standard Deviation	Level
1	The scarcity of the availability of interactive educational software related to science in electronic educational platforms.	3.25	1.38	Average
2	Lack of complete qualification for teachers and students in using electronic educational platforms.	3.39	0.94	Average
3	Unwillingness to use electronic educational platforms	3.57	1.19	Average
4	Teachers are not convinced of the usefulness of electronic educational platforms in implementing practical lessons.	3.76	1.02	High
5	I see that online educational platforms simulate the visual style of students only.	3.78	0.76	High
6	The limited number of trainers in giving training programs to science teachers on how to use electronic educational platforms.	3.87	0.66	High
7	It is difficult to use the senses such as touch to distinguish properties of matter.	3.93	1.11	High
8	Students' preoccupation with the equipment and neglecting the lessons on electronic educational platforms.	3.94	0.95	High
9	The lack of computers for students to use the electronic educational platforms	3.96	0.99	High

10	Class time is not sufficient to use electronic educational platforms in science teaching.	3.98	0.64	High
11	Lack of experience of teachers and students in using electronic educational platforms.	4.03	0.78	High
12	The ineffectiveness of the available educational devices and technologies.	4.09	0.72	High
13	The lack of the financial resources necessary to secure the needs of the electronic educational platforms.	4.14	0.87	High
14	Weakness and disruption of the Internet when using electronic educational platforms.	4.16	0.60	High
15	The density of scientific material in science curricula hinders the use of electronic educational platforms.	4.23	0.62	High
16	Weak infrastructure to support employment of educational platforms.	4.21	0.86	High
17	Lack of necessary instructions for using educational platforms.	3.94	0.63	High
Total Score		3.90	0.87	High

Table (3) shows that the arithmetic averages of the study sample's answers to the obstacles facing science teachers ranged between high and medium level, and the total score of the tool came at the high level, with an arithmetic mean (3.90), and with a standard deviation (0.87), where the highest score was for the paragraph “hinder The density of the scientific material in the science curricula, the use of electronic educational platforms. “Then followed by” the weakness of the infrastructure supporting the employment of educational platforms. While the paragraph “the scarcity of availability of interactive educational software related to the science subject in electronic educational platforms .On the lowest mean (3.25), and with a deviation (1.38).

The current study agrees with the study of Al-Dossary (2015), which showed a high degree of obstacles to the use of electronic educational platforms.

The results showed that the obstacles facing science teachers in using electronic platforms from their point of view came to a high degree, and the researcher attributes to the teachers

not being adequately trained in using electronic educational platforms or their low ability to use electronic educational platforms, or their lack of awareness of the importance and advantages of electronic educational platforms, The academic curricula may be a cause of obstacles that cannot be covered by electronic educational platforms, as well as the weakness of the Internet, for these reasons the obstacles were high.

Results related to the third question: Does the reality of science teachers' use of electronic educational platforms in teaching science in the Southern Mazar District Education Directorate in Karak governorate differ according to different variables: (gender, academic qualification, and job experience)?

To reveal the existence of differences in the reality of science teachers' use of electronic educational platforms in teaching science in the Education Directorate of the Southern Mazar District in Karak governorate with different variables: (gender, academic qualification, and job experience), Multiple Way ANOVA was used. (4) Shows the results.

Results of Multiple Way ANOVA analysis for two variables: gender, educational qualification and job experience

The source of the contrast	Sum of squares	Degrees of freedom	Average of squares	Value (F)	Indication level
Sex	0.90	1	0.90	2.96	0.0581
qualification	0.65	2	0.32	0.95	0.108
Experience	1.082	2	0.541	0.002	0.421
The error	26.398	79	0.334		
Total	17.93	81			

Table (5) shows that there are no statistically significant differences in the fact that science teachers use electronic educational platforms in teaching science in the Education Directorate of the Southern Mazar District in Karak governorate according to the variables (gender, academic qualification, and job experience).

The researcher attributes this to teachers' complete conviction in using electronic educational platforms, its importance and requirements, and their interaction with the technological development imposed by the information and communication revolution encouraged teachers to keep pace with development regardless of their experience and academic qualification.

Recommendations

In light of the results of the study, the researcher recommends the following:

1. Holding courses and workshops for teachers and students alike, developing their attitudes towards the use of electronic educational platforms, and training them on methods of using it.
2. Paying attention to electronic educational platforms, developing and updating them, to include all schools, connecting all schools to the Internet, and providing computers in proportion to the number of students in schools.
3. Modifying the science curricula to match its application using electronic educational platforms.
4. Dissolve all obstacles towards the use of electronic educational platforms, in terms of providing Internet laboratories in schools, in proportion to the number of students and academic courses.
5. Conducting more educational studies on the reality of using electronic educational platforms, in terms of dimensions and applications in educational institutions and other institutions.

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