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A Proposed Framework for the use of Mobile Learning in Enhancing Working Skills.

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Abstract

There is surprisingly little systematic knowledge available about how mobile devices can be used effectively for learning especially in the field of work-based education and workplace learning. This rather broad scope refers to the dynamic nature of work-based education that includes education in informal learning contexts. Similarly, it bridges workplace learning perspectives and those that frame work-based learning as a series of formal and informal educational programs.

The use of mlearning to support student education has become necessary in light of the circumstances associated with the covid-19 pandemic, which takes place in all the universities and the worldwide. This method of education has become one of the necessary ways to avoid the risks of direct mixing between students while ensuring the application of a successful m-learning strategy. It was found that the application of using mlearning faces many problems, the most important of which are the students' lack of interaction with their teacher directly and the difficulty of training students on many cognitive skills that need direct communication with the lecturer. Through the study, the factors affecting the educational process were analyzed by using mlearning to support computer science education.

The study includes a research on how to professionally practice mobile learning systems, especially those that aim at the user's access to ideas and information that are useful in developing his ways of working. It has been noted that through the various levels of education, there is the fact that creativity, innovation and changing concepts are now acquired according to the extent to which the services available through mobile learning are utilized; However, the wide range of available information enables the user to reasonably access the information he needs to support his ideas.

By employing the independent two samples t-test to test the research hypotheses, the research results were obtained and some recommendations were obtained based on the research results.

Where the study investigated the efficiency of the mobile education provided to students for computer subjects for students of the final (fourth) grade, and to test the effect of these factors, the students were divided into two groups, each group consisting of 50 students, each of whom was randomly selected, whether it was a control sample or an experimental sample.

Key words: mobile learning, classroom management, educational process, virtual classroom

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1 Introduction

The study includes research on the professional practice of mobile learning systems, especially those aimed at the user's access to ideas and information useful in developing his methods and skills of work. It has been observed that through various levels of education,
There is the fact that innovation, [1] creativity and changing concepts are now being gained depending on the extent to which services are available on the different information resources through Internet; however, the wide range of information available makes it possible for the user to reasonably access the information he needs to support his working skills.
The research attempts to learn how to make m-learning systems accessible to learners who want to make distinctive adjustments to develop their working skills and methods.
The VLE (Virtual Learning Environment) [2] is a very important feature of e-services within the information services sector, which requires great attention to take advantage of many things such as job development, business continuity and ease of use for business tools.
The Research begins by testing the functionality of mobile learning systems, with little attention to how to use them, or especially how to access the Web through information that may help users to develop their own ways of working.
There are criteria for achieving [3] the proper access to the information accessed by the technological specifications and interface design that has been made primarily for the traditional mobile-learning app. However, it is expected that research will identify the compatibility of mobile learning systems with these standards, Problems with educational values or how to use mobile learning pages.
Organizations need to meet the right access to information and achievement of work objectives so as to provide broad access to mobile learning system. This can only be done by evaluating the use of the mobile learning system and identifying the needs for continuous access to information.

2 Definition of mobile learning

Any activity that allows students to be more free to move [4], while ensuring learning through the transmission of data in the form of audio, video or educational texts through any portable unit without being connected to a fixed physical connection.Mobile learning technologies offer teachers-and students-a more flexible approach to learning. The education system we work in is not always known for its speed at latching on to new ideas and methodologies, but with mobile learning it is catching up-quickly. It offers the functionality of wireless Internet browsing and office applications.

3 Developing experimental mobile learning systems based on work environment

Rapid advances in technology are creating new opportunities for educators to enhance their classroom technologies with portable digital learning resources [6].Just using it during the imaginary semester, it was possible to provide synchronous or asynchronous educational resources, and smartphones, tablets and e-readers became popular in many educational settings. Mobile education can be used to train students who are about to graduate on working skills [7], as well as developing their professional skills, and this method of education is considered one of the most appropriate methods used at this stage, especially since students have a scientific background from previous faculty years.
This study studies the gap between theoretical study or academic knowledge and between applied study to use it at work and how students can be trained in the final stages of study or recent graduates in working skills.Many educational authorities are trying to diversify in the different educational means, whether it is educational videos, lectures on the zoom meeting, e-books, or face-to-face education, to ensure that students reach the required professional

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level, and of course, training on working skills in the work environment avoiding many mistakes Where are fresh graduates located at the beginning of their work?

3 Methods of applying mobile learning to support the professional skills of students

Many of the methods used and applied to mobile learning can be accessed and used to provide newly graduated students with functional work skills, including:

1- Synthetic simulation systems
2- Virtual work environment
3- Formal or informal business scenarios
4- Learning videos expressing the work environment

And when students integrate with the virtual environment through their mobile devices, many tasks can be performed, in addition, the learning environment can be included with tasks that are done in certain jobs to ensure the success of job training while following up on the performance of students and guiding them

There is a need to integrate many teaching aids into the portable education system, and innovative concepts can be reached at work based on students' discussions with each other, especially in the field of integrating theoretical education and academic training.The use of mobile computer technology such as tablets, laptops and smart phones [8] as a basis for mobile learning has provided many opportunities.

Mobile phones completely changed the educational process and increased its effectiveness after integrating it with means of communication via social media, which allowed students to learn about the experiences of innovative work and collaborate in the creation of knowledge

The learning environment became more interactive [9], and it was possible to collect data for educational resources in the storage providers available through cloud computing, and social media and its integration into the learning environment made it possible to facilitate communications between students and teachers and access to an imaginary work environment that carries with it many aspects such as the technology used in learning and the learning context. Saying that the mobile learning resources used in the workplace or in job performance in the work environment must be linked directly to the educational goals to reach the required job knowledge.

4 Mobile learning resources in the working environment

It is the set of processes that allow students to identify and be able to operate a business task successfully and within the changing context of the work environment using and through their mobile devices. Mobile learning applications in the work environment on smart devices can respond to the change in the work context by using the capabilities provided by the smart phone as a camera, which makes the teacher able to adapt and provide personalized content and using it in providing an imaginary work environment using mobile learning applications.

5 Conceptual support concepts and their practical application in the working environment

It is easy for students to use mobile educational resources [10], but the need for training and practical performing of work tasks may make the task of providing mobile resources for them that simulate the real work environment a tedious process, and students may need to enter the non-conforming educational resources such as a zoom meeting several times in order to reach the required professional level That transfer professional experiences from teachers to students, as well as the completion of all tasks and duties required of them to meet the required professional level.

6 The needs for using mobile learning

There are many needs to use mobile learning, especially in the final stages of study by the academic universities, which has become one of the most important sources of learning at the present time and is supported by the use of mobile devices [11] and various educational applications, including:

1- Through mobile learning can provide equal opportunities for all students to access learning resources.

2- The different available social media and technological manifestations can be taken advantage of, and combined with mobile learning.

3- Through mobile learning, detailed and comprehensive information can be provided

4- It can provide the ability to navigate and browse different educational resources and provide collaborative learning.

5- Learning resources can be maximized when supporting interaction between devices and students through social media.

6- Social aspects can be provided through mobile learning.

7- Cultural concepts can be supported through mobile learning.

7 Requirements for mobile learning

A. learning materials

B. Mobile learning can help representing [12] a particular way of acquiring knowledge values and skills. Curriculum that supports the learning goals for a mobile initiative is essential for its success. The learning materials must provide resources for both students and teachers to guide their activities.

C. According to the increased usage of mobile learning the need for a lot of teachers and physical classroom space is reduced, so there must be a significant shift in the way education is delivered. Many teachers around the world must change their learning materials according to the new technology

D. learning methods

E. Some key features of mobile learning technologies include portability, anywhere anytime, anyplace, connectivity, and immediacy of communication that help supporting their learning needs. Students are using mobile technology and social media to communicate with each other and to share information. Teachers need to be trained on how to effectively use social media in the teaching process since this is how students interact with each other and form virtual communities.

8 Professional support using mobile learning

The education tools that provide students with excellent education can provide [13] the practical experience they need to take advantage of in the work environment in which they work or wherever they can manage or benefit from their study program according to their needs.

This learning environment should be designed according to the following:

1- Supporting the learning and cultural needs of students or beneficiaries of the various educational m-learning systems backgrounds available to them.

2. Providing knowledge to the community through mobile learning, where learning is a value that the learner gain.

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3. Empowering students or beneficiaries to develop themselves in person and academically, so that they can provide their professional potential throughout the whole educational courses.
4 - Encouraging students or beneficiaries to become permanent learners, by giving them the skills they will need in their profession.

9 Research Problem

The research problem addressed is that mobile learning is not supported up till now and the latent and available possibilities that have not yet been exploited by students. Moreover many real returns can be achieved through the use of portable solutions such as ease of supporting relationships between learners, saving time spent on learning, as well as ease of movement between different educational contents.
Question remains, however, as to whether ML is as effective as face to face. Face to face is the normal method that has traditionally been, and will most likely continue to be.

10 Research questions

Questions for the research may include the following:

The main research question will be after studying and reviewing the literature on the research and setting a baseline for it, from the following:

A. What is the main obstacle that students face as well as what are the main opportunities available to students when they undertake to learn through their presence in m-learning systems and take advantage of all the possibilities available online? (The emergence of modern methods of teaching the student without contact with him is considered to be everywhere, especially after the increase in the tendency to learn online).
B. What are the accessibilities and usage possibilities of m-learning systems?
C. What are the training needs of disabled students in facilitating m-learning (including other perceptual and visual-motor forms of disability)?
D. How do students access the information they want to access and what are the usability issues of practically designed m-learning systems?
E. What are the standards accompanying the developments of the educational industry and is there a legal legislation governing m-learning systems and its use?

11 Research main goal

The main goal of the research is to study how mlearning can be used to support computer science education for students during the covid-19 pandemic and to address the shortcomings that may encounter designing an effective learning environment, as well as to identify the factors affecting the achievement of this goal, in the universities under study and its compatibility with the main objectives

12 Research objectives

As a primary trend, the research will test the current levels of access in mobile Learning (Virtual Learning Environments) and assess the difficulties encountered by users accessing the system, including interactive text sources, browsing features, and communication tools on mobile learning-oriented system.

The objectives of the research are as follows:

A. Tracking the extent to which students perceive the educational material provided through mobile learning during the Corona pandemic.
B. Examining the challenges students face when using mobile learning
C. Suggesting alternatives to meet the challenges facing students during the Corona pandemic
D. Evaluation of the use of mobile learning systems in the development of skills and methods of work.
E. Learn how to use the application of mobile learning solutions in the work environment to add new skills to students.
F. Identify the different strategies, technologies and resources required to implement mobile learning systems and their relevance to the educational context as a way to improve employees' capabilities.
G. Identify the different portable education requirements to be implemented by the use of mobile learning systems and their relevance to the educational context as a whole.
H. Determining the contents of the m-learning systems and the introduction of educational curricula in the context of the professional development of employees.

13 Research Methodology

The methodology used in the research is the descriptive experimental approach in order to suit the nature of the research, and it includes defining the study population and sample, methods of collecting and analyzing information, and defining the variables involved in the statistical treatment.

This study is designed to study the difference between the control group and the experimental group that experimented with mobile learning supported by educational aids on students' performance in teaching computer subjects, and the research was applied to fourth year students in four colleges, and a survey was made for these students to find out the extent to which they benefited from the electronic educational platform during Corona virus.

14 Research limitations

A. The students participating in the study were in the final fourth year students. The ages of the participating students ranged between 20 and 24 years. In the two groups, the students who were selected were taken into account that the subjects in which the test was done are identical in the four faculties so that the same conditions can be ensured in the two groups.
B. These students are distinguished by having a scientific background in computer subjects, as they have studied them in the previous grades using traditional methods of learning during the past three years.
C. The study population includes a group of business information systems in Egyptian universities and institutes

15 Research sample

Due to the difficulty of obtaining data from all faculties students, a sample of students was selected in the faculties on which the study was based, which is Helwan University: Faculty of Commerce, majoring in Business Information Systems,. Sadat Academy for Administrative Sciences - College of Administrative Sciences - English Language Division, majoring in BIS. Modern Academy for Computer Science and Management Technology in Maadi. Thebes Higher Institute for Computer and Administrative Sciences in Cairo. majoring in BIS The experimental group that uses mobile learning to provide students with professional skills. A 60 questionnaire forms were distributed to the students as follows:

A. Helwan University: Faculty of Commerce, majoring in Business Information Systems, BIS.
B. Sadat Academy for Administrative Sciences - College of Administrative Sciences - English Language Division, majoring in BIS.
C. The Modern Academy of Computer Science and Management Technology in Maadi.
D. Thebes Higher Institute for Computer and Administrative Sciences in Cairo

The control group that does not use mobile learning to provide students with professional skills. A 60 questionnaire forms were distributed to the students, including:

A. Helwan University: Faculty of Commerce, majoring in Business Information Systems, BIS.
B. Sadat Academy for Administrative Sciences - College of Administrative Sciences - English Language Division, majoring in BIS.
C. The Modern Academy of Computer Science and Management Technology in Maadi.

16 Field study

Field study activities may include structured interviews with educational support officials, and may include personal interviews with lecturers and information service providers who support users of the mobile learning systems.

The experimental field study will also include interviews with learners or beneficiaries of mobile learning from a sample of staff at three different work sites. The surveyors will be selected in such a way as to ensure proper data access, and will fully assess the practices and policies needed to access the support available through learning systems Electronic devices, in order to identify:

1. Specifications of the m-learning systems materials
2. Method of use of m-learning materials
3. Test the suitability of standard system standards
4. The research activities necessary to obtain user visibility of the system for its ease of use

This study aims to determine the factors affecting the use of m-learning to support computer science education for students during the COVID-19 pandemic, and to achieve this goal, these factors were identified to be studied in the universities under study.

By employing the two independent samples t-test to test the research hypotheses, it was found that the influencing factors are:

1- The performance of the educational service provider.
2- Students' commitment to submit and complete all the tasks required of them.
3- The circumstances surrounding the imaginary semester.
4- Thinking and innovation skills of students.
5- Students follow up the educational process.
6- Students interact with the lecturer and with their peers.

17 Research Statistical Analysis

The survey was distributed to the two groups.The research was determined by the students of computer subjects in the final (fourth) year, and to test the effect of these factors, the students were divided into two groups, each group consisting of 60 students, each of whom was chosen randomly, whether it was a control sample or an experimental sample as follows:

First: The experimental group:

In this group, all possible assistance was provided to support the educational process, including:

A. Educational videos.
B. Portable applications.
C. Games to explain the curriculum.
D. An illustration.
E. Animation.
F. Interactive programs to follow up and practice ITS applications
G. Social networking programs such as Facebook
H. Google drive to store educational videos.

Second: The control group:

In this group, it was sufficient to use traditional teaching aids, including the following:

A. Holding meetings and seminars using zoom meeting
B. Slideshow files using Microsoft power point
C. Text files through Microsoft Word
D. PDF files

18 The procedures of the statistical analysis of study

1- A questionnaire form was designed and presented to the students in the two groups with the aim of employing it as a main tool for collecting data for the research, as well as testing the hypotheses of this study. The questionnaire is divided into different parts as for the actual virtual classroom, which includes completing all semester assignments, following up the educational process and interact with the lecturer and other students

2- Identifying the factors affecting the educational process by asking the students to make scores for each part of the questions regarding their opinion of education. The five-point Likert scale was used. Likert type 1= strongly disagree, 5= strongly agree.

3-The first hypothesis was tested by collecting information for all students with ten ítems

4-The second hypothesis consisting of ten items was tested and the students were asked to make a report on their knowledge. The results were a five-point likert-type scale (1=never, 5=always) and the obtained answers were collected to be one of the influencing factors. On the educational process, the scores ranged from 10 to 50

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19 Hypotheses of the study

The first hypothesis

There are no statistically significant differences between the experimental group and the control group in terms of performance achieved through mobile learning.

Testing the first hypothesis:

H0 The null hypothesis: There are no statistically significant differences between the experimental group and the control group in terms of performance achieved through mobile learning.

H1 The alternative hypothesis: There are statistically significant differences between the experimental group and the control group in terms of performance achieved through mobile learning.

Statistical analysis of the first hypothesis

The independent two samples t-test method was used, and the test result can be shown in the following table:

Group Statistics

	N	Mean	Std. Deviation	Std. Error Mean
the experimental group	60	32.72	3.405	.943
the control group	60	21.43	5.976	.327

Independent Samples Test

	Levene's Test for Equality of Variances					t-test for Equality of Means		95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	15.822	.000	12.708	118	.000	11.283	.888	9.525	13.042
Equal variances not assumed			12.708	93.666	.000	11.283	.888	9.520	13.046

p-value is less than 0.05 (typically ≤ 0.05) so It is statistically significant. It indicates strong evidence against the null hypothesis, as there is less than a 5% probability the null is correct (and the results are random). Therefore, we reject the null hypothesis, and accept the alternative hypothesis.

The second hypothesis

There are no statistically significant differences between the experimental group and the control group in terms of integration of mobile learning resources to achieve innovation and vocational education.

Testing the second hypothesis:

H0 Null hypothesis: There are no statistically significant differences between the experimental group and the control group in terms of the integration of mobile learning resources to achieve innovation and vocational education.
H1 The alternative hypothesis: There are statistically significant differences between the experimental group and the control group in terms of the integration of mobile learning resources to achieve innovation and vocational education.

Group Statistics

	N	Mean	Std. Deviation	Std. Error Mean
the experimental group	60	38.25	6.390	.825
the control group	60	16.83	5.837	.754

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	1.685	.197	19.167	118	.000	21.417	1.117	19.204	23.629
Equal variances not assumed			19.167	117.046	.000	21.417	1.117	19.204	23.630

p-value is higher than 0.05 (> 0.05) so It is not statistically significant and indicates weak evidence against the null hypothesis.
This means we fail to reject the null hypothesis and cannot accept the alternative hypothesis.
This is due to the equal integration of resources or financial capabilities and facilities provided to the experimental and control groups.

20 The results of the field study:

1- The results that were derived from analyzing the data resulting from the survey answered many questions related to both groups, where the same curriculum was taught to both groups using the two traditional methods supported by ITS, and each lesson took about two hours using the zoom meeting, and the lecture was held once a week. The online test was conducted for the experimental and control groups, and the average results were similar in the two groups, both for the theoretical and practical parts of the curriculum.

2- The same possibilities were provided for the two groups of students, which were as follows:
A. The time spent in the explanation.
B. Interaction through the screen.
C. Student participation to work.
D. Provide the same required tasks.
E. The same electronic tests.

3- The students of the experimental group received educational lessons supported by interactive programs based on ITS, an electronic whiteboard, and video files
4- Each lecture was supported by some computer applications, educational games and interactive programs through which interaction with students or students interact with each other, as well as educational videos that are uploaded to the platform. google drive and sharing the place with the students, and it was ensured that the students in the two groups watched the educational videos that explain the educational content.
5- To help students practice programming skills, programs based on intelligent tutoring systems were used to teach programming in different languages in the experimental group.

6- A question bank has been created that contains questions that include the whole curriculum and each point of the curriculum. Several questions have been made to the same point in different forms and in more than one way, meaning that the same question is done in the form of a closed question, a multiple-choice question, a true or false question, or a matching question. Integrate the question bank with the teaching aid.
7- Students' access to educational contents was monitored through the electronic whiteboard and the educational platform, and videos were posted on how to deal with the platform.

8- Most of the educational activities carried out by the student are an auxiliary tool besides the zoom meeting, which was provided through the educational platform in addition to the Facebook groups that students can follow at any time throughout the day.
9- After completing the lectures that took place during the semester, the students' answers were collected and entered into the SPSS program in order to perform the statistical analysis. At first, descriptive statistics such as the mean and standard deviation of the two groups were calculated, as well as the analysis for the two groups, as well as the analysis for the two independent groups for each item of the survey to find the extent of the difference between the experimental and control groups

21 Results and recommendations

General Recommendations

1. Focusing on the mobile devices possibilities when designing mobile learning application.
2. Finding a way to determine the type of devices that learners have before starting building a new mobile learning application.
3. Designing learning activities to combine the lecture schedules, fixed office hours, learner mobility and the new technologies
4. training students to use new tools
5. Design and develop appropriate learning environments, based on pedagogical learning aspects

6. Identify the needed shifts in learning paradigms to be able to adopt and adapt educational technologies that will ensure the optimization of learning in the knowledge era.
7.

Recommendations for teachers

Serial	Results	recommendations
1	There is a lack of commitment on the part of some students to the rules governing work using mobile learning	in the preparation stage for lessons - teachers must set binding rules for students that govern work using mobile learning to ensure that the student acquires professional skills.
2	There is a lack of commitment on the part of some students to the time specified for each part of the curriculum and to provide the required tasks on time	it is necessary to emphasize the students to adhere to the specified time for each part of the curriculum and to submit the required tasks on time
3	The limited extent that students are allowed to learn through mobile learning	It is necessary to expand the range that students are allowed to learn through mobile learning to increase the chances of developing their professional skills.
4	The role of the group of students in educating each other is not taken into consideration.	In addition to the role of the teacher, the role of the group of students in educating each other must be taken into consideration.
5	Students' group learning tools are not shared	Students should be encouraged to share useful and helpful learning tools for the student group to encourage shared learning.

Recommendations for students

Serial	results	recommendations
1	The group of students is not interested in focusing on benefiting from the educational materials.	The student should focus on benefiting from the educational materials as much as possible.
2	Student group is not interested in supporting discussions between peer students	The student should focus on making use of mobile learning in supporting discussions between peer students and

		following up on the observations of all members of the student group.
3	The group of students is not interested in making notes on solving work problems.	Notes should be placed on solving work problems and made available to all students
4	The group of students is not interested in making notes on solving work problems	notes on solving work problems should be made and made available to all students
5	The group of students does not care about interaction with teachers.	Increase interaction with teachers to ensure the information gained from the educational materials

Recommendations for administrators

Serial	results	recommendations
1	Sometimes it may be difficult for the student to obtain the courses.	Put the courses in the simplest possible form so that it is easier for the student to obtain them.
2	The cost of the system is high	using open-source programs and trying to make the used code easy.
3	There are some students who face difficulty in dealing with the electronic platform	trying to simplify the interface and the way users deal with it.
4	Students can be allowed to publish their notes	Publishing students notes with restrictions on voice messages
5	Students' interests differ from one group to another.	Multiple means of communication should be encouraged.
6	Some students may be surprised by the closeness of the deadlines for the projects	to put early alerts on the dates of delivery of assignments and to prepare for exams.
7	There are some students who face difficulty in dealing with the auxiliary tools.	They try to include the contents of the course with easy-to-use support tools

22 Discussion and conclusion

The study was made based on an experimental design to study the factors affecting the distance learning process in light of the Corona pandemic, and the equal conditions for the two groups were taken into account, except for the provision of educational aid under study and the provision of educational lessons through a mobile app to teach programming

The study took an entire semester, and the result was that there were significant differences between the two groups.

Evaluation of the results showed that the students were motivated to learn in both groups because they are in the final year and are eager to graduate from college

The same educational aids were provided to the students of the ruling group after the completion of the research period, and the results obtained from the two groups were close in the sense that there was no fundamental difference between the two groups, which confirms that these variables have a significant impact on the effectiveness of the educational process.
The experiment was done on two groups. There is a similarity between the contents of the same material, and the results may differ if the research is applied to more than one different material.
In the end, thanks should be given to the students participating in the study and their contribution in submitting the final report that measures their educational performance at the end of the semester and before the final exams are held according to the subjects specified for them to study through distance education by the use of mobile learning.

Appendix (A): Research Instrument

Questionnaire

Note: The data of this form is confidential and used only for the purposes of scientific research
gender: Male [] Female []
Age: 20 -22 [ ] 22-24 [ ]
Please answer the following questions by circling the appropriate number selection from (1) "strongly disagree" to (5) "strongly agree."
Your responses will be held in the strictest confidence as only the researchers will see the individual data forms.
Values represent percentages
SD = Strongly Disagree; D = Disagree; UD = Undecided; A = Agree; SA = Strongly Agree
This questionnaire is targeted toward students in faculties and educational institutes that has BIS branch.
Frequency Distributions of Measures of students Perceptions Concerning first hypothesis questions

Table (1) Frequency Distributions of Measures of students Perceptions Concerning the performance achieved through mobile learning.

serial	performance achieved through mobile learning.	SA	A	UD	D	SD
1	All tasks of the semester are completed, with an emphasis on the follow-up of the student's completion of all the tasks required to enable them to be trained in professional skills.	5	4	3	2	1
2	The educational process is followed up through mobile learning to ensure that students practice professional work.	5	4	3	2	1

3	How the student solves work problems is monitored through mobile learning.	5	4	3	2	1
4	The system allows interaction with the teacher to ensure that the student acquires the required professional skills.	5	4	3	2	1
5	The time spent in the explanation is sufficient to follow up all the students and ensure that they are able to carry out professional work successfully.	5	4	3	2	1
6	Students can interact with the screen to ensure that they can successfully carry out professional skills.	5	4	3	2	1
7	A reverse background is provided to the teacher about what has been understood and the things to be re-explained or focused on.	5	4	3	2	1
8	There is a good support system for students in case they have difficulty understanding part of the course.	5	4	3	2	1
9	It is easy to prepare the lesson before entering the electronic lecture when following up on the available educational resources.	5	4	3	2	1
10	The aids used attract the students' interest and help them increase understanding of the course topics.	5	4	3	2	1

Frequency Distributions of Measures of students Perceptions Concerning second hypothesis questions

Table (2) Frequency Distributions of Measures of students Perceptions Concerning the integration of mobile learning resources to achieve innovation and vocational education.

serial	The integration of mobile learning resources to achieve innovation and vocational education.	SA	A	UD	D	SD
1	Supportive technological resources are available to benefit from mobile learning.	5	4	3	2	1
2	The available technological resources are easy for the student to use.	5	4	3	2	1
3	Students tend to use and benefit from all available technological resources.	5	4	3	2	1
4	The system provides all the conditions for following up on the student's abilities to perform professional work skills	5	4	3	2	1
5	Efforts can be directed towards supporting students technically through the resources available in the system.	5	4	3	2	1
6	Students can be trained to carry out scientific research by following them up using the means of the system.	5	4	3	2	1
7	There is a quick response on the part of the students towards the teachers and the follow-up of the courses	5	4	3	2	1

	through the system.					
8	There is easy access to all educational courses in the system at any time.	5	4	3	2	1
9	Tools are available in teaching and learning aids.	5	4	3	2	1
10	The technical support available through the system allows ensuring the quality of the educational process outputs.	5	4	3	2	1

23References

[1] I. R. Management Association, Mobile Devices in Education: Breakthroughs in Research and Practice: Breakthroughs in Research and Practice, IGI Global,, Jan 3, 2020.

[2] N. a. t. i. o. n. a. l. A. c. a. d. e. m. i. e. s. o. f. S. c. i. e. n. c. e. s, H o w P e o p l e L e a r n I I : L e a r n e r s , C o n t e x t s , a n d C u l t u r e s, N a t i o n a l A c a d e m i e s P r e s s, 2 0 1 8.

[3] A. r. t. h. u. r. P. .. H. e. r. s. h. a. f. t, N a t i o n a l E d u c a t i o n T e c h n o l o g y P l a n, N o v a S c i e n c e P u b l i s h e r s, 2 0 1 1.

[4] C. N. Quinn, Designing mLearning: Tapping into the Mobile Revolution for Organizational Performance, John Wiley & Sons, Jan 13, 2011.

[5] Z. i. n. e. b. D j o u b, F o s t e r i n g R e f l e c t i v e T e a c h i n g P r a c t i c e i n P r e S e r v i c e E d u c a t i o n, - I G I G l o b a l, A u g 1 1 , 2 0 1 7.

[6] J. Keengwe, -Advancing Higher Education with Mobile Learning Technologies: Cases, Trends, and Inquiry-Based Methods: Cases, Trends, and Inquiry-Based Methods, IGI Global,, Jul 31, 2014.

[7] S.-J. Ernst, Leveraging Mobile Learning through Adaptation to Cultural Contexts: Leveraging Mobile Learning through Adaptation to Cultural Contexts, BoD – Books on Demand,, Jan 1, 2020.

[8] J. T.-. Helen Crompton, Mobile Learning and Higher Education: Challenges in Context, -Routledge, , Jan 2, 2018.

[9] C. P. A. C. D. A. Flavia Santoianni, Teaching and Mobile Learning: Interactive Educational Design, CRC Press, , Jan 31, 2022.

[10] P. A. M. N. C. K. T. K. M. Ordóñez de Pablos, Handbook of Research on Analyzing IT Opportunities for Inclusive Digital Learning, -IGI Global,, Jun 18, 2021.

[11] M. U. -, Mobile Learning-, MDPI,, Mar 25, 2019.

[12] G. S. a. J. Ophoff, Towards a Method for Mobile Learning Design :Issues in Informing Science and Information Technology, -Volume 10, 2013.

[13] J. Keengwe, Advancing Higher Education with Mobile Learning Technologies: Cases, Trends, and Inquiry-Based Methods: Cases, Trends, and Inquiry-Based Methods, IGI

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Vol. 9 Issue 08
August 2022

Global, 2014.

[14] M. Association, Mobile Devices in Education: Breakthroughs in Research and Practice: Breakthroughs in Research and Practice, IGI Global, Jan 3, 2020.

[15] A. K.-H. John Traxler, -Mobile Learning: The Next Generation, Routledge, Nov 6, 2015.

[16] S. A. R. L. C. H. Danielle Herro, Mobile Learning: Perspectives on Practice and Policy, IAP, Feb 1, 2018.

[17] J. Keengwe, Handbook of Research on Digital Content, Mobile Learning, and Technology Integration Models in Teacher Education, lIGI Globa, Jul 13, 2017.

[18] .. .. b. Anthony J. Shink field, Teacher Evaluation :Guide to Effective Practice, Springer Science & Business Media, 2 0 1 2.

[19] C. Udell, Mastering Mobile Learning, John Wiley & Sons, Oct 13, 2014.

[20] B. H. Khan, Revolutionizing Modern Education through Meaningful E-Learning Implementation, IGI Global, Jun 27, 2016.