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The Impact of Mobile Learning Applications on the Lecturer's Role and Development of Learner's Motivation towards Learning: Empirical Study at the Faculties Physical Education-Libya

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Abstract

The purpose of the present research was to validate a stated model for mobile applications as one of the modern teaching methods in the learning process with specific focus on its effectiveness on the teacher's role and development of Libyan learners' motivation towards learning. To achieve this research aim, the researcher used a descriptive approach as a quantitative research design that utilizes a Structural Equation Modeling (SEM) Method in order to evaluate the main hypotheses of the research. The study sample consisted of 450 participants (lecturers at the Faculties Physical Education-Libya). The conclusion of the resulting study showed the presence of a weak or low correlation linking mobile learning applications and the development of students' motivation towards learning (.16). However, the study showed that the impact of mobile learning applications on the teacher's role was (.63). Moreover, the study found that the teacher's role has a higher level of significant influence or impact than mobile learning applications on the development of students 'motivation towards learning (86). The results also revealed that there is an indirect impact of mobile applications through the teacher's role which was higher than its direct impact on the development of students' motivation towards learning.

Keywords: mobile learning applications, lecturer's role in the learning process, learners' motivation towards learning

1. Introduction

Nowadays, the world is witnessing a rapidly growing development in various fields, particularly, in the area of technology. Technology in its multiple and various forms has become an essential requirement of this modern age where the technical progress or advancement is penetrating all fields including education that has been given its adequate share of this advancement. Increasing the social interaction through mobile phone applications has become a unique demand for learning styles since applications provide learners with the opportunities to interact and share content, flexibility as well as self-learning. Therefore, curriculum and syllabus designers are required to give more attention to mobile phone applications to support student learning: both individually and collaboratively or in groups (Baird & Fisher, 2005).

Regarding this, some previous studies (Jonas-Dwyer et al., 2012) have pointed out the fact that the use of mobile devices have spread rapidly among people and the effect it might have on both the teachers' and students' if used for educational purposes. Previous researchers have observed the spread of mobile applications among people in the society in general and in particular, among students both males and females. As stated by (Teng & Helps, 2010), this can be attributed to the powerful and pervasive use of these technological devices as well as their importance as a means to learning in education.

Other earlier studies like the study conducted by (Hall et al., 2013) in the UK at the University of-Queen's University Belfast- confirmed that mobile applications have a positive and direct impact on developing learners' motivation towards learning. In this study, it was reported that social networking sites (SNs) are very popular among students as means for communicating and exchanging information and that 91% of 377 participating students are engaged in mobile phone applications**.**

In addition, in another study by (Jackson, 2012), the results showed that those students who used mobiles in the

learning process were very satisfied since mobile applications led them to develop their desires or interests for learning, and therefore, the researcher recommended such mobile applications for those new students in the next year.

In a study by (Motivalla, 2007), the students found that mobile applications as a free and a good means for classroom interaction, a tool for discussing courses with peers as well as with teachers and a useful tool for learning. It also provided them with the opportunity to access from anywhere, and it is convenient to use, and effective in providing personal content. In general, the results of the same study revealed that the students were satisfied with mobile applications to learning.

Mobile devices promote and facilitate cooperation and interaction among students since they are a means to discover, collect, discuss and share, that is, as a means to self-reflection, which improves the learning environment. This is even emphasized by the Social Constructivism or Social Constructivist Theory, which is has a close connection to learning strategies (Lan & Tsai, 2011). The main reason behind the current investigation of mobile learning applications in the Libyan learning context reported in this study is that the researchers observed the proliferation of smart phones among university students. They just come to university, being expected to have already used such mobiles at the university and their daily lives. Thus, the study aims to analyze the impact of using such mobile technologies in Libyan universities by analyzing the causal relationships between the benefits of mobile learning applications and the development of students' motivation towards learning. In order to achieve this, several research questions were asked:

1). Do smart phone applications impact the development of students' motivation towards learning at Tripoli University?

2). What is the relationship between the mobile learning applications and the lecturer's part in the acquisition of knowledge?

3). Does the lecturer's role, within the modern technologies, have any impact on the development of students' motivation towards learning at Tripoli University?

4). Do mobile learning applications in the presence of the lecturer have any impact on the development of students' motivation towards learning at Tripoli University?

2. Research Objectives

The current study seeks to test the construct validity of a proposed model for learning motivations by testing the causal relationships among mobile learning applications, students' initiative towards education and the role of the lecturer in the learning process.

3. Research Hypotheses

Following the results of previous studies, including (Baird & Fisher, 2005), (Jackson, 2012), (Hall & Huey, 2013), this study seeks to analyze the following hypotheses:

- Mobile learning applications have a direct impact on the students' motivation towards learning.
- There is a relationship of direct impact between mobile learning applications and the lecturer's part in the acquisition of knowledge.
- There exists a direct impact between the lecturer's part in the acquisition of knowledge and the development of students' motivation towards learning.
- There is a relationship of indirect impact between mobile learning applications and the development of students' motivation towards learning through the lecturer.

4. Methodology

4.1 The Research Model

Because the study focuses on impact of mobile learning applications on the teacher's part in the acquisition of knowledge and the development of students' motivation towards learning, the researchers relied on a previous study (Hasan Mahdi, 2014) in determining the dimensions of the independent factor, the study of (Hall & Huey, 2013) in determining the dimensions of the mediating factor and the study of (Eldawei, 2013) in determining the dimensions of the dependent variable. As shown in Figure 1.

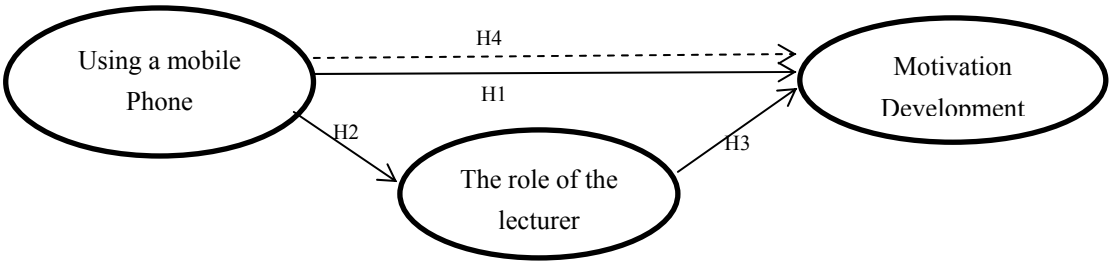

Figure 1. Research framework

4.2 Study Population and Sample

The study population consists of faculty members or teaching staff at the faculties physical education-Libyan Universities, a number of (N= 1573) lecturer. However, due to the great area of these faculties, the sample size was set to 1:5 according to the number of items of the questionnaire (N= 88 items) (Ssekaran, 2003). Therefore, the sample size was (440), and based on this, 450 questionnaires were distributed to the participants, but only (N= 404) questionnaires were valid for the analysis, thus representing or accounting for (89%) of the overall number of the questionnaires distributed to the participants.

4.3 Research Instrument

In this regard, the current study was carried out based on the survey or questionnaire as a research instrument for collecting the necessary data because this instrument, being one of the most fitting research tools for achieving the objectives of the survey and attaining facts correlated with a specific real context. The survey used in this study consists of three main latent aspects, represented by several overt dimensions. The first aspect of the survey (the independent factor) is concerned with mobile learning applications, which consists of four dimensions (characteristics, importance possibilities, and readiness) for measuring this, and each dimension is represented by (8) items.

The second aspect (the mediating factor) is the lecturer's role in the learning process as a latent factor that consists of three dimensions (planning, execution and evaluation), each of which is represented by (8) items. Concerning the third aspect of the survey (the dependent factor), it is related to the development of students' motivation towards learning, which comprises four dimensions namely; perseverance, communication, participation and achievement, and each variable is represented by (8) items. Thus, the overall number of the items is (88) items. The researcher relied on five-point-Likert Scale to measure the respondents' responses. As shown in Table 1.

Table 1. Likert scale

Response	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Grade	1	2	3	4	5

5. Statistical Analysis

5.1 Confirmatory Factor Analysis

The Structural Equation Modeling (AMOS) is for examining the research hypotheses. The model fit is determined by applying the four indices of the model goodness-of-fit:

(1) The comparative fit index (CFI); (2) the minimum value of the discrepancy between the observed data and the hypothesized model divided by degrees of freedom (CMIN/DF) or normed chi-square (Marsh and Hocevar, 1985); (3) The chi-square statistics (McDonald & Marsh, 1990); (4) in addition (RMSEA) of between (0.08) to (0.10) indicates a mediocre fit (Browne & Cudeck, 1993) and would not employ a model a (RMSEA) greater than 0.1 (>0.1) (Mac Calluum et al., 1996).

The current study used two methods to decide the implication level of the incidental impact. The first method includes finding the (P) value by using the (P) value of the relationship of the independent variable and the mediating variable as well as the (P) value of the mediating variable and the dependent variable in the Sobel Test. Here, the (P) value must be higher than (1.964). The second method is called the Sobel Test by using the specific

residual estimates of the relationship of the independent variable and the mediating variable as well as the relationship of the mediating variable and the dependent variable. Here, it must also be higher than (1.964) and it is called the (P) value of the Sobel test.

5.2 Construct Validity

According to (Hair et al., 2006) the function of factor loading composite reliability (CR) and (average variance extracted-AVE) is to decide the convergent validity in case it is equal to or greater than 0.5 (≥ 0.5); the composite reliability should also be equal to or greater than 0.7 (≥ 0.7). Besides that, (AVE) reading values should be greater than 0.5 (≥ 0.5) and greater than (variance shared-SV) (Fornel & Larker, 1981).

6. Results

6.1 Outcome of the Confirmatory Factor Analysis (CFA)

Due to the independence of the factors or variables making up the measurement in this study, a (CFA) was used to analyze each factor separately to verify the construct validity of every part of the measurement scale as follows.

6.1.1 CFA of the Mobile Learning Application Questionnaire

The outcome of the goodness-of-fit of the end revision of the mobile learning application model displayed that normed chi- square (CMIN/DF) was (3.496) which did not exceed (5), the (CFI) was (.950) which was higher than (90), and the RMSEA index was (.079) which was less than (.080). Figure 3 shows the adequacy of the final revised of the mobile learning application model.

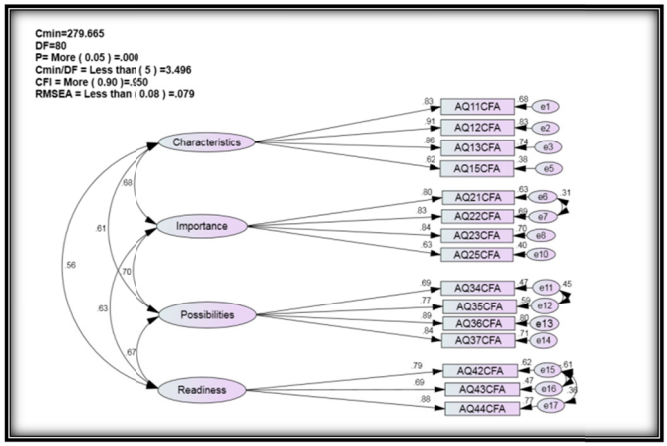

Figure 2. Mobile phone usage in the educational process model after amendment

Table 2. Shared Variance between the dimensions of Mobile phone usage in the educational process model

Variables	Characteristics	Importance	Possibilities	Readiness
Characteristics	1			
Importance	.37	1		
Possibilities	.46	.49	1	
Readiness	.31	.44	.39	1

6.1.2 Construct Validity and Reliability

In this research, the parameters ranged from (.62 to .91) for the factor lodging; all constants being above (.5) (≥0.5). The reliability all items was (.96), were greater than (0.7) (≥0.7). Furthermore, the AVE readings were (.65, .64, .60, .62) where the value was greater than (.5) (≥0.5) and which were even higher than shared variance (SV) as depicted in Table 2. Hence, the criteria of the (AVE) and the reliability discriminant validity of the model are met. Universally, the measurement model of the Mobile phone usage in the educational process model was fit and met the criteria as shown in Table 2, 3 and Figure 2.

Table 3. Construct validity and reliability of mobile phone usage in the educational process model

Item code	Latent variables	Items	Reliability	estimate	S. E.	C. R.	P	Loading	R	AVE
AQ11		Mobile phones are easy to carry.	.96	.962	.044	22.111	.000	.83	.68	**.65**
AQ12	Characteristics	Mobile phones are easy to use.	.96	1.000	-	-	-	.91	.83	-
AQ13		Mobile phones are safe.	.96	.921	.039	23.746	.000	.86	.74	-
AQ15		You can re-sore the saved information in mobiles.	.96	.694	.050	13.901	.000	.62	.38	-
AQ21		I can send and receive many visual recordings.	.96	.786	.050	15.617	.000	.80	.63	**.64**
AQ22	Importance	I can re-use the Internet from my mobile phone.	.96	.866	.047	18.342	.000	.83	.69	-
AQ23		Mobile phones provide the means for clarifications.	.96	1.000	-	-	-	.84	.70	-
AQ25		Using mobile phone technology in teaching enhances the strength of the lecture.	.96	.976	.046	21.261	.000	.63	.40	-
AQ34		Learning by using a mobile phone can be accessed or available anywhere and anytime.	.96	.917	.054	16.891	.000	.69	.47	**.60**
AQ35	Possibilities	Learning through mobile phones offers an immediate support for the learner.	.96	.955	.053	17.877	.000	.77	.59	-
AQ36		Learning through mobile phones helps in communication between the teacher and the learner.	.96	1.000	-	-	-	.89	.80	-
AQ37		Learning through mobile phones increases the educational values of learning.	.96	.717	.054	13.243	.000	.84	.71	-
AQ42	Readiness	Learning through mobile phone technology assists in developing my experiences.	.96	.882	.076	11.620	.000	.79	.62	**.62**
AQ43		Using mobile phone technologies is encouraging.	.96	.789	.067	11.690	.000	.69	.47	-
AQ44		Learning through mobile phone technologies in facilitates interaction.	.96	1.000	-	-	-	.88	.77	-

6.1.3 CFA of the Lecturer's Part in the Acquisition of Knowledge Questionnaire

The outcome of the goodness-of-fit of the end revision of the lecturer's part in the acquisition of knowledge model depicted that normed chi- square (CMIN/DF) was (3.392) which did not exceed (5), the (CFI) was (.961) which was higher than (90), and the RMSEA index was (.077) which was less than (.080). Figure (3) shows the adequacy of the final revised of the lecturer's part in the acquisition of knowledge model.

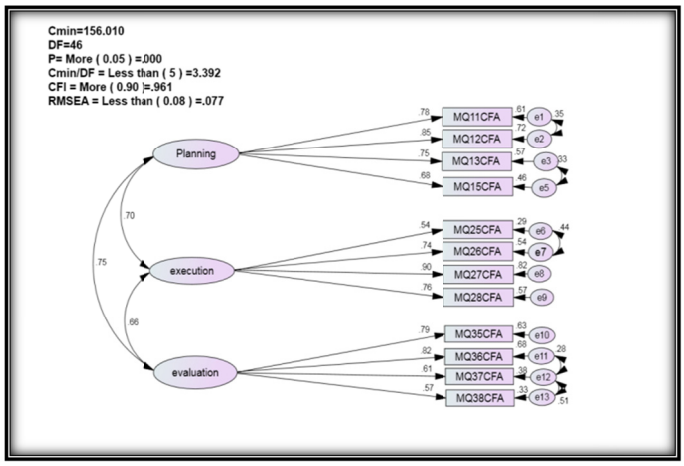

Figure 3. Lecturer's part in the acquisition of knowledge model after amendment

Table 4. Shared variance between the dimensions of lecturer's part in the acquisition of knowledge model

variables	planning	execution	evaluation
planning	1		
execution	.49	1	
evaluation	.56	.43	1

6.1.4 Construct Validity and Reliability

In this research, the parameters ranged from (.54 to .90) for the factor lodging; all constants being above (.5) (≥ 0.5). The reliability all items was (.96), were greater than (0.7) (≥ 0.7). Furthermore, the AVE readings were (.59, .55, .50) where the value was greater than (.5) (≥ 0.5).Hence, the criteria of the (AVE) and the reliability discriminant validity of the model were met. Universally, the measurement model of the lecturer's role in the learning process model was fit and met the criteria as shown in Table 5 and Figure 3.

Table 5. Construct validity and reliability of lecturer's role in the learning process model

Item code	Latent variables	Items	Reliability	estimate	S. E.	C. R.	P	Loading	R	AVE
MQ11	planning	Setting up files to retain information.	.96	.957	.045	21.189	.000	.78	.61	.59
MQ12		Designing files for taking down ideas related to academic research. technology	.96	1.000	-	-	-	.85	.72	-
MQ13		Preparing lesson plans using mobile phone technology.	.96	.865	.059	14.596	.000	.75	.57	-
MQ15		Guiding students on how to use mobile phone technology.	.96	.783	.060	12.993	.000	.68	.46	-
MQ25	execution	Employing mobile technologies in supporting the activities.	.96	.556	.051	10.917	.000	.54	.29	.55
MQ26		Employing mobile technologies in following the students and encouraging them.	.96	.758	.046	16.423	.000	.74	.54	-
MQ27		Employing mobile technologies in developing appropriate treatment plans.	.96	1.000	-	-	-	.90	.82	-
MQ28		Developing curriculum and non-curriculum-based competitions	.96	.827	.049	17.026	.000	.76	.57	-

		using mobile phone technology.								
MQ35	evaluation	Trying/attempting to entering some marks into the mobile phone.	.96	.993	.065	15.349	.000	.79	.63	.50
MQ36		Putting some proposals or suggestions on how to make the learner for self-assessment.	.96	1.000	-	-	-	.82	.68	-
MQ37		Setting up dates of examination and test secludes on the network.	.96	.743	.055	13.581	.000	.61	.38	-
MQ38		Receiving students' notes on the tests.	.96	.676	.061	11.102	.000	.57	.33	-

6.1.5 CFA of the Learners' Motivation towards Learning Questionnaire

The outcome of the goodness-of-fit of the end revision of the learners' motivation towards learning model depicted that normed chi- square (CMIN/DF) was (3.420) which did not exceed (5), the (CFI) was (.944) which was higher than (90), and the RMSEA index was (.077) which was less than (.080). Figure 3 shows the adequacy of the final revised of the learners' motivation towards learning model.

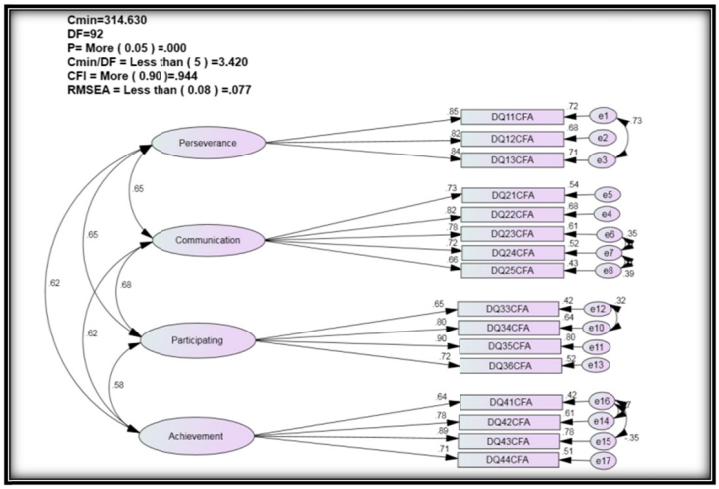

Figure 4. Learners' motivation towards learning model after amendment

Table 6. Shared variance between the dimensions of learners' motivation towards learning model

Variables	Perseverance	Communication	Participating	Achievement
Perseverance	1			
Communication	.42	1		
Participating	.42	.46	1	
Achievement	.38	.38	.33	1

6.1.6 Construct Validity and Reliability

In this research, the parameters ranged from (.64 to .90) for the factor lodging; all constants being above (.5) (≥ 0.5). The reliability all items was (.96), were greater than (0.7) (≥ 0.7). Furthermore, the AVE readings were (.70, .55, .59, .58) where the value was greater than (.5) (≥ 0.5) and which were even higher than shared variance (SV) as depicted in Table 6. Hence, the criteria of the (AVE) and the reliability discriminant validity of the model were met. Universally, the measurement model of the learners' motivation towards learning model was fit and met the criteria as shown in Table 6, 7 and Figure 4.

Table 7. Construct validity and reliability of learners' motivation towards learning model

Item code	Latent variables	Items	Reliability	estimate	S. E.	C. R.	P	Loading	R	AVE
DQ11	Perseverance	The student is keen to complete accomplish the assigned work/task no matter how hard it is.	.96	1.000	-	-	-	.85	.72	.70
DQ12		The study tries to do the required work however much time it may cost him/her.	.96	.970	.059	16.479	.000	.82	.68	-
DQ13		The student thinks of different solutions to the problems that he/she faces.	.96	.964	.065	14.892	.000	.84	.71	-
DQ21	Communication	Students communicate with me at any time.	.96	.896	.058	15.517	.000	.73	.54	.55
DQ22		Students send information related to the curriculum.	.96	1.000	-	-	-	.82	.68	-
DQ23		We share some books with our students.	.96	.954	.058	16.517	.000	.78	.61	-
DQ24		Sending messages between lecturers and students.	.96	.861	.058	14.938	.000	.72	.52	-
DQ25		Inquiring about the schedule of the lectures.	.96	.835	.062	13.507	.000	.66	.43	-
DQ33	Participating	Students interact with the lecturer by asking questions and engaging in discussions.	.96	.686	.049	13.874	.000	.65	.42	.59
DQ34		Students engage in solving exercises and activities.	.96	.686	.046	18.720	.000	.80	.64	-
DQ35		The student tries to develop solutions to the problems.	.96	1.000	-	-	-	.90	.80	-
DQ36		Students participate in enriching the page of the university related to some university programs.	.96	.786	.048	16.341	.000	.72	.52	-
DQ41	Achievement	Students can face the difficulties in their studies and overcome them.	.96	.716	.064	11.133	.000	.64	.42	.58
DQ42		Students make efforts to understand a particular subject in the lecture.	.96	.914	.054	16.970	.000	.78	.61	
DQ43		Students have a sense of responsibility towards the future of his/her study.	.96	1.000	-	-	-	.89	.78	-
DQ44		Students keep trying to do anything in order to achieve success.	.96	.823	.053	15.445	.000	.71	.51	-

7. Examination of the Theoretical Model by Use of the Integrated Formula of Structural Equation Modeling

7.1 Examination of the Standard Theoretical Research Model Using a CFA

7.1.1 Main Standard Model

After determining the statistical expectations compulsory to the analysis using Structural Equation Modeling, the sample shall be verified in terms of the identical to the sample data, then the hypotheses shall be verified in the default theoretical model. Through the Figure 5 which shows the scheme of default theoretical model of the study using the method of Structural Equation Modeling by (AMOS). It is shown that there is an identical between the

theoretical model with the data or factual event in the study environment. Furthermore, the scheme shows the identical indicators of model with the reality or the data collected from the study environment. Also clear that there is not a high correlation between the values of the underlying factors, this shows lack of a Multicollinearity, which leads to Offending Estimation in structural equation modeling.

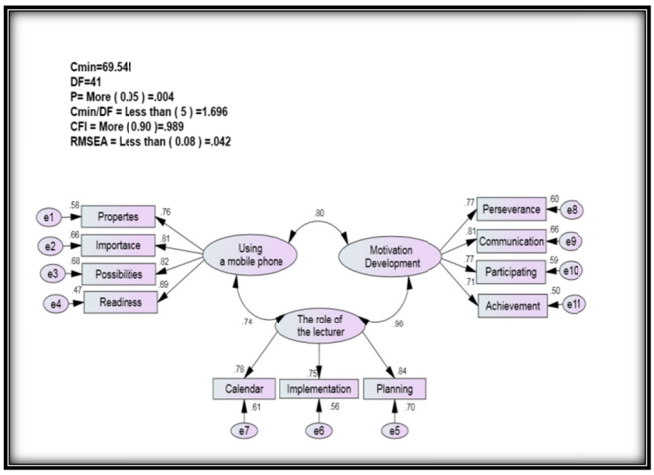

Figure 5. Modified measurement model

Using both the values and indicators of model consistency with the sample data (Model Fit Indices) as depicted in Table 8 and Figure 5, it is clear that there exists a goodness of fit between the measurement model and the data collected. The (Cmin) was (69.541), degrees of freedom (41), the significance level (.004) (which was statistically significant), in addition to the -Chi-square (1.696), which was less than (5), and (CFI) was (.98), and which was higher than (.90) all provide evidence confirming that the measurement model fits or has relations with the variables intended to measure in this study. The model is far from the null model (where there is a lack of such relations among the factors or variables). Furthermore, RMSEA index was (.042), which is less than (.080), and this establishes the presence of the measurement model in the overall study population where the data was collected.

Table 8. Values of the fit indices of the model

Indicators Consistency	Measurement Model figure: 4 index value	Structural model figure: 5 index value	Function value on the quality of conformity
Cmin	69.541	69.541	---
df	41	41	---
P	.004	.004	None
Cmin/Df	1.696	1.696	Less than (5)
CFI	.989	.989	More (.90)
RMSEA	.042	.042	Less than (.08)

Based on these evidence showing the goodness of fit among the measurement model and the real study context through the collected data, it was possible to perform or carry out factor loading to check the internal or relationships hypothesized in the research model. Such loading means that relationships between the latent factors of the model and their underlying variables that represent them such as the relationship between the variable of mobile learning applications and its underlying variables (characteristics, importance, possibilities, and readiness).

The same can apply to the other remaining latent factors and their underlying variables in this study. Here, the value of this relationship should be at least (.50). As seen in Figure 5 and Table 9, the saturation or correlation estimates of the factors exemplified by (rectangle shapes) and the underlying variables represented by circles were great; besides that, they exceeded (.50). These are normally termed factor loadings. In this research, these

loadings, which were all statistically significant, ranged between (.84), which was the highest correlation between the factor of the lecturer's role in the learning process and its variable (planning) and (.69), which was the lowest estimate between the factor of mobile learning applications and its variable (readiness). For other remaining estimates, they are illustrated in Figure 5 that shows the measurement model. Moreover, Table 9 depicts the (T-value) for every relationship between the factors and its underlying variables. The results show that the value was higher than (1.964) for each relation, which was also statistically significant or the significance level (.05). Hence, considering the (T-value) was greater than (1.964), this is indicative of the statistically significant level, thus confirming of the relationship between the factors of the model and the underlying variables.

Table 9. Parameter and non-parameter estimates of the theoretical measurement model

Latent variables	Observed variables	estimate	S. E.	C. R.	P	Loading	SMC
	Properties	.896	.054	16.499	.000	.76	.58
Using a mobile phone	Importance	.916	.052	17.773	.000	.81	.66
	Possibilities	1.000	-	-	-	.82	.68
	Readiness	.600	.041	14.514	.000	.69	.47
	Planning	1.000	-	-	-	.84	.70
The role of the	Implementation	.931	.055	16.969	.000	.75	.56
lecturer	Calendar	.959	.054	17.917	.000	.78	.61
	Perseverance	.629	.036	17.452	.000	.77	.60
Motivation Development	Communication	1.000	-	-	-	.81	.66
	Participating	.784	.045	17.275	.000	.77	.59
	Achievement	.708	.045	15.606	.000	.71	.50

S.E. Standard Error, **C.R**.: Critical Ratio, **P**: Probability, **SMC**: Squared Multiple Correlations.

7.1.2 Examination of the Structural Model

As shown in Figure 6, the structural model differs from the measurement model as depicted previously in Figure (5). The independent factor (mobile learning applications), the dependent factor (development of students' motivation) and the mediating factor (the lecturer's role) were determined by the one headed-arrow (⟶). However, in the measurement model, the relationships among these factors appeared to be independent relationships where the independent, dependent and mediating factors were not identified or determined. Moreover, the relationships among the three factors were represented by a two-headed arrow (⟷). The results or output of the use of Amos show that there is a consistency between the model and the data collected, which is also confirmed through the structural model, and there is a consistency between the measurement model and the structural model established using the previous values and indices as shown in Table (8) and Figures (5, 6) where the collected data of the current study was consistent with the model.

The (Cmin) was (69.541), degrees of freedom (41), the significance level (.004) (which was statistically significant), in addition to the -Chi-square (1.696), which was less than (5), and (CFI) was (.98), and which was higher than (.90) all provide evidence confirming that the measurement model fits or has relations with the variables intended to measure in this study. The model is far from the null model (where there is a lack of such relations among the factors or variables). Furthermore, RMSEA index was (.042), which is less than (.080), which establishes the presence of the measurement model in the overall study population where the data was collected. Based on these values and indexes indicating the consistency among the structural model and the real Libyan environment, the research hypotheses were examined.

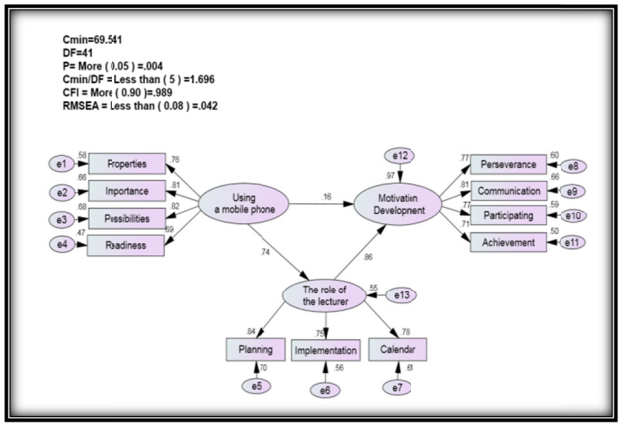

Figure 6. Structural model

8. Examination of the Main Research Hypotheses of the Model

After certifying the observed relationships between the underlying variables and the factors as formerly reviewed, the main hypotheses of the research model were tested as follows.

8.1 Mobile Learning Applications and Development of Students' Motivation

The research hypothesis confirmed the positive and direct effect of applications used for mobile learning on students' motivation towards education. Based on the research model illustrated in Figure 6, Table 10 showing the output of Amos, this research hypothesis was of statistically significant level since the (T-Value) was (2.799), which was greater than (1.964), and the value of the significance level (.005) was lower than (.05). In addition, the path coefficient was (.16), a decisive direction, which confirms that the elevated interest in mobile learning applications lead to an increase in the development of students' motivation towards learning.

Table 10. Results of the levels of correlations between the factors of the model

Latent variable	S. R. W	Latent variable	E	S. E	C. R	P-Value	S. R. W
mobile learning applications	------>	Development of Students' Motivation	.182	.065	2.799	.005	.16
mobile learning applications	------>	lecturer's role in the learning process	.652	.049	13.331	.000	.74
lecturer's role in the learning process	- - - ->	Development of Students' Motivation	1.083	.090	12.069	.000	.86

R.S.W: Standardized Regression Weights, **C.R**: Critical Ratio, **S.E**: Standard Error, **E**: Estimate.

8.2 Mobile Learning Applications and the Lecturer's Role in the Learning Process

The second research hypothesis also confirmed a presence of a decisive and direct effect of mobile learning applications on the lecturer's part in the acquisition of knowledge. As depicted in Figure 6 of the research model and the output of Amos in Table 10, the impact was statistically significant as the T value was (13.331), being greater than (1.964), and the significance level (.000) was less than (.05). Furthermore, the path coefficient was (.74), suggesting that the impact was in a decisive direction and confirming that the heightened consideration paid towards mobile learning applications causes an increase in the lecturer's part in the acquisition of knowledge. Thus, (54%) of the lecturer's part in the acquisition of knowledge is attributed or explained by mobile learning applications, which is considered as a major influence of the underlying variables since it is higher than (25%).

8.3 The Lecturer's Role in the Learning Process and the Development of Students' Motivation towards Learning

Concerning this, the results of the third research hypothesis showed the presence of a decisive and direct effect of the lecturer's role in the learning process on the development of students' motivation towards learning. This is evidenced as seen in the research model displayed in Figure 6 and Table 10. The impact stated in this research

hypothesis was statistically significant because the T value was (12.069), which was greater than (1.964), and the significance level (.000) is less than (.05). Moreover, the path coefficient was (.86), which indicates that there is a positive direction, highlighting the evidence that the increased attention to the lecturer's part in the acquisition of knowledge leads to the development of students' motivation towards learning.

The results also show that the overall impact on the development of students' motivation was estimated (.97), which means that (97%) of the development of students' motivation towards learning was due to both mobile learning applications and the lecturer's acquisition of knowledge. This is also regarded great in terms of the impact of such underlying variables. As indicated by the results in relation to the importance of the impact, the impact of the teacher's acquisition of knowledge on the development of students' motivation towards learning was (.86), thus indicating it was even more important than mobile learning applications with an impact of (.16) and more influential on the increase of the students' interest towards education.

8.4 Mobile Learning Applications and the Increase of the Students' Interest towards Education through the Lecturer's Part in the Acquisition of Knowledge

The study's hypothesis confirmed the positive and indirect effect of mobile learning applications on the interest of students' motivation towards education. In other words, there is an effect of applications used for mobile learning on the development of students' motivation towards education through the mediating factor, the teacher's role. According to the outcome in Table 11, the value of this indirect impact (.63) was the resultant rate of multiplying the path coefficient of the relationship among mobile learning applications and the teacher's part in the acquisition of knowledge (.74) and the path coefficient of the relationship between lecturer's part in the acquisition of knowledge and the development of students' motivation towards learning (.86). The overall impact was (.79), which a result of adding the direct and indirect impact between mobile learning applications and the development of students' motivation towards learning (.63+.16 = .79).

Table 11. Results of the levels of effect between the factors of the model

Independent	Mediation	Dependent	Indirec Effect	Total Effect	Indirec Effect Test		
					Result	Sobel Test	
					S.T.S	O.T.P	T.T.P
mobile learning applications	lecturer's role in the learning process	motivation towards learning	.63	.79	12.765	.000	.000

9. Conclusion and Discussion of Results

The current study aimed to test the impact of the direct relationship between mobile learning applications and the development of students' motivation towards learning among Libyan students at the Faculties Physical Education-Libya on one hand and the indirect relationship between mobile learning applications and the development of students' motivation towards learning through the lecturer's part in the acquisition of knowledge on the other hand. The research also aimed to explore the effect of mobile learning applications on the teacher and the impact of the lecturer's role on the development of students' motivation towards learning. Two sets of results were obtained by the study, most important of which was that the direct effect of applications used for mobile learning on the development of students' motivation towards education was (.16), which was less than (25) (Cohen, 2002) and statistically significant. This reflects the weakness of the direct effect of mobile learning applications on the development of students' motivation towards learning. Such result collaborates or is in compliance with the outcome reported in some studies previously (Baird & Fisher, 2005) (Jonas-Dwyer et al., 2012) (Hall, 2013), (Jackson, 2012). The weak or low effect of smart phone applications as a modern means in the learning process in the Libyan business environment as found by the current study can be attributed to the poor or weak communication networks upon which smart phone applications reply on in a very large way especially because they are not available effectively, and the costs of services are high, which may not be accessible or at students' reach. However, the outcome depicted that the impact of mobile learning applications on the lecturer's role was (.54), which is a high ratio, thus indicating that smart phone applications had a positive impact on the lecturer's role in the learning process. This particular result agrees with the results of some studies like (Hasan, 20014), (Hall & Huey, 2013) (Eldawei, 2013). The results of the current study also revealed that the indirect impact of smart phone applications on the increase of students' interest towards education through the presence of the lecturer was (.63). Such result reflects the importance of having a lecturer in the learning process as a central part as well as a necessary pillar of the process. The previously mentioned result implies or underlies the importance of the

lecturer's role as a mediator between modern technology applications (smart phones) and the development of students' motivation towards learning. According to the outcomes obtained in the present research, the researchers recommend that it is necessary to activate the lecturer's part in the acquisition of knowledge and it is paramount to view the lecturer as a an effective linking means in increasing the level of students' motivation to learn and acquire the skills that enable them to deal with the applications and techniques of smart phones, and software design so that they can apply them to teaching. This is because such applications have a great effect on the increase of students' motivation towards learning. In addition, the researchers recommend that future studies should be carried out on exploring or identifying the obstacles and challenges that Libyan learners face in using mobile phones or mobile learning applications in the same context or environment of the current study.

10. Limitations and Future Studies

Although this study provides several theoretical and practical implications, there are several limitations that would provide excellent opportunities for future contributions to this important stream of research. First, since the study focus was the faculties' physical education-in Libyan Universities the generalization of the results to other countries is limited. Future studies may test the relationship between mobile Learning Applications and development of learner's motivation towards learning in other countries in the same region. Second, cross-sectional design of the research could be another limitation. Additional research using a longitudinal methodology addresses the relationship between the mobile and development of learner's motivation towards learning through another mediator variable.

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