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TECHNOLOGY IN HIGHER EDUCATION: STUDENT ATTITUDES TOWARDS THE USE OF LAPTOP COMPUTERS

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Abstract **- Laptop computers have become an important and essential for students to acquire for their studies, and careers. laptop computers in the classroom can lead to positive education outcomes. This study aims to examine student's perceptions concerning the usage of laptop and the acceptance of laptop in the AZZAYTUNA UNIVERSITY in LIBYA. Also, to investigates the level of usage on the use of Laptop computers among students, and to examines the relationship between the perceptions of students concerning the use of laptops and the acceptance of laptop. This studies uses a survey as 98 students from the AZZAYTUNA UNIVERSITY from different faculties have taken as the sample and based on TAM model which explains the computer usage behavior which divided to (Perceived Usefulness) and (Perceived Ease of Use) The result of this survey, clearly indicates that there is a statistically positive significant relationship between the usage of Laptop and the acceptance of the Laptop. Also, the result indicates that the higher level of the Laptop usage is linked to the higher level of the acceptance and vice versa. Finally, computers, have become standard equipment in the higher education.**

Key words - (Technology, Technology Acceptance Model, TAM, students)

I. INTRODUCTION

Nowadays, Computer technology has become common in education; its potential for enhancing teaching and learning has been recognized. The purpose of this study is explore the perceptions of the students concerning the use of wireless laptops in higher education and the relationship between the perceptions of students concerning the use of wireless laptops and the acceptance of laptop.

This study will use the email to send the forms of the survey to the dean of the IT department in the AZZAYTUNA UNIVERSITY to hand out to all the students to get or collect the data. Finally, the purpose of this study also will be based on several theoretical concepts such as attitude and laptop usage among students and technology acceptance model (TAM).

This university creates a new rule for the students that all students must bring their laptops because of the fact that, the remains laps are not enough comparing with the number of students.

This proposal will know what important for using Laptop computers which included the academic use of laptops, e-mail and instant- messaging, web uses, network access, and hardware and software, also it will aim to the student's reaction for this rule.

As a result, this study aims to examine the conception's students of usage of laptop and acceptance of the usage of laptop

Also, it aims to use survey based on

(Technology Acceptance Model) TAM which is specially meant to explain computer usage behavior which divided to (Perceived Usefulness) and (Perceived Ease of Use).

- **The usage of Wireless Devices in Education**

Computers and the Internet already play a main part in college students' academic lives and are an important way to enhance their social lives. The Internet has been an important application in education during the past years. It has confirmed an especially valuable learning tool because it extends learners' knowledge and can bring teachers and students together. By connecting to the Internet, students are able to access a wealth of information. Today, computer technology and the Internet enable learners to access a vast range of information, allow for more in-depth study in the content area, and enable learners to connect with others through email or interactive system. The majority of colleges hold positive perceptions toward computer technology. As a study by the corporation for public broadcasting indicates in 1994, college students believe that it would be difficult to accomplish their academic work without using computers.

As a result, students to be successful must provide them with computers and Internet access to take advantage of the information Age becomes a truism in education.

II. LITERATURE REVIEW

- **Review of Literature**

According to previous studies that in order for technology in education to effect the most positive change, educators themselves must be open to such changes. The more an educator remains receptive to, is primed for, and is capable of adapting to change, the greater the impact of the technology. Another research studied 94 classrooms from four states in different geographic regions of the country. Their findings included several predictions for the success of laptops programs that stemmed from educators' openness to change. Such predictions included:

- Educator's technological competency.
- Integration of technology in their curriculum.
- Technology impact on content acquisition.
- Technology impact on higher-order-thinking skills.

Another leading factor related to successful technology integration was the constructivist use of technology. Educator morale and technology impact on higher-order thinking skills were predicted by the constructivist use of technology. Since students' perceptions of the usefulness of technology are influenced by the instructional methods employed by their

professors, it is important that faculty implement technology integrated strategies in their classes. Two trends exist in regards to educators identifying incentives for integrating computers in their teaching.

1. Student accomplishment, rather than educator eternal rewards.
2. Students being able to use computers as a tool for their own purposes.

A review of prior studies suggested that the technology acceptance model (TAM) was widely used to study the users' technology and information systems literature.

(Davis, 1989, Davis et al. 1989). The model addresses the question why users accept or reject information technology. The key purpose of TAM is to race the impact of external variables on internal beliefs, attitudes, and intentions.

The (TAM) which shows in (figure 1) suggests that two factors that is perceived ease of use and perceived usefulness were the two main factors in explaining system use.

Perceived usefulness is defined as the prospective users' subjective probability that using a specific application system will increase his or her job performance within an organizational context (Davis et al, 1989). This factor has a significant effect on usage intention (Agarwal and Prasad, 1999; Davis et al, 1989; Venkatesh, 2000; Venkatesh and Davis, 2000).

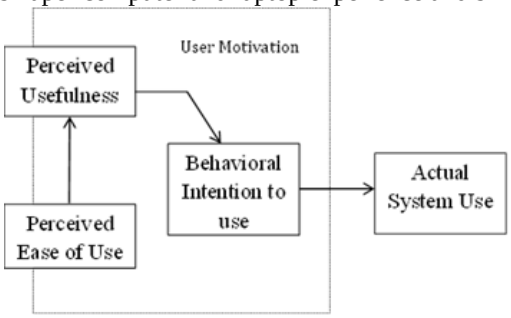
Perceived ease of use is defined as the degree to which the prospective user expects the target system to be free of effort (Davis et al, 1989). This facto plays a crucial role in understanding individual response to information technology (Agarwal and karahanna, 2000; Chau, 2001). Research over the past decade provides evidence of the significant effect perceived ease of use has on usage intention (Agarwal and Prasad, 1999; Venkatesh, 2000; Venkatesh and Davis, 2000).

- **Laptop Usage**

Laptop usage has recently made its way into all fields of study, and it considered an innovative way to broaden students' knowledge and increase their scope of understanding of their field of study. It also makes them very close to their teachers, colleagues, and families across the oceans and continents. While the assessment of international students needs for the use of the e-mail media, some studies have attempted to generate hypotheses for future research by exploring and identifying specific features of foreign language generated through the electronic medium. Other have successfully described particular cases of laptop usage in the teaching and learning of foreign languages, student- instructor communication, gender difference as related to laptop usage, and laptop addiction.

On another track of investigating the effectiveness of laptop usage, (Schumacher, & Morahan-Martin, 2001) examined attitude of gender differences of laptop usage. Their study examined changes in computer experiences among incoming college students from

1989/1990 to 1970. As the predicted, students in 1997 had more computer experience than earlier students, and gender differences had diminished. However, in both years, males wre more experienced than females with computer programming and games, and in 1997, males wre more likely to own a computer than females. Computer ownership as well as greater experience with programming and games may all enhance the technical sophistication of males with computers and account for the greater degree of competency and comfort with both the laptop and computers found among male students compared with females students. The study raised both hope and concern. The comparison of students over an eight years period from 1989 to 1997. With increasing overall computer use, gender differences in computer experiences diminished. However, some gender differences in computer experiences continued. Further, a substantial percent of students in 19997 were not comfortable and competent with computers of laptop, with female students reporting greater discomfort and incompetence than male students. In turn, these negative attitudes haper computer and laptop experience and skills.



- **Attitude as a behavior**

In discussing the development of attitude, there are two major schools of thought available. The first believe that attitudes are formed through some hidden process that only happens in the minds of individuals before the behaviors take action. The second considers that attitudes are developed at different stage of the behavior process and, since they can be measured, to a certain extent, they are viewed as actually being behaviors (Calder and Ross, 1973). The traditional Hierarchy model is most widely accepted in attitude theory. This model hypothesizes that attitudes are formed with three major components: cognition (belief), affect (feeling) and conative (behavior).

- **User Acceptance Dimensions**

Gitte (1994) argues that even with the best methodology and model used in the design of a usable interactive system, still you need to assess the design and test the system to ensure they meet the end-user requirement. Furthermore he stated that usability dimensions should be captured so that they can directly be translated into meaningful quantitative statements. Among the usability dimensions identified were effectiveness, learnability, flexibility and attitude.

Gitte (1994) defined requirements as a set of condition needed by the user to achieve an objective or condition; they must be met by a system to satisfy standard specification.

The end user acceptance of the online airline reservation system as a new technology is the critical key aspect of the systems' establishment. Without such acceptance no technology can exist on the market. According to Dillon & Morris, (1996), user acceptance is defined as the demonstrable willingness within a user group to employ information technology for the tasks it is designed to support.

This definition can be enhanced with the understanding that the user perception of information technology (IT) can be influenced by objective characteristics of technology, as well as human factors and interaction with other users and other parties (Salancik and Mffer, 1987). User perception of the system is influenced by the way people around him evaluate and use the system (Trevino et al. 1987).

All theories consider attitude to be a relationship between a person and an object (Davis, 1989). User acceptance is an essential factor determining the success or failure of any information system project, (Davis, 1989). Many studies on

information technology report that user attitudes and human factors are important aspects affecting the success of information system, (Davis, 1989). In the context of information technologies, there have been distinctive approaches to the study of attitude which on of them are theory reasoned action (TRA), technology acceptance model (TAM), extended technology acceptance model, social information processing and also innovation diffusion theory (IDT) approach.

- **Technology Acceptance Model**

TAM is essential for anyone willing to study user acceptance of technology to have an understanding of the Technology Acceptance Model.

With growing technology needs in the 1970's, and increasing failures of system adoption in organizations, predicting system use became an area of interest for many researchers. However, most of the studies carried out failed to produce reliable measures that could explain system acceptance or rejection (Savis, 1989). In 1985, Fred Davis proposed the Technology Acceptance Model (TAM) in his doctoral thesis at the MIT sloan school of Management (Davis, 1985). He proposed that system use in a response that can be explained or predicted by user motivation, which in turn is directly influenced by external stimulus consisting of the actual system's features and capabilities.

Technology acceptance model (TAM), introduced by Davis (1989), is an adaption of TRA (Theory of Reasoned Action) specifically tailored for modeling user acceptance of information systems. User technology acceptance has received wide and intense interest among IS researchers (e.g. D.A. Adams, R.R. Nelson, and P.A. Todd, 1992; P.Y.K. Chau, 1996; W.W. Chin and V. Vdnkatesh and F.D. Savis, 1996). The most widely accepted and adopted by IS researchers are the technology acceptance model TAM which was purposed by Davis,

1989. This model was adapted from theory reasoned action (TRA) (Azjen and Fishbein, 1980; Fishbein and Ajzen, 1975).

III. METHODOLODY

Research Population

The methodology which use in this research will be survey based on university in Libya which is called AZZAYTUNA UNIVERSITY. This research will be a descriptive research study, as its major purpose to gain understanding of the use of laptop between students in AZZAYTUNA UNIVERSITY. The TAM has several strengths, including its specific focus on information use, its theory base of social psychology, as well as the validity and reliability of its instruments. Inclusive, the TAM has received wide spread support based on more than 20 articles. The model is successful in predicting about 40 percent of a system's use (Venkatesh and Savis, 2000). In order to investigate studens' perceptions on the laptop initiative, this study will utilize the TAM. Finally, the total sample will be use is 120 students.

- **Instrumentation**

A direct survey will use to collect the data for this study. The survey questions will compiled from previous study questions pertaining to information technology innovation as well as suggestions from researchers and students (Moore and Benbasat, 1991). These questions have designed to gather data on students' perceptions toward the laptop initiative, as well as their demographics. To validate the clarity of these questions, this survey has already used by email to the head of IT department in the AZZAYTUNA UNIVERSITY.

The survey consisted of 45 items. The survey items have used as five-point Likert scaled questions with end points ranging from "strongly disagree" to "strongly agree"

- **Data Collection**

The survey have distributed to students randomly. A total of 120 sets have been distributed.

The table which shows below has the number of questionnaires that have distributed. Of the 120 (100.00%) questionnaires distributed, 98 (81.66%) have returned. 22 (18.33%) have rejected because they have been in completed.

The questionnaires have distributed

Report	Total	Percentage (%)
Distributed	**120**	**100.00%**
Returned	**98**	**81.66%**
Rejected	**22**	**18.33%**

- **Research Sampling**

The sampling method has used in this study based on the TAM because the questionnaires are not random sampling. According to Sekaran (2000), this sampling design, which is the most efficient, and is a good choice when differentiated information in needed regarding various strata within the population known in differ in their parameters, therefore, the sampling which have been used is based on TAM which means is not allowed to make the questionnaires as your way, it is compulsory to follow the the TAM's way to make the questionnaires.

Description of items regarding using Laptop

1	2	3	4	5
Almost never	Once a month	A once a week	About few times a week	About once a day

No of Item	Internet	1	2	3	4	5
1	Sending or receiving e-mail					
2	Browsing					
3	Downloading					
4	Newsgroup					
5	Recreation					
6	Creating web pages					
7	Maintaining web pages					
8	Publishing products over the internet					

Information of items regarding seeking activities

Activities	Frequency
Education/research institution information	Yes No
Publication information	Yes No
Job vacancies information	Yes No
Studies information	Yes No
Seminar/Conference information	Yes No
Library and information services	Yes No

Description of items regarding acceptance of Laptop

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

Acceptance	1	2	3	4	5
1. All things considered, my using Laptop for my course/work is a good idea.					
2. All things considered, my using Laptop for my course/work is a bad idea					
3. All things considered, my using Laptop for my Course/work is a foolish idea.					
4. All things considered, my using Laptop for my course/work is a wise idea.					
5.I like the idea of using Laptop					
6.I dislike the idea of using Laptop					
7. Using the Laptop would be unpleasant					
8. Using the Laptop would be pleasant					

IV. RESULT AND DISCUSSION

- **Description of the Participations**

Items	Frequenc	Percent
Gender		
Female	27	27.6
Male	71	72.4
Age		
Below 24 years old	26	26.5
25-32	13	13.3
33-40	40	40.8
41-47	19	19.4
College		
College of Business	37	37.8
College of Art and Science	35	35.7
College of Law, Government and International Studies	26	26.5
Using Laptop		
Yes	98	100
No	0	0
Should Own a Laptop		
Yes	98	100
No	0	0

The questionnaires have distributed

Internet	1	2	3	4	5	6	Mean
Sending or receiving e-mail	0	2.0	14.3	20.4	27.6	**35.7**	4.81
Browsing	1.0	4.1	7.1	**57.1**	30.6	0	4.12
Downloading	1.0	5.2	6.2	**57.7**	23.7	6.2	4.16
Newsgroup	4.1	29.6	8.2	**46.9**	8.2	3.1	3.35
Recreation	6.1	14.3	25.5	**48.0**	6.1	0	3.34
Creating web pages	7.1	7.1	13.3	**54.1**	18.4	0	3.69
Maintaining web pages	2.0	**44.9**	16.3	19.4	17.3	0	3.05
Publishing products over the internet	4.1	**49.0**	11.2	21.4	14.3	0	2.93

Information of items regarding seeking activities

Activities	Frequency	Percentage
Education/research institution information	Yes=66 N0=32	67.3 32.7
Publication information	Yes=72 No=26	73.5 26.5
Job vacancies information	Yes=48 No=50	49.0 51.0
Studies information	Yes=98 No=0	100 0
Seminar/Conference information	Yes=37 No=61	37.8 62.2
Library and information services	Yes=98 No=0	100 0

V. HYPOTHESIS TEST

According to the hypothesis which mentioned in chapter one with the finding in this chapter, the result indicates that there is a statistically positive significant relationship between Usage of Laptop and dependent Acceptance of Laptop.

Correlation matrix between Usage of Laptop and Acceptance of Laptop

	Pearson correlation	significant
Usage of Lapt Acceptance o		
	0.591**	**0.01**

**. Correlation is significant at the 0.01 level (2-tailed).

An appropriate statistical method as Pearson correlation was applied to address the relationship between Usage of Laptop and Acceptance of Laptop. According the results in Table 4.6 there is a statistically positive significant relationship between Usage of Laptop and dependent Acceptance of Laptop (r=0.591, p<0.001). The results of the analysis indicate that the higher level of the Laptop usage is linked to the higher level of acceptance and vice versa. In other words, students who use Laptop more, have more level of acceptance in compare to others.

VI. CONCLUSION

The students' perception towards laptop provides students' knowledge to improve their performance in learning. General students' perception towards attitudes of laptop usage was moderate and most of the students agreed that they intentionally use the laptop.

Also, the students agreed that using laptop made them improve in their courses. They were agree that using laptop enhanced the effectiveness in their course as well as their productivity. In case of easiness usage of laptop, the students agreed that it is easy to use the laptop and their interaction with laptop was clear and understandable.

The subjective norm in the questionnaire mentioned about the influence of people on students behaviour to use their laptop. The students were neither agree nor disagree about the

influence of people on their behaviour to use laptop. Also, another factor was "perceived behavioural control" which was focused on students usage of laptop entirely in their hand, have resource and the knowledge as well as ability to use laptop, and being able to use laptop. The students were completely agreed that the usage of laptop was in their hand and they could control how to use it. Moreover, mostly agreed that laptop is a source of information and knowledge and they are able to use laptop for this purpose.

In conclusion all findings in this chapter imply that mostly agreed that their level of attitude towards laptop were at the moderate level. This factor would influence the level of laptop usage among students and thus finding is similar with the findings of Davis (2001).

As a conclusion the usage of laptop among the students of this college will then enhance their skill and will increase their quality of learning and achieve the objective of the management of university.

The findings of study have some important managerial implications. First, it indicated that there is a positive relationship between laptop usages and learning outcomes of students. Laptop usages support a long-held proposition running through the various literatures which states that the attainment of organizational goals is determined. This goal is determined by satisfying the needs of employees more efficiently and effectively in performing a task.

REFERENCES

[1] Admas D. A., Nelson R. R, and Todd P. A, (1992). Perceived usefulness, ease of use, and usage of information technology: A replication. MLS Quarterly, 16(2), 227-247.

[2] Jones, 2002; shaw & Giacquinta, 2000.

[3] Weaver & Nilson, 2005 & Brown, Burg, and Dominick (1998) and Brown and Petitto (2003).

[4] Yousafzai et al., 2007, sharp, 2006, king et al., 2006, Ma et al., 2994, Lee et al., 2003, and Legris et al., 2003)

[5] Melerdiercks, 2005; Young, 2006.

[6] Agarwal, It., Sambamurthy, V . and Stair, R.M. (2000). Research report: the evolving relationship between general and specific computer self-efficacy – an empirical assessment. Information, Systems Research, 11(4), 418-430.

[7] Agarwal, R. and Prasad, J. (1997). The role of innovation characteristics and perceived voluntariness in the acceptance of information technologies. Decision. Sciences, 28(3), 557-582.

[8] Aladwani, A. (2003), Key Laptop characteristics and e-commerce issues in Arab countries. Information Technology & People, 16:9-20.

[9] Alavi, M. and Toachimsthaler E.A. (1992). Revisiting DSS implementation research : A meta-analysis of the literature and suggestion for researchers. MIS Quarterly, 16(1), 95-116.

[10] Assail, H., (1993), Consumer Behaviour and Marketing Action, 3 Ed, Boston: Kent publishing Co.

[11] Bandura, A. (1986). Social Foundations of Thought and Action. Prentice-Hal, Enfilewood Cliffs, NJ.

[12] Buhalis, D. (2005). Dtrategic use of information technology in the tourism industry. Tourism Management. London : Pearson.

[13] AL-Kha-Jabri, I. M. A., & Al-Jabri, I.M. (1998). The relationship of attitudes to computer utilization: new evidence from a developing nation. Computer in Humman Behavior, 14(1)23-42

[14] Kuo, C. (2004). Perceptions of Faculty and Students on the Use of Wireless Laptops. Society for Information Technology and Teacher Education International Conference 2004, retrieved 13 April 2006 from http://dl.aace.org/14470.

[15] Lim, D (1990). Ubiquitous mobile computing: UMC's model and success. Educational Technology & Society, 2(4), 125-129.

[16] Davis,(1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319-40.

[17] Davis, F. (1993). User acceptance of computer technology: system characteristics, user perceptions. Int. J. Man-Machine studies, 38 (3), 475-87.

[18] Davis, F., Bagozzi, R.P., & Warshaw, P.R (1989). User acceptance of computer technology: a comparison of two theoretical models. Management Science, 35(8), 982-

[19] Venkatesh, V. (2000). Determinants of perceived ease of use: integrating control, intrinsic motivation, and emotion into the technology acceptance model. Information system research, 11(4), 342-65.

[20] Venkatesh, V. & Davis, F.D. (1996). A model of the antecedents of perceived ease of use development and test. Decision sciences, 27(3), 451-481.

[21] Venkatesh, V., Morris, M., Davis, G., & Davis, F.(2003). User acceptance of information technology:towards a unified view. MIS Quarterly, 27(3), 479-501.

[22] Chin W.W. and Todd P.A. (1995). On the use, usefulness, and ease of use of structural equation modelling in MIS research: A note of caution. MIS Quarterly, 19(2), 237-346.

[23] Elisheva F. Groos. (2004). Adolescent Laptop use: What we expect, what teens report. Journal of Applied Development Psychology, 256(6),633-649.

[24] Gassway, L.N (1989). Copyright, the Laptop, and other Legal issues. Journal of the American Society for information science, 49, 1003-1009.

[25] Hu, I. J., Chau. P.Y.K., sheng, O.R.L and Tam, K.Y (1999). Examining the technology acceptance model using physician acceptance of telemedicine technology. Journal of management information systems, 16(2), 91-112.

[26] Johnson, R.D and Marakas, G.M (2000). Research report.

[27] Katz, J. and Aspden, P. (1997), Motivations for and barriers of Laptop usage: Research of a national public opinion survey, Laptop Research, 7:170-188.

[28] Katz, J. and Aspden, P. (1997), Motivations for and barriers of Laptop usage: Research of a national public opinion survey, Laptop Research, 7:170-188.

[29] Li, N. and Kirkup, G. (2005). Gender and cultural differences in Laptop use: A study of China and the UK. Computer and Education.

[30] Nagashima, A.(1997). A coparative "Made in" Product Image Survey Japanese Businessmen. Journal of Marketing,41,95-100.

[31] Ong Fon Sim and Chan Yin Huei. (2000). Attitude and purchase Behavior of Teenagers Towards "Made in Malaysia"Products. Malaysian Journal of Consumer & Family Economics. 118-128.

[32] Teo, T. (2001), Demographic and motivation variables associated with Laptop usage activities,Laptop Research, 11:125-137.

[33] Ting, Y and Gran, R. (2005). Laptop usage of local government employees: A study of the effect of individual preferences.