Arab World English Journal
INTERNATIONAL PEER REVIEWED JOURNAL ISSN: 2229-9327
مجلة اللغة الانكليزية في العالم العربي

Arab World English Journal (AWEJ) Volume 9. Number 1. March 2018 Pp. 39- 55
DOI: https://dx.doi.org/10.24093/awej/vol9no1.3

Scholastic Achievement and Computer Attitudes among Moroccan University Students

Azize El Ghouati,
School of Arts and Humanities, Ibn Tofail University
Kenitra, Morocco

Bani Koumachi
School of Arts and Humanities, Ibn Tofail University
Kenitra, Morocco

Abstract

In Morocco, like any other parts of the world, the government has enormously been an enthusiastic supporter of technology to uplift the education quality. However, without students' positive computer attitudes, students will not be successful nor will be prepared to acquire new knowledge to achieve good results. To this end, the present study (1) identifies the potential relationship between computer enjoyment (CE) and students' English achievement (EA), (2) explores the type of relationship between computer anxiety (CA) and achievement in English, (3) examines the nature of relationship between computer utility (CU) and English achievement (EA), and finally investigates the type of relationship between computer familiarity (CF) and English achievement among Moroccan university students. Therefore, the main instruments, questionnaires and achievement tests, are analyzed and interpreted quantitatively; whereas the semi-structured interviews are treated qualitatively. The statistical tools used in order to help analyze and interpret data make use of percentages, frequencies, and Correlation tests. Following what has been hypothesized, the quantitative findings reveal that there is no statistically significant correlation between CE, CA, CU, CF and EA. Likewise, the qualitative data results confirm the quantitative findings.

Keywords: computer anxiety, computer attitudes, computer enjoyment, computer familiarity, computer utility, English achievement

Cite as: El Ghouati, A., & Koumachi, B. (2018). Scholastic Achievement and Computer Attitudes among Moroccan University Students. *Arab World English Journal, 9* (1).
DOI: https://dx.doi.org/10.24093/awej/vol9no1.3

1. Introduction

Computer technology has contributed, largely led by using various media, to the learning process. It can range from using software like e-mails, to hardware like computers. These technologies can enhance the student's learning in higher education since they afford rich graphics that aid in visualization. Simultaneously, they provide students with richer audio activities, records for future replay, and potential listening, reading, writing and speaking initiatives. Briefly stated, computer-based software helps learners create and interact with the learning context (Hamilton & O'Duffy, 2009). It is, therefore, significant to perceive the diffusion of information and communication technology (ICT) together with learners' attitudes to make learning more pertinent and effective (Gülşen, 2010).

Technology has become a significant means for the uplifting of educational quality. In Morocco, like any other parts of the world, the government invested efforts to establish policy frameworks that would help Morocco to be capable of managing its moves into knowledge-based society. The country tries to institutionalize a reliable policy to benefit from the opportunities offered by technological advancements for the purpose of restructuring the objectives, and content of education. Otherwise stated, researchers like Alexander and McKenzie (1998) pinpoint that while implementing the new technology into the process of teaching and learning, educators stress the paramount importance of how this new technology can influence learning. To be clear, exploring students' computer attitudes, namely computer enjoyment, computer anxiety, computer utility, and computer familiarity, helps students to learn in different ways. In such types of learning, ICT is considered as the glue that binds the learning achievement.

2. Related Review of Literature

Students' attitude is a critical factor in enhancing the acceptance of computers in the field of educational technology. In their cross-cultural technology training and education program, Chisholm, Irwin and Carey (1998) explore computer training preferences, computer attitudes, and computer access among Chinese, Ghanaian, and American college students. The results exhibit that the Chinese and Ghanaian students have positive attitudes towards computers, though they have no prior computer experience, and training. Along the same line of thought, Staehr, Martin and Byrne (2001) examine attitudes to computers among students enrolled in an introductory computing course. The results reveal that ownership of a computer at home has a positive impact on computer attitude subscales as anxiety and computer confidence.

Shaw and Marlow (1999) assess students' initial attitudes towards the use of technology in which about ninety-nine university science students participated. Learning style questionnaire (Honey & Mumford, 1986) and attitude questionnaire including six dimensions as 'comfort', 'interactivity', 'self-satisfaction', 'value new technology', 'experience' and 'context' are used. The findings reveal that the participants exhibit low scores in their attitude dimensions of 'value new technology', 'interactivity' and 'context' indicating discomfort with computers, and lack of personal contact. The results also report a significant correlation between the 'theorist', the 'interactivity', and 'context' attitudes. In the same vein, Shaw *et al.* (1999) evidence that first year students show more positive attitudes towards ICT-based learning than second or third year students. The researchers conclude that technology-aided learning may be limited by negative attitudes toward a style of teaching which is not consistent with students' past learning experiences.

In the same way, Teo's (2006) study demonstrates that computer attitudes have a crucial role in determining the extent to which students accept the computer as a learning tool. A sample of 183 post-secondary students is examined for their computer attitudes using a likert-type questionnaire with three subscales: Computer importance, computer enjoyment, and computer anxiety. The MANOVA results reveal that there are no significant differences in computer attitudes by gender, though males report more positive attitudes towards computers than their female counterparts. Significant differences in computer attitudes are found among participants who have computers at home and those who do not. Respondents owning a computer at home report a lower level of computer anxiety compared to their counterparts.

In other studies, investigations have been conducted to examine students' attitudes toward computers and the four language skills. For example, Gunn and Brussino's (1997) study investigates participants' attitudes towards technology-supported learning for specific language skills. First, the findings demonstrate that students exhibit positive attitudes toward technology-based learning in general, but computers in specific are found to be preferred, namely for listening and writing. This is followed by speaking and reading skills. Similar findings have been revealed by Lasagabaster and Sierra (2003) when they discover that participants favor computer software for listening purposes. In addition to listening, Ayres (2002) reports that participants also prefer computers for writing activities.

According to Cunningham's (2000) study, 88% of the students report that computer technology enhances their writing skill in particular, and that students who make use of multimedia enhancement excel significantly compared to the traditional ways of learning. However, Cunningham (2000) examines the correlation between students' attitude to technology for specific language skills and their level of achievement. The researcher does not find a significant correlation between students' attitude for any of the language skills researched and the achievement scores. This has been confirmed by Bulut and AbuSeileek's (2009) whose study reveals that there is no correlation between students' attitude toward using computers and the language performance in the four language skills among participants.

Within an Arab context, Al-Jabri and Al-Khaldi (1995) investigate the effect of demographic variables on computer attitudes among 238 Saudi Arabian business students. Computer Attitude Scale (CAS) is mainly used to measure students' components of computer attitudes such as anxiety, confidence, liking, and usefulness. The findings demonstrate that respondents' computer usefulness is more positive than their computer anxiety, confidence, and liking. More importantly, the findings display that computer experience, degree of access, and computer ownership have significant effects on computer anxiety, computer confidence, computer liking, computer usefulness, and overall computer attitude, while age and class standing are found to be ineffective on any of the computer attitude scales. The number of computer courses and higher-grade point average significantly affect computer confidence, computer usefulness, and overall attitude scales. The researchers conclude that computer attitudes are a very significant factor in educational technology.

3. Research Methodology

The present study primarily has the purposes to explore students' computer attitudes within a

Moroccan institution of higher education. Inspired by computer attitudes as highlighted in the review of the literature, the present study is designed to address the following hypotheses:
Research Hypothesis 1: There is a significant correlation between computer enjoyment and respondents' achievement scores in English.
Research Hypothesis 2: There is a significant correlation between computer anxiety and achievement scores in English among the participants.
Research Hypothesis 3: There is a significant correlation between the type of computer utility and respondents' achievement scores in English.
Research Hypothesis 4: There is a significant correlation between respondents' existing types of computer familiarity adopted and their achievement scores in English.

As a matter of fact, the sequential mixed method research design is adopted in this study. It is sequentially quantitative and qualitative through the use of two quantitative data collection instruments, the scored questionnaire and language tests, and one qualitative data collection tool, the semi-structured interview. A sequential triangulation strategy is adopted on the ground that exploratory procedures begin with quantitative data, followed by the sequential collection of qualitative data across two phases (Teddlie & Tashakkori, 2006). In details, the two methods are integrated in the analysis and the interpretation phases with a focus on how the results from both methods are similar or different, and a primary purpose to allow for a validity cross-check of data through multiple modes of inquiry. Essentially, the purpose of using sequential triangulation strategy is to understand the inconsistencies that might be produced by different data sources and inquiry approaches and to offer "opportunities for deeper insight into the relationship between inquiry approach and the phenomenon under study" (Patton, 2002, p. 248).

The respondents of the current investigation are non-randomly sampled 81semester six university students within the Department of English Studies, Meknes. They are targeted on the basis of:1) their availability and willingness, and 2) the researcher of the present study has a specific group of students in mind with the expectation that they will give unique and rich information of value to the study.

The main instruments incorporated are questionnaires, English achievement tests, and follow-up interviews. Based on the existing literature in the field of educational technology (Christensen & Knezek, 2000; Agnaou, 2009), the Computer Attitude Questionnaire (CAQ) is reported to be a sound, efficient and outstanding theoretical tool to explore students' computer attitudes. Therefore, the questionnaire is used to measure four dimensions: (a) Computer Enjoyment (CE), (b) Computer Anxiety (CA), (c) Computer Utility (CU), and (d) Computer Familiarity. Furthermore, the questionnaire also allows the participants to choose from 1 to 5 point on a scale which ranges from "strongly disagree", one point, to "strongly agree", five point. Apart from the follow-up interviews, the adapted English tests are administered as part of the present study. They are meant to collect data on English achievement (EA). Four constructed achievement tests are used: (a) listening, (b) reading, (c) writing, and (d) speaking.

To achieve the research purposes in terms of interpretation of the data obtained, two different types of data analysis are used. As a case in point, both the questionnaire and achievement tests are analyzed quantitatively using different statistical tools assisted by the Statistical Package of the

IBM statistics program (SPSS), version 22. First, *Cronbach Alpha Coefficient (α)* is calculated to ensure the reliability of the questionnaire and test constructs. Descriptive statistics such as frequencies, means, and standard deviations are also calculated for all scales, statements and tests parts. Second, inferential statistics, namely *Spearman rank-order Correlation Coefficient* tests are employed to determine the strength of associations as well as level of significance between two variables: Types of computer attitude (IV) and English achievement dimensions (DV). For ordinal scales, *Spearman's rho Correlation* is commonly appropriate, and serves the purposes of the current research analysis. The values of the Correlation test range from +1 to -1 with positive numbers representing a positive correlation, and negative numbers representing a negative correlation (Walker & Jackson, 2011). There needs to be a ***monotonic relationship*** between the two variables. That is to say, when both variables increase in value together, or as one variable value increases, the other variable value decreases (Pallant, 2007). A statistically significant correlation is shown by a probability "Sig." value which is less than .05 to show that the relationship between the two variables is not due to chance (Hayes, 2005).

4. Research Findings

Apart from the follow-up interviews, the computer attitude questionnaire (CAQ) has been used to measure students' attitudes towards computers while achievement tests have been used to test students' ability in English, namely listening, reading, writing and speaking abilities. In order to draw a detailed profile of students' attitude towards computer, it is essential to pinpoint their position on the basis of the four major categories. The responses are scored and calculated after having reversed the negatively worded items. The findings refer to the number of responses to each of the five options of every item in the Likert scale.

4.1.1. Findings of the Computer Attitude Questionnaire

Worth noting is that Cronbach alpha is the most commonly used measure when there are multiple Likert questions in a questionnaire, and the desire is to determine if the scale is reliable. Computer attitude scale consists of four dimensions: CE, CA, CU and CF (Items ≠1 through ≠20). The result of the Cronbach's reliability test for the computer attitude scale is reported in Table 1.1. The findings of the Cronbach alpha range from the highest α=.78 to the lowest reliability α=.70 (rounded up from α=.65), with CE dimension demonstrating the highest reliability α=78, and the CA scale representing the lowest α=.65. This is followed by both the CF and CU scales with α=.73 and α=.76, respectively.

Table 1.1: *Internal Consistency/Reliability for CA Scale*

Computer Attitude Scale	Item	Alpha Coefficient (α)
Computer Enjoyment	Item 1 to Item 5	.78
Computer Anxiety	Item 6 to Item 10	.65
Computer Utility	Item 11 to Item 15	.76
Computer Familiarity	Item 16 to Item 20	.73
Total	**Items 20**	**.70**

Overall, α=.70 for overall computer attitude, there is a generally sufficient consistency of the CA scales α=78. Therefore, the twenty items ≠1 through ≠20 are retained as variables demonstrating acceptable internal consistency in this analysis.

As previously stated, the CAQ is designed to assess four computer attitude dimensions. Therefore, the scores from the five point likert scale are interpreted in the following manner: The Maximum mean score is 30.00, the average mean score is 12.00, and the minimum mean score is 4.00.

Table 1.2: *Descriptive Statistics for Each CA Scale: CE, CA, CU and CF*

Computer Attitude Scale	Minimum	Maximum	Mean	Std. Deviation
Computer Enjoyment (CE)	5,00	25,00	18,11	3,96
Computer Anxiety (CA)	4,00	20,00	10,86	2,91
Computer Utility (CU)	8,00	30,00	23,29	4,19
Computer Familiarity (CF)	6,00	18,00	11,33	2,88

As suggested by Table 1.2, the respondents' mean scores on the four scales range from the highest, CU (M=23, 29, SD=4.19) to the lowest, CA with (M=10.86, SD=2.91). The fact that CU (M=23.29) registers the highest could be attributed to students' awareness and their level of computer mastery. However, CA with the lowest score (M=10.86) might be related to the lack of students' confidence. The means of CE (M=18.11), and CF (M=11.33) are scored by the same sample with a spread of data around the means (SD=3.96) and (SD= 2.88) in the respected order.

The results of the analysis demonstrate that the majority of the respondents express their satisfaction on overall items of CU (M=23.29, SD=4.19). CU refers to the level of awareness among participants of the computer potentials and their importance for educational purposes. For the respondents, computers are highly important and useful. Additionally, the elicitation of information about students' CE (M=18.11, SD=3.96) reveals that the participants are motivated to engage in computer-based learning. The lower mean scores of both CF (M=11.33, SD=2.88), and CA (M=10.86, SD=2.91) registered by the sample may be related to the lack of students' computer skills, and confidence in the various learning purposes of computers as well as the feelings of discomfort computers may make.

4.1.2. Findings of the English Tests

A four-section achievement test is designed to examine the relationship between students' computer attitude (CA) and their level of listening, reading, writing, and speaking achievements. Listening and reading sections consist of multiple choice questions, while writing section deals with a short argumentative essay. In speaking section, however, participants are invited to introduce themselves and discuss randomly selected topics. To understand whether all the sections in the test parts consistently measure the same variables, and how reliably the test sections actually

measure the constructs they are meant to measure, a Cronbach alpha test (α) is performed on a sample size of 81 respondents (see Table 1.3).

Table 1.3: *Reliability Evidence for Proficiency Tests*

Variables	Alpha Coefficient (α)
Listening Test	.66
Reading Test	.70
Writing Test	.71
Speaking test	.72
Total	**.69**

Crucially important, reliability evidence for all the four test sections ranges from α=.66 to α=.72, with speaking test indicating the highest reliability α=.72, and listening the lowest α=.70 (rounded up from α=.66). Writing and reading have α=.71 and α=.70, respectively. The overall reliability for language tests has an alpha coefficient of α=.69 indicating, therefore, a sufficient internal consistency of the tests constructs.

The total score of the English achievement tests in the present investigation is 40, ten out of ten for each of the four language skills: Listening, reading, writing, and speaking. As suggested by Table 1.4, the achievement scores obtained through the English tests are grouped as the minimum (10.00), and maximum (32.50). The overall English achievement is identified as (M= 22.11) with (SD= 5.16). Specifically, the mean scores for the four language skills are reported in the following table:

Table 1.4: *Descriptive Statistics for English Achievement*

Language Skills	Minimum	Maximum	Mean	Standard. Deviation
Listening (L)	2,00	10,00	5,95	2,21
Reading (R)	2,00	10,00	6,32	2,15
Writing (W)	2,00	8,00	4,90	1,45
Speaking (S)	2,00	7,00	4,94	1,22
OverallAchievement	**10,00**	**32,50**	**22,11**	**5,16**

The mean scores of the four language skills range from the lowest (M=4.90, SD=1.45) to the highest (M=6.32, SD=2.15). Overall, the highest mean score is reading (M=6.32, SD=2.15). This is followed by listening (M=5.95, SD=2.21), speaking (M=4.94, SD=1.22), and finally writing with (M=4.90, SD=1.45).

4.2. CA Relationship with EA

Initially, the Spearman's rank-order Correlation Coefficient is calculated to examine the relationship between computer attitude (CA) and language achievement. Among the four computer attitude dimensions, there are computer enjoyment (CE), computer anxiety (CA), computer utility (CU), and computer familiarity (CF). Noteworthy is that English achievement (EP) is computed by the scores of language skills, namely listening, reading, writing, speaking and overall EA.

4.2.1. CE Relationship with EP

The Spearman's rank-order Correlation to determine the relationship between CE and EA implies that there is a weak, negative and non-significant correlation between CE score, and both reading with [rho (81) = -.093, *p*=.41], and writing score with [rho (81) = -.048, *p*=.67], and a small, negative and non-significant correlation [rho (81) = -.144, *p*=.20] between CE and speaking. However, the correlation between CE and listening is very weak, positive, and non-significant [rho (81) =.010, *p*=.92].

Table 1.5: *Correlations between CE and EA*

			Computer Enjoyment
Spearman's rho	**Listening**	Correlation Coefficient	,010
		Sig. (2-tailed)	,92
		N	81
	Reading	Correlation Coefficient	-,093
		Sig. (2-tailed)	,41
		N	81
	Writing	Correlation Coefficient	-,048
		Sig. (2-tailed)	,67
		N	81
	Speaking	Correlation Coefficient	-,144
		Sig. (2-tailed)	,20
		N	81
	Overall EA	Correlation Coefficient	-,118
		Sig. (2-tailed)	,29
		N	81

The Spearman Correlation result, Table 1.5, also reveals that there is a small, negative strength correlation [rho (81)= -.118]. On the other hand, the level of statistical significance (*p*-value) of the Correlation is (*p*=.29), which is statistically non-significant. Hence, following what has been hypothesized, the test results do not support the research hypothesis. Given the fact that the relationship, in this example, is statistically non-significant, we accept the null hypothesis, claiming that that the two variables are not related.

4.2.2. CA Relationship with EA

It has been hypothesized that there is a significant relationship between CA score and EA score. However, Table 1.6 shows that the Correlation Coefficients for the relationship between computer anxiety (CA) and listening [rho (81) =.013, *p*=.91], reading [rho (81) = -.109, *p*=.33], writing [rho (81) = -.203, *p*=.06], and speaking [rho (81) =.029, *p*=.79] is not significant. In other words, there is a small negative and non-significant correlation between CA and both reading and writing, and weak positive non-significant correlation with both listening and speaking.

Table 1.6: *Correlations between CA and EA*

			Computer Anxiety
Spearman's rho	**Listening**	Correlation Coefficient	,013
		Sig. (2-tailed)	,91
		N	81
	Reading	Correlation Coefficient	-,109
		Sig. (2-tailed)	,33
		N	81
	Writing	Correlation Coefficient	-,203
		Sig. (2-tailed)	,06
		N	81
	Speaking	Correlation Coefficient	,029
		Sig. (2-tailed)	,79
		N	81
	Overall EA	Correlation Coefficient	-,061
		Sig. (2-tailed)	,58
		N	81

The Correlation result between CA and overall EA [rho (81) = -.061, *p*=58] is weak and negative with [rho (81) = -.061]. Because the Sig value (*p*=58) is higher than the *p*=value 0.05, the

correlation between the two variables is statistically non-significant. That is to say, the two variables are not associated with each other. Therefore, we accept the null hypothesis, and can conclude that the data do not support the research hypothesis.

4.2.3. CU Relationship with EA

A Correlation test is conducted to explore the relationship between CU and EA score. From the Table 1.7, it is clearly stated that there is a very weak negative and non-significant relationship between CU and both reading [rho (81) = -.014, *p*=.90], and speaking [rho (81) = -.058, *p*=.60]. However, the relationship is very weak positive, and non-significant with writing [rho =.025, *p*= 82], and listening [rho (81) =.006, *p*=95].

Table 1.7: *Correlations between CU and EA*

			Computer Utility
Spearman's rho	**Listening**	Correlation Coefficient	,006
		Sig. (2-tailed)	,95
		N	81
	Reading	Correlation Coefficient	-,014
		Sig. (2-tailed)	,90
		N	81
	Writing	Correlation Coefficient	,025
		Sig. (2-tailed)	,82
		N	81
	Speaking	Correlation Coefficient	-,058
		Sig. (2-tailed)	,60
		N	81
	Overall EA	Correlation Coefficient	-,021
		Sig. (2-tailed)	,85
		N	81

As far as the correlation between respondents' CU and their overall EA is concerned, the results show a weak, negative non-significant correlation with [rho (81) = -.021, *p*=.85]. Contrary

to what we have hypothesized, the correlation between the two variables is statistically non-significant. Thus, it is concluded that the data do not support the research hypothesis three that there is a link between the two variables, CU and EP.

4.2.4. CF Relationship with EA

The findings, Table 1.8, of the Correlation results explain the relationship of the respondents' CF on their achievement in the four language skills. In other words, there is a very weak, positive and non-significant association between CF and listening with [rho (81) =.083, *p*=.46], reading with [rho (81) =.071, *p*=.52], writing with [rho (81) =.080, *p*=.48], and speaking with [rho (81) =.011, *p*=.92].

Table 1.8: *Correlations between CF and EA*

			Computer Familiarity
Spearman's rho	**Listening**	Correlation Coefficient	,083
		Sig. (2-tailed)	,46
		N	81
	Reading	Correlation Coefficient	,071
		Sig. (2-tailed)	,52
		N	81
	Writing	Correlation Coefficient	,080
		Sig. (2-tailed)	,48
		N	81
	Speaking	Correlation Coefficient	,011
		Sig. (2-tailed)	,92
		N	81
	Overall EA	Correlation Coefficient	,120
		Sig. (2-tailed)	,28
		N	81

The findings of the Correlation also suggest a small positive strength correlation [rho (81) =.120]. However, the significance level (*p*-value) of the correlation is statistically non-significant at *p*=.28, which is higher than theoretical value *p*=0.05. Based on these results, there is a statistically non-significant relationship between the two variables: CF and overall EA. Following what has been hypothesized in the research hypothesis four, the test results support the null hypothesis as opposed to the research alternative.

4.3. The Semi-Structured Interview

The semi-structured interviews are conducted to collect qualitative data. Therefore, the purpose of the triangulation perspective is to reveal other features that the quantitative data tools, the questionnaire and language tests, are unable to unveil (Mitchell & Jolley, 2012). They are meant to explore in depth the aspects related to the present variables under study: CE, CA, CU, CF and their relationship to EA.

The findings of the semi-structured interview where ten interviewees (N=10) within the Department of English Studies participated in the present study, five females and five males, are backing up the same quantitative results with minor exceptions. In other words, though most of the participants believe that their CE is associated with positive feelings while using computers, the same respondents think that the relationship of their perception of CE has nothing to do with their level of language skills. Their reason is that they are more likely to use technology when its use is beneficial. The qualitative findings, therefore, have revealed that though all the interviewees have positive CE, five out of ten interviewees think that computer enjoyment has no significant effect on their level of English skills.

The second research hypothesis basically investigates the participants' opinions of the type of computer anxiety experienced. The focus is also put on the questions reflecting whether there is a significant relationship between this CA and EA. When asked about the potential link between the two variables, four respondents out of ten say that there might be a significant link between the two variables, but they are not sure how to confirm the link.

For the third research hypothesis, (70%) out of the N=10 interviewed respondents perceive that computers are very helpful and useful as they facilitate communication, listening, reading, and writing. According to them, *"there are other factors that affect language development: The type of motivation and the specific language course have their say in developing the targeted language skills".*

The fourth research hypothesis which is investigated in relation to the four language skills is CF. It is worth noting that all interviewees report having positive attitudes towards CF, and that they are more likely to be computer literate. Still, there is no association between the two target variables.

5. Discussion of the Results

It has been stated in the review of the literature that by computer enjoyment (CE) we mean the pleasure, and joy derived by the participants using computers for learning purposes. Not surprisingly, the choice of the item "computers are essential in my life" has registered the highest mean score among the participants. The second rated item is "enjoy doing things on a computer". The results of quantitative data also display that the mean scores of "enjoy doing school tasks on

the computer", and "feel comfortable working with a computer" are somewhat identical. Undoubtedly, it can be concluded that the use of CE in relation to students' level of EA involves students' motivation. Therefore, the scale of CE is significant given the fact that it is associated with motivation which largely affects computer attitudes. Thus, positive attitudes are attributed to high levels of motivation and negative attitudes are associated with lack or low levels of motivation.

It is acknowledged by several scholars (Teo, 2008) that CE plays a key role in influencing students' acceptance of computers, and their willingness to use them for future learning. This is supported by research studies (Cybinski & Selvanathan, 2005) where learning with technology has positive effects on students' motivation and enjoyment. CE is also reported as one of the central features in educational software (Kerawalla & Crook, 2005), and contributes to students' experience in any technology learning environment (Finneran & Zhang, 2005).

When looking into the field of educational technology, students with higher levels of CE may have higher levels of EA. This is evidenced by Greenfield (2003) who reports that the majority of the students who enjoy computer technology gain confidence in their learning process. They feel that the computer helps them improve the productive as well as receptive skills, i.e., writing/speaking, and reading/listening, through developing their way of thinking and motivating them for more interaction.

The findings of the present study reveal similar results to a few previous studies. In that, Cázares (2010) finds no significant relationship between proficiency and attitude towards computer technology concluding that achievement level is not predicted by attitude, be it negative or positive. Nevertheless, students' positive attitude towards computers motivates them to approve of learning and teaching strategies exploited, and thus achieve more in the exams. Smith, Caputi and Rawstorne (2000) examine students' positive or negative responses to computers as a language learning approach. They conclude that there is a significant relationship between students' attitude toward the type of teaching/learning and their attitude toward a particular computer-based activity.

The present study has demonstrated that the majority of the students show low levels of computer anxiety (CA). As expected, not only are the respondents aware that computers cannot replace the teacher's job or face-to-face interaction, but they are also determined not to let the computer spoil their traditional learning, "computer is addictive and enslaving". This is also confirmed by the second rated item, "feel threatened when others talk about computers", and third rated item, "studying with computers makes me nervous". However, "computers do not scare me at all" is the last rated item.

Notwithstanding, the fear of computer technology, which is accompanied by anxiety, negative feelings, lack of confidence and hostility, can lead to computer technology resistance (Yaghi & Abu-Saba, 1998). Findings by Chang (2005) prove that students with high CA may hinder their learning of language, and decrease their learning achievement. To be clear enough, according to Fuller, Vician and Brown (2006), students with high CA are likely to remain in that state of high computer anxiety in the future, and experience high levels of anxiety with repeated exposure to computers. They are at risk for "resisting the use of computer technology" and "an inability to gain learning benefits over the anxiety cost of an e-Learning environment" (Fuller *et*

al., 2006, p. 105). To reduce the level of computer anxiety, many researchers focus on the effect of providing computer knowledge and experience. Nonetheless, Leso and Peck (1992) find out that some computer courses help reduce students' computer anxiety, but others have no effect.

It is important to note that the highest mean score is demonstrated by the respondents who "know that computers give me opportunities to learn many new things". The scores registered for this item reveal that the respondents are aware of the utility of the computer in their current practices. Therefore, there is awareness among Moroccan university students that the computer has been invented to make education easier, by relieving them of some routine, time-consuming learning duties. By the positive responses registered, we can also say that computers can be a source of impetus to double students' efforts in learning.

It is no doubt that the respondents have positive attitude towards computers due to technology utility and its usefulness. The finding goes in line with EFL learners in other studies who have positive computer attitudes. Thus, according to Garcia (2001), students prefer to use computers in language learning because computer tools can help them search information related to their studies. Learners can also develop their listening, speaking, reading and writing English through real-world situations (Yang & Chen, 2007).

Nevertheless, the data findings to determine the relationship between computer utility (CU) and listening, reading, writing and speaking among Moroccan university students have been found to be non-significant. Likewise, the same findings have been found by the qualitative data results. In other words, though computers play a very useful part of language learning at different language levels, they have no potential effect on students' achievement. As a result, the only factors which could possibly be explanations for such non-significance appear to be linked to the lack of exposure to ICT tools in students' language learning experiences. Besides, the most important criterion for students to yield positive achievement results is assessing technology according to its pedagogical use and integrating it successfully in the curriculum (Gousseva, 1998), rather than limiting such educational technology tools to entertainment purpose.

It has been discovered that a great number of the students favour "word-processing" because it "is less time consuming than other tools of writing". This means that the respondents save time when they type rather than hand-write, which might mean that the respondents are familiar with typing skills. This is further confirmed by the second rated item among respondents, "I cannot learn more from books than from computers". This illustrates that the respondents can learn more from computers than from books, which is a restatement of the positive attitude to computers as a major competitor of the book. The third scored item is "I will do as little work with computers as possible" while the last used item concerns "It takes me a long time to finish when I use a computer". Plainly put, computer familiarity (CF) for this last rated item is essentially shaped by the respondents' low levels of computer mastery. That is to say, when one is a computer illiterate, there might be a kind of frustration, or computer anxiety.

Following what has been found, the qualitative data results complement the quantitative data. That is to say, though equipped with computer skills, the majority of the respondents emphasize the fact that there is no link between CF and their development of EA. However, the findings of the present study seem to contradict some research studies, though limited in number.

Taylor, Kirsch, Eignor & Jamieson (1999) investigate the relationship between CF and achievement in English and find a positive significant relationship between the two variables, supporting that language and computer knowledge are much related. Similarly, Goldberg and Pedulla (2002) reveal that CF and the examinees' achievement in computer-based versions of the writing exam are related.

6. Conclusions

The ultimate purpose of the present investigation is to examine the nature of relationship between students' computer attitude and their level of scholastic achievement in ICT-based environment. By addressing our research hypotheses, it has been proven that there is no statistically significant relationship between the four types of CA, and EA as reflected in the four-skill scores. The present study is, therefore, an attempt to explain and make a better use of respondents' existing types of CA and fix any flaws affecting their EA. Among its top implications, attitude towards computers constitutes an important factor in determining the failure or success of ICT use in education. Thus, students who hold negative attitudes should renounce their previous perceptions of ICT by gaining more knowledge about the computer potentials. The relatively low computer familiarity and the increasing levels of computer anxiety registered by some respondents are in large part attributed to the lack of use of computers. For these respondents to overcome their negative attitudinal perceptions, they need needs-based training. Furthermore, it would be a major concern for teachers to be aware of the unique specificities of ICT tools. Just transferring traditional practices undermines efforts to take advantage of this promising medium of instruction, be it school use or domestic. Finally, ICT is not an independent technological tool; rather it integrates a number of technologies that can be incorporated in a discrete or integrative manner. Multimedia, for instance, has major implications for learners who have learning problems in a print environment. Simulation software, hypermedia, video, and voice services offer alternative modes of learning.

Azize EL GHOUATI graduated with an M.A. in applied linguistics from Moulay Ismail university of Meknes, Morocco and a Ph.D. in language and society from Ibn Tofail university of Kenitra, Morocco. **EL GHOUATI** is a part-time professor at the School of Arts and Humanities, Kenitra. His main research interests are in the areas of applied linguistics issues, ICT, English for Specific Purpose, and professional development.

Bani KOUMACHI graduated with an M.A. in applied linguistics from Moulay Ismail University, Meknes, Morocco and a Ph.D. in organizational communication from Sidi Mohamed Ben Abdellah University, Sais Fes, Morocco. He is currently an associate professor at the School of Arts and Humanities, Ibn Tofail University, Kénitra, Morocco. His main interests are: intercultural communication, knowledge management, professional development, ICT as well as applied linguistics issues.

References

Agnaou, A. (2009). *The effectiveness of integrating Information and Communication Technology in education: A focus on teachers' and students' attitudes* (Unpublished doctoral dissertation). Sidi Mohamed Ben Abdellah University, Fes, Morocco.

Alexander, S., & McKenzie, J. (1998). *An evaluation of information technology projects in University learning*: *Department of Employment, Education and Training and Youth Affairs.* Canberra: Australian Government Publishing Services.

Al-Jabri, I., & Al-Khaldi, M. (1995). Computer attitudes of undergraduate business students, *Proceedings of the 14th National Computer Conference of the Saudi Computer Society* (pp. 349-359). Riyadh, Saudi Arabia.

Ayres, R. (2002). Learner attitudes toward the use of CALL, *Computer AssistedLanguage Learning, 15* (3), 241-249.

Bulut, D., & AbuSeileek, A. F. M. (2009). *Learner attitude toward CALL and level of achievement in basic language skills*. Available: http://repository.ksu.edu.sa/jspui/handle/123456789/7958(12.09.2014).

Cázares, A. (2010). Proficiency and attitudes toward information technology use in psychology undergraduates. *Computers in Human Behavior, 26*, 1004-1008. (doi:10.1016/jchb2010.02.015).

Chang, S. E. (2005). Computer anxiety and perception of task complexity in learning programming related skills. *Computers in Human Behavior, 21*(5), 713-728 (doi: 10.1016/j.chb.2004.02.021).

Chisholm, I. M., Irwin, L., & Carey, J. M. (1998). Perceptions and attitudes toward computers across continents. In S. McNeil. *et al.* (Ed.), *Proceedings of Society for Information Technology & Teacher Education International Conference 1998* (pp. 494-497).

Christensen, R., & Knezek, G. (2000). Internal consistency reliabilities for 14 computer attitude scales. *Journal of Technology & Teacher Education, 8(4)*, 327-336.

Cunningham, K. (2000). Integrating CALL into the writing curriculum. *The Internet TESL Journal, 6*(5). Available: http://iteslj.org/Articles/Cunningham-CALLWriting.html (16.3.2016).

Cybinski, P., & Selvanathan, S. (2005). Learning experience and learning effectiveness in undergraduate statistics: Modelling performance in traditional and flexible learning environments decision sciences. *Journal of Innovative Education, 3*(2), 251-271.

Finneran, C. M., Zhang, P. (2005). Flow in computer-mediated environments. *Communications of the Association for Information Systems, 15*, 82-101.

Fuller, R. M., Vician, C., & Brown, S. A. (2006). E-learning and individual characteristics: The role of computer anxiety and communication apprehension. *The Journal of Computer Information Systems, 46*(4), 103-115.

Garcia, J. F. C. (2001). An instrument to help teachers assess learners' attitudes towards multimedia instruction. *Education, 122*, 94-101.

Goldberg, A. L., & Pedulla, J. J. (2002). Performance differences according to test mode and computer familiarity on a practice graduate record exam. *Educational & Psychological Measurement, 62*(6), 1053-1067.

Gousseva, J. (1998). Crossing cultural and spatial boundaries: A cybercomposition experience. *The Internet TESL Journal, 4*(11).

Greenfield, R. (2003). Collaborative e-mail exchange for teaching secondary ESL: A case study in Hong Kong. *Language Learning & Technology, 7*, 46-70.

Gunn, C., & Brussino, G. (1997). An evolutionary approach to CAL. *Active Learning, 6*, 20-22.

Gülşen, H. (2010). The attitude of undergraduate students towards motivation and technology in foreign language classroom. *International Journal of Learning & Teaching, 2*(2), 14-24.

Hamilton, P., & O'Duffy, E. (2009). *Digital education usage models for the classroom of the future.* Proceedings of the 4th International Conference on Virtual Learning. Iaşi, Romania: Bucharest, University of Bucharest Publishing House. Available: www.icvl.eu/2009/.

Hayes, A. F. (2005). *Statistical methods for communication science*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Honey, P., & Mumford, A. (1986). *The manual of learning styles.*Maidenhead: Peter Honey Peter.

Kerawalla, L., & Crook, C. (2005). From promises to practices: The fate of educational software in the home. *Technology, Pedagogy & Education, 14*(1), 107-125.

Lasagabaster, D., & Sierra, J. (2003). Students' evaluation of CALL softwareprograms. *Educational Media International, 40*(3/4),293-304.

Leso, T., & Peck, K. L. (1992). Computer anxiety and different types of computer courses. *Journal of Educational Computing Research, 8*(4), 469-478.

Mitchell, M. L., & Jolley, J. M. (2012). *Research design explained.* Belmont, CA:Wadsworth Cengage Learning.

Pallant, J. (2007). *SPSS Survival Manual:A step by step guide to data analysis using SPSS for Windows* (3rd ed.). Crows Nest, NSW: Allen & Unwin.

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Shaw, G., & Marlow, N. (1999). The role of student learning styles, gender, attitudes and perceptions on information and communication technology-assisted learning. *Computers & Education, 33*(4), 223-234.

Smith, B., Caputi, P., & Rawstorne, P. (2000). Differentiating computer experience and attitudes toward computers: An emprical investigation. *Computers in Human. Behavior, 16,* 59-81.

Staehr, L., Martin, M., & Byrne, G. (2001). Computer attitudes and computing career perceptions of first year computing students, Proceedings of Informing Science 2001-Bridging Diverse Disciplines, in A. Harringer (Ed.), *e-Proceedings,* Krakow, Poland (ISSN 1535-0703).

Taylor, C., Kirsch, I., Eignor, D., & Jamieson, J. (1999). Examining the relationship between computer familiarity and performance on computer-based language tasks. *Language Learning, 49*, 219-274.

Teddlie, C., & Tashakkori, A. (2006). A general typology of research designs featuring mixed methods. *Research in the Schools, 13*(1), 12-28.

Teo, T. (2006). Attitudes toward computers: A study of post-secondary students in Singapore. *Interactive Learning Environments, 14*(1), 17-24.

Teo, T. (2008). Pre-service teachers' attitudes towards computer use: A Singapore survey. *Australasian Journal of Educational Technology, 24* (4), 413-424

Walker, S. C, Jackson, D. A. (2011). Random-effects ordination: Describing and predicting multivariate correlations and co-occurrences. *Ecological Monographs, 81,* 635-663 (DOI 10.1890/11-0886.1).

Yaghi, H. M., & Abu-Saba, M. B. (1998). Teachers' computer anxiety: An international perspective. *Computers in Human Behavior, 14*(2), 321-333.

Yang, B. (2007). *How students with learning styles collaborate in online learning environments* (Unpublished doctoral dissertation). Kansas State University, Manhattan, Kansas.