The Factors That Affect Undergraduates' Attitudes Towards Computer-Based English Language Exams: A Case Study of An-Najah National University, Palestine

Asil Ateeri[*]

Language Centre, An-Najah National University, Nablus, Palestine

Email: aateeri@najah.edu

Abstract

This paper investigates the impact of undergraduates' gender, major, academic year level, computer skills, and level of English on their attitude towards computer-based English language exams at An-Najah National University. A simple random sample of 312 females and 201 males were chosen from all of the 49 classes of an English language core requirement course (English Language Course I) to fill in a paper-based group-administered questionnaire consisting of 27 items. Five females and four males were randomly selected to participate in a focus group discussion. The data collected from the questionnaire was statistically analysed using the Statistical Package for the Social Sciences (SPSS), and a probability of $p < 0.05$ was considered statistically significant. The data collected from the discussion was analysed thematically. While the statistical analyses revealed statistically significant differences in attitude towards computer-based English language exams due to gender, computer skills, major, and academic year level, no statistically significant differences were found due to their level of English. Female students, first-year students, those whose computer skills are low, and those who lack experience with computers need to receive more training in computer-based exams to reduce their anxiety and make the exams fairer to all groups.

Keywords: Factors; Attitudes; Computer-based Exams; Undergraduates; Summative Assessment; English language Exams; Computer Skills; Gender.

1. Introduction

[1] examined undergraduates' attitudes towards computer-based English language exams at An-Najah National University (ANU), the largest university by undergraduate enrolment in Palestine. [1] revealed that although the undergraduates at ANU had a positive attitude, they preferred taking English language exams on paper as they demonstrated a high level of anxiety about computer-based English language exams. The main objective of this paper is to investigate whether students' gender, major, academic year level, computer skills, and level of English have an impact on their attitude towards computer-based English language exams.

----

* Corresponding author.

A diverse sample representing both male and female undergraduates doing their bachelor's degrees in different fields and at different academic year levels was chosen to gain a better understanding. Reviewing the literature demonstrated that research into students' attitude towards computer-based exams is limited although finding their attitude is significant to universities to realise where development is needed and to improve exam delivery methods. Surprisingly, not a single study has been conducted at any Palestinian university on the factors that affect undergraduates' attitude towards computer-based exams. The impact of gender on attitude towards computer-based exams was examined more than the other factors, and the literature revealed contradictory results. Whereas some research [2, 3, 4, 5] showed no significant differences in attitude towards computer-based exams due to gender, the majority [6, 7, 8, 9, 10, 11, 12] found that females had a less positive attitude towards computers. It was also found that females had a less positive attitude towards the Internet [7, 13]. [14] also found that females were more anxious about taking computer-based exams than males. [15] also found that technical support during computer-based exams was more necessary for female students. Some studies [9, 16, 17, 18, 15, 19] also revealed that males had a higher level of computer-self efficacy. It is worth noting that only few studies such as [20, 21] found that female students were more inclined towards computer-based exams than their male counterparts. Further research is still needed to ensure fairness and equality.

2. Research hypotheses

The null hypothesis was assumed to be true, and the significance level was set at 0.05. The following five hypotheses were tested throughout this study:

- There is no relationship between the undergraduates' attitude towards computer-based English language exams and their gender.
- There is no relationship between the undergraduates' attitude towards computer-based English language exams and their major.
- There is no relationship between the undergraduates' attitude towards computer-based English language exams and their computer skills.
- There is no relationship between the undergraduates' attitude towards computer-based English language exams and their academic year level.
- There is no relationship between the undergraduates' attitude towards computer-based English language exams and their level of English.

3. Methodology

This paper utilised the same data collected from the focus group discussion and the paper-based group-administered questionnaire discussed in detail in [1]. Since English Language Course 1 is a core requirement course for all undergraduates at ANU and students are not usually separated into different classes based on their major or academic year level, it was not possible to opt for stratified sampling when distributing the questionnaire. Simple random sampling was used. Students at the Faculty of Agriculture and Veterinary Medicine were excluded as they represented the smallest number of undergraduates by faculty at ANU.

In order to take a representative sample, the study involved 25% of the population from among which around 60% females and 40% males were randomly selected from each of the 49 classes of the course to fill in the questionnaire.

As the total enrolment of undergraduates at ANU in 2016/2017 was about 60% females and 40% males, the gender distribution of the population was taken into consideration. In total, 513 undergraduates (312 females and 201 males) filled in the questionnaire. After collecting the questionnaire, 5 females and 4 males were also randomly chosen to participate in the focus group discussion. The aim of the study was made clear to the students.

The qualitative data obtained through the focus group discussion was analysed thematically. The Statistical Package for the Social Sciences (SPSS) version 23 was used to analyse the quantitative data collected from the questionnaire. The independent samples test, the one-way analysis of variance (ANOVA), and Scheffe's post-hoc test were carried out to analyse the quantitative data. A probability of $p < 0.05$ was considered statistically significant.

4. Results and discussion

Most of the respondents are first-year students studying at the Faculty of Engineering and Information Technology. The majority of respondents consider their computer skills to be at an intermediate level.

Their English language level was identified based on their results in the Palestinian standardised English language exam that they took before they were accepted at universities in Palestine. Most students answered this question with 'excellent'.

Table 1: The demographic characteristics of the 513 respondents.

Category		Frequency	Percentage
Gender	Female	312	60.82%
	Male	201	39.18%
	Students who did not identify their gender	0	0%
Faculty	Faculty of Engineering and Information Technology	129	25.15%
	Faculty of Medicine and Health Sciences	86	16.76%
	Faculty of Economics and Social Studies	84	16.37%
	Faculty of Educational Sciences and Teachers' Training	52	10.14%
	Faculty of Law	49	9.55%
	Faculty of Humanities	48	9.36%
	Faculty of Islamic Law	25	4.87%
	Faculty of Fine Arts	24	4.68%
	Faculty of Science	16	3.12%
	Students who did not identify their major	0	0%
Academic Year Level	First-year Students	214	41.72%
	Sophomores	110	21.44%
	Junior Students	54	10.53%
	Senior Students	118	23%
	Students who did not identify their academic year level	17	3.31%
Computer Skills	Proficient Level of Computer Skills	21	4.09%
	Advanced Level of Computer Skills	130	25.34%
	Intermediate Level of Computer Skills	297	57.89%
	Basic Level of Computer Skills	54	10.53%
	No Computer Skills	11	2.14%
	Students who did not identify their computer-skills	0	0%
English Language Level	Excellent	257	50.1%
	Very Good	94	18.32%
	Good	59	11.5%
	Acceptable	36	7.01%
	Poor	58	11.31%
	Students who did not identify their English language level	9	1.75%

4.1. Gender

The independent samples test was carried out to test the first null hypothesis. As Table 2 shows, there is a statistically significant difference in attitude between male and female undergraduates. This study found that male undergraduates were more inclined towards computer-based English language exams [mean= 3.2528, standard deviation= .71528] than female undergraduates [mean= 3.0831, standard deviation= .56223]. Therefore, the first hypothesis was rejected.

Table 2: Students' attitudes and gender.

Gender	Frequency	Mean	Standard Deviation	t	df	Sig. (2-tailed)
Female	312	3.0831	.56223	-2.994	511	.003
Male	201	3.2528	.71528			

A difference between the attitude of female and male undergraduates was also noticed during the focus group discussion. Whereas most of the female participants indicated that they prefer to take English language exams in a paper-based format and that they are anxious about facing technical problems, the majority of male students

pointed that they are okay with taking English language exams in a paper-based or computer-based format. This adds to the number of studies, mentioned earlier, which concluded that there is a difference in attitude due to gender.

4.2. Major

The one-way ANOVA was used to test the second null hypothesis. The findings revealed that there was a statistically significant difference in attitude due to major [F= 2.649, Sig.= .005]. Consequently, the null hypothesis was rejected.

As Table 3 shows, the most positive attitude found was among the students at the Faculty of Engineering and Information Technology [mean= 3.29]. This can be explained by their high level of familiarity with computers compared with the other study groups. The most negative attitude was found among the respondents studying at the Faculty of Science [mean= 2.87] who are less likely to use computers.

Table 3: Major of the respondents and their attitudes.

Faculty	Mean	Frequency by Gender		Percentage by Gender	
		Female	Male	Female	Male
Faculty of Engineering and Information Technology	3.29	62	67	48.1%	51.9%
Faculty of Islamic Law	3.28	13	12	52.0%	48.0%
Faculty of Fine Arts	3.22	12	12	50.0%	50.0%
Faculty of Medicine and Health Sciences	3.20	63	23	73.3%	26.7%
Faculty of Economics and Social Studies	3.18	52	32	61.9%	38.1%
Faculty of Law	2.99	22	27	44.9%	55.1%
Faculty of Humanities	2.98	38	10	79.2%	20.8%
Faculty of Educational Sciences and Teachers' Training	2.96	37	15	71.2%	28.8%
Faculty of Science	2.87	13	3	81.2%	18.8%

4.3. Computer skills

The students were asked to self-rate their computer skills.

Most respondents, around 58%, indicated that their computer skills are at an intermediate level while about 25% considered their computer skills to be at an advanced level. The one-way ANOVA was used to test the third hypothesis.

As Table 4 shows, there is a statistically significant difference in the students' attitude due to their computer skills [F= 15.084, Sig.= .000]. Therefore, the null hypothesis was rejected.

Table 4: Students' attitudes and their computer skills.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	21.674	4	5.418		
Within Groups	182.478	508	.359	15.084	.000
Total	204.151	512			

The Scheffe's post-hoc test was carried out to find the differences among the various study groups. A statistically significant difference in the students' attitudes was found between the students who consider their computer skills to be proficient and those who think that they have no computer skills [mean difference= .76312, Sig= .021]. The former group was more inclined towards computer-based exams than the latter group. There were also statistically significant differences in attitude between the students who think that their computer skills are at an advanced level and three other groups: those who consider their computer skills to be at an intermediate level [mean difference= .33245, Sig= .000], those who believe their computer skills are at a basic level [mean difference= .61114, Sig.= .000], and those who think they have no computer skills [mean difference= .91102, Sig.= .000]. The students who think that their computer skills are at an advanced level were more inclined towards computer-based exams than the other three groups. In addition, there were statistically significant differences in attitude between the students who consider their computer skills to be at an intermediate level and those who think they only have basic computer skills [mean difference= .27869, Sig.= .044] and no computer skills at all [mean difference= .57858, Sig.= .044].

The students who consider their computer skills to be at an intermediate level were more inclined towards computer-based exams than the latter groups. It is worth noting that no statistically significant differences were found between the students who consider their computer skills to be at a basic level and those who think they have no computer skills [mean difference= .29989, Sig.= .683]. They were both less inclined towards computer-based exams than the other study groups. In brief, the students who believe they have a high level of computer skills were more inclined towards computer-based English language exams than the students who consider their computer skills to be at a low level.

4.4. Academic year level

To test the fourth hypothesis, the one-way ANOVA was carried out. As seen in Table 5, there is a statistically significant difference in the students' attitude towards computer-based English language exams due to academic year level [F= 2.723, Sig.= .044]. As a result, the fourth hypothesis was rejected.

Table 5: Their attitudes and academic year level.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.278	3	1.093		
Within Groups	197.459	492	.401	2.723	.044
Total	200.737	495			

The post-hoc test was carried out to find the differences between the study groups. This study found that there was a statistically significant difference in attitude between first-year students and senior students [mean difference= .16306[*]]. As Table 6 shows, there is a statistically significant difference between first-year students and junior students [mean difference= .20870[*]]. Senior and junior students were more inclined towards computer-based English language exams than first-year students.

The results of the focus group discussion were in line with that. Some first-year students referred to their lack of experience with computer-based exams. Two senior students pointed that they are used to taking computer-based exams, and that these exams do not stress them out anymore. This means that the students became more familiar with computer-based exams during their time at university, and that their attitude improved.

Table 6: The differences between the students at different levels.

(I) Group	(J) Group	Mean Difference (I-J) * The mean difference is significant at the .05 level
First-year Students	Sophomores	.12744
	Junior Students	.20870[*]
	Senior Students	.16306[*]
Sophomores	First-year Students	-.12744
	Junior Students	.08126
	Senior Students	.03563
Junior Students	First-year Students	-.20870[*]
	Sophomores	-.08126
	Senior Students	-.04563
Senior Students	First-year Students	-.16306[*]
	Sophomores	-.03563
	Junior Students	.04563

4.5. Level of English

The students were asked to answer this part of the questionnaire based on their English language score in the Palestinian General Secondary Examination, which is a national standardised exam held once a year and administrated by the Palestinian Ministry of Education and Higher Education. The students were asked to choose the option that best matched their grade in the English language exam. The five options were: excellent, very good, good, acceptable, and poor.

The one-way ANOVA was conducted to test the fifth hypothesis. As presented in Table 7, there is no statistically significant difference in the students' attitude due to their level of English [F= 2.281, Sig.= .060]. In other words, the fifth hypothesis is true.

It is noteworthy that during the focus group discussion one student whose level of English is low pointed that he prefers computer-based to paper-based exams. He said that he finds computer-based English language exams easier because most questions are closed-ended, and that he does not want to write full sentences or paragraphs in English.

Table 7: Students' attitude and their English language level.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.601	4	.900		
Within Groups	196.973	499	.395	2.281	.060
Total	200.574	503			

5. Conclusion

This paper investigated whether the undergraduates' gender, major, academic year level, computer skills, and level of English had an impact on their attitude towards computer-based English language exams. The findings of this study revealed statistically significant differences in attitude due to gender, major, academic year level, and computer skills whereas no statistically significant differences in attitude were found due to their level of English. This research showed that male undergraduates were more inclined towards computer-based English language exams than their female counterparts. The most positive attitude was found among the students at the Faculty of Engineering and Information Technology while the most negative attitude was found among the students at the Faculty of Science. Senior and junior undergraduates had a better attitude towards computer-based English language exams than first-year students. Last but not least, it was found that the students who think they have a high level of computer skills were more inclined towards computer-based English language exams than those who consider their computer skills to be at a low level.

References

[1] A. Ateeri. "The Attitude of Undergraduates Towards Computer-based English Language Exams: A Case Study of An-Najah National University, Palestine." *International Journal of Computer (IJC)*, vol. 46, pp. 53–62, Feb. 2023.

[2] F. Alkhezzi. "The Effect of Test Anxiety on the Performance in E-Exams: A Correlational Study on Kuwait University Students." *International Journal for Research in Education*, vol. 33, pp. 1-29, Jan. 2013.

[3] K. A. Da'asin. "Attitude of Ash-Shobak University College Students to E-Exam for Intermediate University Degree in Jordan." *Journal of Education and Practice*, vol. 7, pp. 10-17, 2016.

[4] M. A. Uddin, F. Ahmar, and M. N. Alraja. "E-examinations for Management Students in Oman." *International Journal of Applied Business and Economic Research*, vol. 14, pp. 87-95, 2016.

[5] I. Yurdabakan and C. Uzunkavak. "Primary School Students' Attitudes Towards Computer-based Testing and Assessment in Turkey." *Turkish Online Journal of Distance Education*, vol. 13, pp. 177-

188, Jul. 2012.

[6] M. Al-Khayat. "Students and Instructors' Attitudes toward Computerized Tests in Business Faculty at the Main Campus of Al-Blaqa Applied University." *An-Najah University Journal for Research (Humanities)*, vol. 31, pp. 2041- 2072, 2017.

[7] A. Broos. "Gender and Information and Communication Technologies (ICT) Anxiety: Male Self-assurance and Female Hesitation." *Cyberpsychology & Behavior*, vol. 8, pp. 21-31, 2005.

[8] C. Comber, A. Colley, D. J. Hargreaves, and L. Dorn. "The Effects of Age, Gender and Computer Experience upon Computer Attitudes." *Educational Research*, vol. 39, pp. 123-133, 1997.

[9] A. Durndell, Z. Haag, and H. Laithwaite. "Computer Self Efficacy and Gender: A Cross Cultural Study of Scotland and Romania." *Personality and Individual Differences*, vol. 28, pp. 1037-1044, Jun. 2000.

[10] S. Liaw. "An Internet Survey for Perceptions of Computers and the World Wide Web: Relationship, Prediction, and Difference." *Computers in Human Behavior*, vol. 18, pp. 17-35, 2002.

[11] A. Mitra, S. Lenzmeier, T. Steffensmeier, R. Avon, N. Qu, and M. Hazen. "Gender and Computer Use in an Academic Institution: Report from a Longitudinal Study." *Journal of Educational Computing Research*, vol. 23, pp. 67-84, 2000.

[12] B. J. Young. "Gender Differences in Student Attitudes toward Computers." *Journal of Research on Computing in Education*, vol. 33, pp. 204-216, 2000.

[13] C. Tsai, S. Lin, and M. Tsai. "Developing an Internet Attitude Scale for High School Students." *Computers & Education*, vol. 37, pp. 41-51, 2001.

[14] M. Hillier. "The Very Idea of e-Exams: Student (Pre)conceptions," in *Rhetoric and Reality: Critical Perspectives on Educational Technology*. B. Hegarty, J. McDonald, and S.-K. Loke (Eds.). Dunedin: Ascilite, 2014, pp. 77-88.

[15] V. Terzis and A. A. Economides. "Computer-based Assessment: Gender Differences in Perceptions and Acceptance." *Computers in Human Behavior*, vol. 27, pp. 2108-2122, 2011.

[16] A. Durndell and Z. Haag. "Computer Self-efficacy, Computer Anxiety, Attitudes Towards the Internet and Reported Experience with the Internet, by Gender, in an East European Sample." *Computers in Human Behavior*, vol. 18, pp. 521-535, 2002.

[17] Y. Kim. "Gender Role and the Use of University Library Website Resources: A Social Cognitive Theory Perspective." *Journal of Information Science*, vol. 36, pp. 603-617, 2010.

[18] P. Schumacher and J. Morahan-Martin. "Gender, Internet and Computer Attitudes and Experiences."

Computers in Human Behavior, vol. 17, pp. 95-110, 2001.

[19] I. Vekiri and A. Chronaki. "Gender Issues in Technology Use: Perceived Social Support, Computer Self-efficacy and Value Beliefs, and Computer Use Beyond School." *Computers & Education*, vol. 51, pp. 1392-1404, 2008.

[20] A. Alnawaiseh and S. Alnawaiseh. "The Attitude of Information Technology Students in Mutah University Towards Computerized Exams." *European Scientific Journal*, vol.11, pp. 416-428, Dec. 2015.

[21] M. Jamil. "Perceptions of University Students regarding Computer Assisted Assessment." *Turkish Online Journal of Educational Technology*, vol. 11, pp. 267-277, Jul. 2012.