

# The Attitude of Undergraduates Towards Computer-based English Language Exams: A Case Study of An-Najah National University, Palestine

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## Abstract

This paper examines the attitudes of undergraduates at An-Najah National University towards computer-based English language exams. The study adopts both quantitative and qualitative methods. Data was collected from a paper-based group-administrated questionnaire totalling 27 items and a focus group discussion. The population of this study consisted of 2021 undergraduates who were taking an English language core requirement course (English Language Course I) during Spring Semester 2016/2017. A simple random sample of 513 undergraduates was selected from all of the 49 classes of the course to fill in the questionnaire. Nine students were randomly chosen to participate in the focus group discussion. The results reveal that while the undergraduates at An-Najah National University had a positive attitude towards computer-based English language exams, they preferred paper-based to computer-based exams. This initial study recommends providing undergraduates with adequate training in computer-based exams, and it offers some suggestions for improving their experience. It paves the way for further research to find out whether the students' attitude towards computer-based English language exams affects their performance.

**Keywords:** Attitude; Computer-based Exams; English Language Exams; Summative Assessment; Undergraduates.

## 1. Introduction

An-Najah National University (ANU) is a Palestinian university located in Nablus City in the Occupied Palestinian Territories. It is the largest Palestinian university by undergraduate enrolment. In the last decade, the university decided to computerise the exams of some of its mandatory courses. The first computer-based exam for a university course at ANU took place in October 2013 when the Language Centre and E-Learning Centre at the university worked together to computerise the exams of the Remedial English Language Course. There are many benefits of computer-based exams for college administrators, teachers, invigilators, and students. First, computer-based exams are cost-saving as they can reduce the expenses spent on paper and printing.

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They are also extremely efficient for assessing large classes of students because they can reduce the burden of the teachers and the time that they take to evaluate their students. In addition, instead of identifying the examinees by checking their identification cards, cameras and fingerprint readers can be used in computer labs to identify the examinees. This would prevent impersonation and ease monitoring. Students can also receive feedback and their scores instantly upon completion of the exam. In brief, computer-based exams are cost-cutting and time-saving, and they help prevent academic misconduct. There are, on the other hand, many drawbacks to computer-based exams that must be taken into account before introducing computer-based assessments in any institution. First, the automatic generation of more than one exam from a question bank may result in creating non-equivalent exams. Some studies [1, 2] indicate that there is an increased anxiety among students who are not familiar with the use of computers, and that computer-based exams may be impeded by the concern that computer anxiety may affect test performance [3]. Moreover, a limited number of question types (closed-ended questions) are usually used in computer-based exams because they can be marked immediately after the exam. *Individualised* and detailed feedback is not usually offered in computer-based exams. These question types are not always suitable to assess [4] as they are usually limited to testing knowledge and receptive skills (listening and reading) without paying much attention to productive skills (writing and speaking) [2]. Also, students usually find reading passages on a computer to be eye fatiguing and more difficult than reading the same passages on paper [5]. They indicate that the questions seem harder in computer-based exams [6]. For these reasons and many others, some institutions are hesitant to use computers in their assessments since they are concerned about the validity and reliability of computer-based exams.

When the obstacles of implementing computer-based exams are overcome and appropriate measures are taken to mitigate the drawbacks, computer-based exams may become more valid and reliable than paper-based exams. First, this is because high quality images and multimedia can be used to incorporate new exam formats. This helps to present questions that cannot easily be asked in paper-based exams, thereby testing skills that are rarely examined. Computer-based exams can also offer consistency in terms of grading. Moreover, exam errors in the questions can be detected and corrected much more easily in computer-based exams than in paper-based exams, and weak exam items can easily and quickly be removed. Furthermore, using computers in the assessment provides teachers and college administrators with a great deal of automatically recorded data that can efficiently be analysed to assess the validity of exam items and to reflect on the students' performance.

### ***1.1. Statement of the problem***

The Language Centre decided at the beginning of the Fall Semester 2016/2017 to computerise the exams of the university's largest English language course, namely English Language Course 1, with around 2000 undergraduates enrolled on the course every semester. After computerising the exams of the course for that semester, the university found that the students' scores in the computer-based exams were much lower than usual with a higher percentage of the students failing the course. Consequently, in the Spring Semester 2016/2017, the Language Centre decided to temporarily go back to the paper-based exam for this course until the reasons behind the lower overall scores were found. It is worth noting that most of the question types were very similar, and that there were no substantial differences in the content of the exam.

Apart from this problem, there are other reasons for choosing English Language Course 1 in particular for this case study. First, it is the only English language course at ANU that is compulsory for all undergraduates. Therefore, investigating the attitudes of undergraduates from various faculties will lead to an understanding of the differences between them. Second, this course counts towards the students' GPA, so they usually pay more attention to it than to the English language courses taken on a pass/fail basis.

### ***1.2. Importance of the study***

The successful development of computer-based tests as a form of assessment depends on the acceptance of both teachers and students [7]. It is essential to investigate students' level of acceptance of computer-based exams since their attitude plays a fundamental role in the improvement of these exams [8, 9, 10, 11, 12].

Finding the factors that may have an impact on the students' performance in computer-based exams is necessary before introducing the online method of assessment to ensure that computer-based exams test students' knowledge and skills accurately and fairly and are not affected by other internal and environmental factors. As previously mentioned, this is the first and only research conducted at a Palestinian university to investigate undergraduates' attitudes towards computer-based exams. It aims to contribute to our understanding of computer-based exams, and it concludes with relevant recommendations for developing them.

## **2. Literature review**

Many studies [13, 5, 14, 15, 16, 17, 18] have evaluated the comparability of computer-based exams to paper-based exams. They have examined the impact of several factors on the performance of students in computer-based tests. These include individual test taker characteristics such as gender [5, 1, 16], computer anxiety [1, 19, 3, 20, 21], and computer familiarity and experience [1, 16, 19, 21].

It was also explored whether there was a relationship between the examinees' testing mode preference and their performance in computer-based exams [13, 5]. After reviewing the relevant studies, it was found that they reveal different results regarding the students' attitudes towards computer-based exams. Many studies [22, 15, 23, 24, 25, 4, 11, 12, 26] indicated that students prefer computer-based to paper-based exams. In contrast, some [9, 27, 10] showed that students prefer paper-based exams. Second, some [22, 15] found that students feel less anxious about taking computer-based exams while others [1, 28, 20, 11] pointed that students feel more anxious about taking computer-based exams. This lack of consensus is an indication of the need to examine students' attitudes more closely.

There is still a dearth of published studies that investigate the attitude of students towards computer-based exams. There has been no single study conducted at any Palestinian university until now that examines undergraduates' attitudes towards using computers in the assessments.

This paper also paves the way for the forthcoming study which explores the impact of gender, major, academic year level, computer skills, and the students' level of English on their attitude towards computer-based English language exams.

### **3. Methodology**

#### ***3.1. Data collection and sampling***

The population of this study consisted of 2021 undergraduates. To take a representative sample, around 25% of the students were randomly selected from each of the 49 classes of the course, taking into account the gender distribution of the population. The objective of the study was explained to the participants, and they were assured of the confidentiality of their responses.

The 513 undergraduates (312 females and 201 males) filled in the paper-based questionnaires during the last ten minutes of their classes, so then all the questionnaires were successfully retrieved. The questionnaire was composed of closed-ended questions that were divided into two sections.

The first section consisted of 27 items developed based on previous related studies. The participants were asked to respond to the items based on the 5-point Likert Scale where 1= strongly disagree and 5= strongly agree. The second section collected demographic data about the respondents, namely their academic year level, major, level of English, computer skills, and gender, which are explored in the coming paper. After collecting all of the questionnaires, nine students (five females and four males) were randomly selected to participate in a focus group discussion. The aim of the discussion was to gain a better understanding of the students' attitudes and to get suggestions for the improvement of computer-based exams.

The discussion included predetermined open-ended questions concerning the students' perspectives of computer-based exams and the difficulties they face while taking them.

#### ***3.2. Data analysis***

The qualitative data collected through the focus group discussion was coded and analysed thematically. The quantitative data collected from the paper-based questionnaire was coded and analysed using the Statistical Package for the Social Sciences (SPSS) version 23. Cronbach's alpha was used to assess the internal consistency of the questionnaire. The alpha coefficient for the 27 items of the questionnaire was .917, which suggests that the items have a high internal consistency and that the instrument is reliable.

### **4. Results and discussion**

#### ***4.1. Paper-based questionnaire***

The mean scores and standard deviations were calculated. As the following table shows, the mean scores range between 2.27 and 3.84, and the standard deviations range between .96 and 1.66.

The average of the responses to the questionnaire is 3.1496 with a standard deviation of .631. This indicates that the respondents had a positive attitude. As shown in the table, there are 16 out of 27 items with mean scores ranging between 3.10 and 3.84. There are 11 items with mean scores below 3 that range between 2.27 and 2.98,

indicating that the students had some concerns.

The highest three mean scores recorded were 3.84, 3.81, and 3.77 for items no. 24, 23, and 26 respectively. Over 70% of the respondents (strongly) agreed with the three items.

This indicates that the students found computer-based exams efficient at minimising marking mistakes, and that they considered receiving feedback on the screen upon completion of the computer-based exams useful.

The students also thought that basic computer knowledge and skills are sufficient for taking computer-based exams. Almost 70% of the respondents (strongly) agreed with items no. 14, 22, and 10, whose mean scores range between 3.75 and 3.70 with standard deviations ranging between .96 and 1.20. This shows that the respondents thought that computer-based English language exams have many advantages, among which are preparing them to take international computer-based English language exams, receiving immediate results upon completion of the exam, and taking the specified amount of exam time. The lowest two mean scores recorded were 2.27 and 2.40 for items no. 8 and 5 respectively. Around 68% of the respondents (strongly) disagreed with item no. 8. This indicates that they were afraid of facing technical problems such as computer crashes, power outages, and Internet interruptions while taking computer-based exams. Almost 60% of the respondents (strongly) disagreed with item no. 5.

This reveals that they think that computer-based exams have a negative effect on their ability to concentrate. Fear of facing technical problems and losing concentration are likely to be associated with computer anxiety. Item no. 27 recorded the third lowest mean score of 2.59 with a standard deviation of 1.36. In response to this item, almost 53% of the respondents stated that they do not prefer computer-based exams to paper-based exams while 29% of the respondents expressed their preference for computer-based exams, and only almost 17% of them had no preference.

**Table 1:** The students' responses to the items of the questionnaire.

No.	Items	Mean	SD
24	Computer-based exams minimise marking mistakes.	3.84	1.01
23	Receiving immediate feedback upon completion of computer-based exams is incredible and saves time.	3.81	1.04
26	Basic computer skills are sufficient for taking computer-based exams.	3.77	.96
14	Taking computer-based English language exams at the university can prepare me to take international computer-based English language exams such as the TOEFL iBT test.	3.75	.96
22	Receiving immediate results upon completion of computer-based exams is fantastic.	3.74	1.20
10	The opportunity to take the specified amount of exam time is higher in computer-based exams than in paper-based exams.	3.70	1.01
16	I am competent at using computers, so I am confident in my ability to use them while taking computer-based exams.	3.47	1.66
18	It is easy to scroll between questions and sections in computer-based exams.	3.37	1.09
9	Computer-based exams reduce cheating.	3.34	1.22
13	Holding computer-based exams at the university is essential to keep pace with global technological developments.	3.28	1.10
2	Computer-based exams promote equality and ensure fairness for all students.	3.27	1.18
15	The university computer labs and IT infrastructure are good enough for holding computer-based exams.	3.21	1.07
12	It takes less waiting time to start computer-based exams than paper-based exams.	3.21	1.07
4	I take less time to answer the questions in computer-based exams than in paper-based exams.	3.20	1.17
25	Exam errors can be detected and corrected in computer-based exams much more easily and faster than in paper-based exams.	3.10	1.13
20	Using a mouse and keyboard makes answering exam questions easier and faster than using a pen and paper.	3.10	1.13
7	I do not need support from computer professionals while taking computer-based exams.	2.98	1.26
21	My scores in computer-based exams accurately reflect my learning, and computerising English language exams has no negative impact on my performance.	2.97	1.14
11	The testing environment of computer-based exams in computer labs is more comfortable and less stressful than the testing environment of paper-based exams in classrooms.	2.91	1.19
6	Computer-based exams help me to manage my time during the examination.	2.89	1.12
19	Reading questions on a computer screen is easier and faster than reading them on paper.	2.81	1.17
1	Computer-based exams reduce test anxiety.	2.78	1.17
3	Reviewing my answers in computer-based exams is easier than in paper-based exams.	2.69	1.29
17	I have got enough training to familiarise me with computer-based exams.	2.62	1.10
27	If I have a choice between computer-based exams and paper-based exams, I will opt for computer-based exams.	2.59	1.36
5	Computer-based exams have no negative effect on my ability to concentrate.	2.40	1.15
8	I am not afraid of facing technical problems such as computer crashes, power outages, or Internet interruptions while taking computer-based exams.	2.27	1.20
Average of Responses= 3.1496			SD=.631

#### 4.2. Focus group discussion

The results of the focus group discussion are similar to those obtained through the questionnaire. During the discussion, the participants acknowledged some of the advantages of computer-based exams. The most positive recurring theme was receiving immediate *feedback* and *results* upon completion of computer-based exams. The participants repeated several times that receiving their results upon completing the computer-based exams relieved their stress, and that waiting for their results after taking paper-based exams made them feel nervous during university examination periods.

The two most negative recurring themes during the discussion were unfamiliarity with computer-based exams and a lack of concentration when taking computer-based exams. One participant said: "We do not take computer-based exams at schools in Palestine, so it is normal that we feel anxious about taking them now".

Another participant explained how, during his first experience of computer-based exams, the computer he was taking the exam on lost its Internet connection 15 minutes after starting the exam. The student said: "I talked to the invigilator, and he told me to use another computer. I was worried that it was only me, and that the computers were working well with everyone else. I was anxious about whether I will be given extra time beyond the scheduled end time of the exam to replace the time I lost when I moved from one computer to another and the time I took to log in again. I was also nervous about whether my answers were properly saved or not and whether I need to start answering all the questions again. If it had occurred to all the students in the exam room at the same time, I would not have been afraid, but it was only me".

Some of the students pointed that they are unfamiliar not only with computer-based exams but also with computers themselves. One student said: "I usually use my smart phone for surfing the Internet. Although I have a computer at home, I rarely use it. Many fellow students as well solely rely on their smart phones". One out of the nine participants mentioned that she does not have a computer at home. She said: "In Occupied Palestine, we are not like everybody else. Not everybody has a computer at home. I use a university computer when I need one, but I do not have a computer at home".

During the discussion, the participants frequently repeated that they think computer-based exams have a negative impact on their ability to concentrate. One student said: "In paper-based exams, I can have a quick look at all questions in few minutes before I start answering them. This is relieving because it helps me to expect the number of questions I cannot answer. However, in computer-based exams, I need to answer one question and then press on 'next' to move to the next question. I feel scared of not knowing what next will appear on the screen, and my mind goes blank". Another student mentioned that she needs to take notes while taking any exam to help her concentrate, especially when answering the reading comprehension section of English language exams. The majority of the participants indicated that they can concentrate better when reading questions on paper.

As can be concluded, some of the findings of this study are in line with [1, 28, 20, 11] which found that students have a high level of anxiety towards computer-based exams. They are different from [22, 15] which found that students feel less anxious about taking computer-based exams. Some of the results of this research are also similar to [9, 27, 10] which concluded that students prefer paper-based exams to computer-based exams. They are different from [22, 15, 23, 24, 4, 11, 12, 26] which concluded that students prefer computer-based exams.

## **5. Conclusion**

This paper investigated the attitude of undergraduates at An-Najah National University towards computer-based English language exams. The findings reveal that the students have a positive attitude towards computer-based English language exams, but they prefer paper-based exams. The majority are concerned about facing technical problems and losing concentration while taking computer-based exams. However, they believe that using computers in the assessment is efficient at minimising marking mistakes and preparing them to take international computer-based English language exams. They also found receiving their results and immediate feedback upon completing computer-based exams useful and relieving.

## 6. Recommendations

During the discussion, the students offered some suggestions that would help them when taking computer-based exams. First, to reduce the fear of facing technical problems, the students recommended using offline programmes for computer-based exams, and they indicated that they are most afraid of Internet interruptions since this is more likely to happen than a power outage. Second, they suggested not displaying an exam timer on the screen as it increases their anxiety and making it available in case they want to find out how much time is left. The students also pointed out that they need blank sheets of paper during computer-based exams to take notes, which, according to them, would help them to concentrate. Furthermore, they emphasised that they need to skim all questions at the same time in the first few minutes of the computer-based exam to relieve their stress since, according to them, presenting one question at a time increases their anxiety.

There are other recommendations that can be made to help the students and decrease their anxiety. First, enabling them to highlight the texts and questions on the screen, especially in the reading comprehension section, may help to increase their concentration when taking computer-based exams. This can also be useful to the students who sometimes forget to answer some of the questions in paper-based exams. Taking mock exams in the university computer labs a few days before the exam date would help to familiarise them with computer-based exams. The presentation of exam items should be made more attractive and less stressful. Things that can be improved include the design of multimedia, font type, font size, and the colours used. After holding computer-based English language exams, teachers should give detailed feedback in class to help their students develop and reflect on their learning.

## 7. Funding

None

## References

- [1] F. Alkhezzi. "The Effect of Test Anxiety on the Performance in E-Exams: A Correlational Study on Kuwait University Students." *The International Journal for Research in Education*, vol. 33, pp. 1-29, Jan. 2013.
- [2] J. D. Brown. "Language Testing and Technology," in *The Routledge Handbook of Language Learning and Technology*, 1<sup>st</sup> ed., vol. 1. F. Farr and L. Murray, Eds. London: Routledge, 2016, pp. 141-159.
- [3] M. D. Shermis and D. Lombard. "Effects of Computer-based Test Administrations on Test Anxiety and Performance." *Computers in Human Behavior*, vol. 14, pp. 111-123, Jan. 1998.
- [4] E. Sheader, I. Gouldsborough, and R. Grady. "Staff and Student Perceptions of Computer-assisted Assessment for Physiology Practical Classes." *Advances in Physiology Education*, vol. 30, pp. 174-180, Dec. 2006.



- [5] S. Al-Amri. "Computer-based Testing VS Paper-based Testing: Establishing the Comparability of Reading Tests through the Evolution of a New Comparability Model in a Saudi EFL Context." PhD thesis, University of Essex, England, 2009.
- [6] M. Johnson and S. Green. *On-line Assessment: The Impact of Mode on Student Performance*. Cambridge: University of Cambridge, 2004, pp. 2-22.
- [7] J. Kim. "A Study of Perceptual Typologies on Computer Based Assessment (CBA): Instructor and Student Perspectives." *Educational Technology & Society*, vol. 18, pp. 80-96, Apr. 2015.
- [8] D. Coniam. "Subjects' Reactions to Computer-based Tests." *Journal of Educational Technology Systems*, vol. 27, pp.195-206, Mar. 1999.
- [9] A. H. Dammas. "Investigate Students' Attitudes Toward Computer Based Test (CBT) at Chemistry Course." *Archives of Business Research*, vol. 4, pp. 58-71, Dec. 2016.
- [10] R. G. Jimoh, A. Shittu, and Y. Kawu. "Students' Perception of Computer Based Test (CBT) for Examining Undergraduate Chemistry Courses." *Journal of Emerging Trends in Computing and Information Sciences*, vol. 3, pp. 125-134, Feb. 2012.
- [11] A. Tella and M. T. Bashorun. "Attitude of Undergraduate Students Towards Computer-based Test (CBT): A Case Study of the University of Ilorin, Nigeria." *International Journal of Information and Communication Technology Education (IJICTE)*, vol. 8, pp. 33-45, Apr. 2012.
- [12] B. Wijerathne and G. Rathnayake. "Medical Students' Attitudes and Perspectives Regarding Novel Computer-based Practical Spot Tests Compared to Traditional Practical Spot Tests." *Canadian Medical Education Journal*, vol. 4, pp. e41-e48, Sept. 2013.
- [13] S. Al-Amri. "Computer-based VS Paper-based Testing: Does the Test Administration Mode Matter?" in *Proceedings of the BAAL Conference*, 2007, pp. 101-110.
- [14] R. E. Bennett, J. Braswell, A. Oranje, B. Sandene, B. Kaplan, and F. Yan. "Does it Matter if I Take My Mathematics Test on Computer? A Second Empirical Study of Mode Effects in NAEP." *The Journal of Technology, Learning and Assessment*, vol. 6, pp. 4-38, June 2008.
- [15] D. L. Butler. (2003, Jan./Feb). "The Impact of Computer-Based Testing on Student Attitudes and Behavior." *The Technology Source*. [Online]. Available: <http://ts.mivu.org/default.asp?show=article&id=1013> [Jan. 28, 2023].
- [16] R. Clariana and P. Wallace. "Paper-based Versus Computer-based Assessment: Key Factors Associated with the Test Mode Effect." *British Journal of Educational Technology*, vol. 33, pp. 593-602, Nov. 2002.

- [17] M. Pomplun, S. Frey, and D. F. Becker. "The Score Equivalence of Paper-and-pencil and Computerized Versions of a Speeded Test of Reading Comprehension." *Educational and Psychological Measurement*, vol. 62, pp. 337–354, Apr. 2002.
- [18] D. E. Powers. "Test Anxiety and Test Performance: Comparing Paper-based and Computer-adaptive Versions of the GRE General Test." *ETS Research Report Series*, pp. i–32, Dec. 1999.
- [19] A. S. McDonald. "The Impact of Individual Differences on the Equivalence of Computer-based and Paper-and-pencil Educational Assessments." *Computers & Education*, vol. 39, pp. 299-312, Nov. 2002.
- [20] F. Shi. "Exploring Students' Anxiety in Computer-based Oral English Test." *Journal of Language Teaching & Research*, vol. 3, pp. 446-451, Mar. 2012.
- [21] D. Wiechmann and A. M. Ryan. "Reactions to Computerized Testing in Selection Contexts." *International Journal of Selection and Assessment*, vol. 11, pp. 215-229, Jul. 2003.
- [22] N. Adada, A. Shatila, and H. Tabsh. "University Students' Attitudes Toward E-Tests." in *The Fifth International Conference on e-Learning (econf)*, 2015, pp. 331-335.
- [23] M. Jawaid, F. A. Moosa, F. Jaleel, J. Ashraf. "Computer Based Assessment (CBA): Perception of Residents at Dow University of Health Sciences." *Pakistan Journal of Medical Sciences*, vol. 30, pp. 688-,691. Jul. 2014.
- [24] E. CH Lim, B. KC Ong, E. PV Wilder-Smith, and R. CS Seet. "Computer-based Versus Pen-and-paper Testing: Students' Perception." *Annals Academy of Medicine*, vol. 35, pp. 599-603, Sept. 2006.
- [25] H. Mojarrad, F. Hemmati, M. J. Gohar, and A. Sadeghi. "Computer-based Assessment (CBA) VS Paper/pencil-based Assessment (PPBA): An Investigation into the Performance and Attitude of Iranian EFL Learners' Reading Comprehension." *International Journal of Language Learning and Applied Linguistics World*, vol. 4, pp. 418-428, Dec. 2013.
- [26] B. Williams. "Students' Perceptions of Prehospital Web-based Examinations." *The International Journal of Education and Development using ICT*, vol. 3, pp. 54-63, Mar. 2007.
- [27] D. Jamiludin, D. Darnawati, and W. Uke. "Students' Perception Towards National Examination 2017: Computer-based Test or Paper-based Test." *Mediterranean Journal of Social Sciences*, vol. 8, pp. 139-143, Jul. 2017.
- [28] 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.