# 

**Computerized based exams as perceived by English Teachers An-Najah National University Case**

**Authors: Saida Affouneh1, Muna Shaath 2,** **Mohammad Alem3**

1Elearning Centre, An-Najah National University, Nablus- Palestine, s.affouneh@najah.edu.

2Faculty Member - Department of Psychology And Counseling, Economics and Administrative Sciences, An-Najah National University, Nablus- Palestine, munashaath@najah.edu.

3 Faculty Member - Department Of English Language And Literature Master, Birzeit university, alem.mohammad@ymail.com.

خلاصة:

هدفت هذه الدراسة الى التعرف على اتجاهات أعضاء الهيئة التدريسية للعاملين في مركز اللغات نحو الامتحانات المحوسبة ومدى ممارستهم لهذه الطريقة والتحديات والمزايا التي واجهتهم ولتحقيق ذلك وزعت أداة الدراسة على "مجتمع" الدراسة والمكون من 40 من أعضاء الهيئة التدريسية. أظهرت النتائج ميل مجتمع الدراسة الواضح نحو الإمتحانات المحوسبة وإيمانهم بنشر الثقافة الإلكترونية مع الإشارة الى بعض التحديات التي واجهتهم كقلة الخبرة عن البعض في مجال التعلم الإلكتروني بالإضافة إلى أهمية وجود مختبرات فعالة لإتمام ذلك إلا أنهم أظهروا ايجابيات تطبيق هذه الطريقة من الامتحانات المحوسبة وإسهامها في نشر الثقافة الرقمية التي أصبحت ملحة في مؤسسات التعليم العالي.

**Abstract:**

Worldwide fewer and fewer work tasks are done using paper and pen. This paper aims at investigating the implementation, trends and attitudes of Language Center faculty at ANNU towards CB exams, the challenges they face and their recommendation. the whole population of (40) faculty members were targeted. the results showed that this digital form of assessment was highly regarded and could replace the existing paper-based exams. However some challenges like the need of in-service training and lab maintenance should be carried out.

**Keywords:** computerized exams,attitudes, challenges, English exams, moodle

An Najah National University ANNU works towards improving the quality of its graduates through both better innovative teaching practices by enhancing technology into teaching and learning. The idea of computerized exams started at ANNU in 2012 in English introductory courses after starting developing blended courses in all subjects using MOODLE as a platform. The idea of using computers based assessment was to save time, efforts and money. Students were ready for this challenge but some teachers were not. This study aims at evaluating the experience of ANNU in conducting computerized exams for all English language exams for the first time from the teachers’ perspectives.

Many reports compare computer based exams to paper based exams and discuss the weakness and strength of each of them (such as Sarrayrih & Ilyas, 2013). Many students have set around the world to computerized exams, but it is still a new strategy of assessment for some of them. Most standards International exams are conducted as computerized exams nowadays such as TOEFL and IELTS. There is a growing need for using technology not only for teaching and learning but also for assessment and evaluation, so the assessment will be in the same type of teaching and using the same tools for delivery (Fluck, Pullen, & Harper, 2009). Many teachers consider computerized exams an efficient tool for formative and summative assessment (Byrnes & Ellis, 2006) since it offers several advantages for both the institution and the learners such as time saving through question banks, immediate feedback and automatic analysis of results Pullen& Cusack, 2007 cited in (Fluck, Pullen, & Harper, 2009 p. 510).

Myyry & Joutsenvirta (2015) states that assessment methods are essential for students’ learning experiences and that self-efficacy beliefs are essential in positive learning experiences. It also indicates that self-efficacy is affected differently for different students by the online context and that the individual differences in experiencing the learning environment should be taken into account in assessment procedures. While Chua & Mohd Don (2013 examine the validity of the computer-based test and its effects on test performance and the motivation of test-takers. The findings provide supportive evidence for the validity of computer-based test in educational assessment.

Newhouse (2013) reports how a computer-based production exam was implemented in the final-year of secondary school classes for the Applied Information Technology course in Western Australia. The conclusion was that this digital form of assessment should replace the existing paper-based exam; however, it was less certain which method of marking should be applied

Jamil, Tariq & Shami (2012) reported teachers’ perceptions about computer-based (CB) vs. paper-based (PB) examinations and concluded that overall sampled teachers’ attitudes were positive towards CB examination systems but in some situations they preferred PB as well. Comparatively, female, highly ranked, highly qualified, less experienced, teachers who have computer training certificate or degree, and teachers who have CB examination experiences were more positive towards CB examinations. Chua (2012) compared CBT and PPT on test performance (test scores), testing time and testing motivation; results indicated that the CBT mode is more reliable in terms of internal and external validity. The CBT significantly reduced testing time and developed stronger self-efficacy, intrinsic and social testing motivation in the participants.

Yan Piaw Chua ,Zuraidah Mohd Don (2013) involves a biology test and a biology motivation questionnaire using a Solomon four-group experimental design to examine the validity of the computer-based test and its effects on test performance and the motivation of test-takers. The findings provide supportive evidence for the validity of computer-based test in educational assessment.

Battalio (2009) found a number of statistically significant associations between students’ learning styles, as defined by the Index of Learning Styles, and nine measures evaluating both academic performance and student preference. The study also measured student performance in collaborative and self-directed versions of the course, as well as full and summer sessions. Reflective learners were found to be the most successful online learners, excelling in collaborative, as well as self-directed versions of the course. Sequential learners also outperformed global learners. Learning styles were not a significant factor in summer-session courses.

**The study**

*Instrumentation:* A questionnaire was designed for which all items of the instrument were couched and included after the literature review. The instrument was comprised of two parts. Part – 1 was related to teachers’ demographic information i.e., gender, designation (i.e., job tile) ,qualifications, teaching experiences, type of work, two variables regarding the information for computer training and experience of computerized were also included in the same part. 5 – Point attitude scale comprised of 22 items was included in the questionnaire as Part – 2 to explore teachers’ attitude towards computer examinations of English courses on the basis of their personal experiences.

*Instrument Validity:* To assess the validity, the instrument was distributed and discussed among 3 experts. Changes were made accordingly and the final draft of the questionnaire was sent to experts in the field of Education and Assessment for validating the instructions and necessary amendments.

*Sampling:* Table s 1-6 showed detail of 40 teachers’ response rate in terms of frequencies and percentages. To analyze data purposefully, demographic data of university teachers were categorized as (gender, designation, qualifications, teaching experience, computer training, and experience of computerized, type of work), a sample of 21 male and 19 female teachers from language center at Al-Najah National University was selected the targeted sample during the Second Semester, 2016. The sample distributed The sample was categorized into 32M.A holders and 8 PhD holders, the selection distributed by teaching experience 13 belongs to 1-8 years' experience, 27 from 8 years and more. 36 of those teachers have experience in implementing computerized exams. However, 24 of this sample were full time teachers as shown in the tables.

**The Sample of study**

The percentage of the sample size formed 100% from the population size, the following tables illustrate the description of the sample according to independent variables (Sex, Job title, Qualification, Teaching experience, Computer training, Experience of computerized, Type of work).

*Table (1) the sample distributed by frequency and percentage according to sex*

|  |  |  |
| --- | --- | --- |
| Sex | Frequency | Percentage% |
| Male | 21 | 52.5 |
| Female | 19 | 47.5 |
| Total | 40 | 100 |

*Table (2) the sample distributed by frequency and percentage according to qualification*

|  |  |  |
| --- | --- | --- |
| Qualification | Frequency | Percentage% |
| M.A/ M.Phil/ Ms | 32 | 80 |
| PhDs | 8 | 20 |
| Total | 40 | 100 |

*Table (3) the sample distributed by frequency and percentage according to Teaching Experience*

|  |  |  |
| --- | --- | --- |
| Teaching experience | Frequency | Percentage% |
| 1-8 Years | 13 | 32.5 |
| 8 Years and above | 27 | 67.5 |
| Total | 40 | 100 |

*Table (4) the sample distributed by frequency and percentage according to years computer training*

|  |  |  |
| --- | --- | --- |
| Computer training | Frequency | Percentage% |
| Yes | 33 | 82.5 |
| No | 1 | 2.5 |
| Missing | 6 | 15 |
| Total | 40 | 100 |

*Table (5) the sample distributed by frequency and percentage according to experience of computerized*

|  |  |  |
| --- | --- | --- |
| Experience of computerized | Frequency | Percentage% |
| Yes | 36 | 90 |
| No | 4 | 10 |
|  |  |  |
| Total | 40 | 100 |

*Table (6) the sample distributed by frequency and percentage according to type of work*

|  |  |  |
| --- | --- | --- |
| Type of work | frequency | Percentage% |
| Full time | 24 | 60 |
| Part time | 16 | 40 |
| Missing |  |  |
| Total | 40 | 100 |

*Table (7) the sample distributed by frequency and percentage according to the question respond do you want re-experience the computerized exam?*

|  |  |  |
| --- | --- | --- |
| Do you want re-experience the computerized exam? | Frequency | Percentage% |
| Yes | 34 | 84.5 |
| No | 6 | 15.5 |
| Total | 40 | 100 |

All in all, 40 teachers were asked to complete the questionnaire. All the questionnaires (100%) were recollected successfully after completion. Therefore, the resultant sample consisted of 40 teachers. Moreover, simple percentages, Independent t- tests and ANOVA techniques were used to analyze data statistically.

**The Results of the Study**

This study aims to explore the evaluation of the experience of computerized exams for English courses attitudes Faculty members of Language Center.

The result related to the main and first question:

The main and first question is: what is the level effect of attitudes of Faculty members /Language Center according to the experience of computerized exams for English courses?

To answer this question we used arithmetic mean averages to each statement and domain also the whole average of the questionnaire. The following table explains that:

To explain the results we adopted the arithmetic percentage averages which are responses of these statements:

-very high effect (80% and more)

- High effect (from 70% -79.9%).

- Medium effect (from 60% to 69.99%).

- Low effect (50%-59.9%).

- Very low effect (50%-59.9%).

The following table(8) shows average percentages of effect for all dimensions of attitudes of Faculty members /Language Center according to the experience of computerized exams for English courses.

*Table(8) average percentages of effect for all dimensions of attitudes of Faculty members /Language Center according to the experience of computerized exams for English courses*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dimension | Standard Deviation | Average of Response | The Percentage of Response | The Degree of Effect |
| Affective factors | 0.85 | 3.88 | 78% | High |
| Teaching and learning | 0.51 | 3.95 | 79% | High |
| Validity | 0.58 | 4.23 | 85% | Very high |
| Reliability | 0.83 | 2.87 | 57% | Low |
| Practicality | 0.55 | 3.37 | 67% | Medium |
| Cheating | 0.61 | 3.55 | 71% | High |
| Adoption | 1.44 | 3.72 | 74% | High |
| The total average | 0.36 | 3.59 | 72% | High |

It appears from table (8) which shows the dimensions average, degrees of effect for the " attitudes of faculty members /language center according to the experience of computerized exams for English courses is high on the total average percentage with 72%, the percentage of response is low on reliability dimension with 57%, the percentage of response is medium on practicality dimension with 67% close to high effect, the percentages of response are high on affective factors, teaching and learning, cheating, adoption dimensions with (78%,79%,71%,74%) respectively, the percentage of response is very high on validity dimension with 85% which is the highest among all dimensions.

*Table(9) shows the average percentages of effect for all the statements of attitudes of Faculty members /Language Center according to the experience of computerized exams for English courses*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Statements | Standard Deviation | Average of Response | The Percentage of Response | The Degree of Effect |
| Dimension 1: affective factors | | | | | |
| 1 | Using a computer for an exam is less stressful than a handwritten paper exam | 1.12 | 3.79 | 76% | High |
| 2 | I am at an advantage when undertaking computerized exams | 0.84 | 4.09 | 82% | Very high |
| The degree of all statements of dimension 1 | | 0.85 | 3.88 | 78% | High |
| Dimension 2: teaching and learning | | | | | |
| Computerized exams are consistent with contemporary learning approaches at university | | 0.71 | 3.91 | 78% | High |
| The potential for immediate feedback with a computerized exams could help to improve my time | | 0.78 | 4.00 | 80% | Very high |
| Computerized exams allow me to demonstrate the knowledge in more ways than paper based exams (e.g. Sound track, video, clear picture.) | | 0.98 | 3.65 | 73% | High |
| Computerized exams allow us to keep questions in question bank. | | 0.70 | 4.24 | 85% | Very high |
| The degree of all statements of dimension 2 | | 0.51 | 3.95 | 79% | High |
| Dimension 3: validity | | | | | |
| Computerized exams are appropriate for the university possibilities. | | 0.88 | 3.88 | 78% | High |
| Computerized exams need to include a variety of question types in order to be suitable for all levels of students | | 0.83 | 4.47 | 89% | Very high |
| Computerized exams facilitate to assess more students in short time. | | 0.88 | 4.32 | 86% | Very high |
| The degree of all statements of dimension 3 | | 0.58 | 4.23 | 85% | High |
| Dimension 4: reliability | | | | | |
| The technology used in computerized exams is unreliable | | 0.99 | 2.56 | 51% | Low |
| Computerized exams favor some students more than others | | 1.16 | 2.85 | 57% | Low |
| Paper-based exams are fairer than computerized exams | | 1.32 | 3.21 | 64% | Medium |
| The degree of all statements of dimension 4 | | 0.83 | 2.87 | 57% | Low |
| Dimension 5: practicality | | | | | |
| Technical problems make doing computerized exams impractical (Internet disconnection( | | 0.89 | 3.56 | 71% | High |
| Doing exams in the campus computer labs is impractical) number of computers) | | 1.12 | 2.88 | 58% | Low |
| Computers in labs need maintenance | | 1.14 | 3.50 | 70% | High |
| Compared with other courses on this level carrying an equal amount of credit, the effort I put into this course is as much as in other courses | | 1.18 | 3.12 | 62% | Medium |
| Computer negatively effect on thinking potential of students’ during paper. | | 1.04 | 2.94 | 59% | Low |
| Teachers should be trained for using computerized exams. | | 0.61 | 4.58 | 92% | Very high |
| The degree of all statements of dimension 5 | | 0.55 | 3.37 | 67% | Medium |
| Dimension 6: cheating | | | | | |
| Cheating was perceived to occur through insecurity of a computerized exams platform. | | 0.97 | 3.29 | 66% | Medium |
| Computerized exams reduce cheating by a difficult shuffle of questions available for each student. | | 1.02 | 3.85 | 77% | High |
| The degree of all statements of dimension 6 | | 0.61 | 3.55 | 71% | High |
| Dimension 7: adoption | | 1.44 | 3.72 | 74% | High |
| The total average | | 0.36 | 3.59 | 72% | High |

**\* Results related to the second question:**

Is their significant differences between the averages of attitudes of faculty members /language center according to the experience of computerized exams for English courses due to independent variables (Gender, Job Title, Qualifications, Teaching Experiences, Computer Training, Experience of computerized, Type of work)?

In order to answer this question, test of hypothesis is needed according to every independent variable.

**First Hypothesis:**

There is no significant differences between the averages of attitudes of faculty members /language center according to the experience of computerized exams for English courses due to gender at the level of (α =0.05).

The researchers used the differences averages of the whole statements to show the effect of attitudes of faculty members /language center according to the experience of computerized exams for English courses due to gender.

The researchers used (T-test), the relation between two independent groups to show the significant average differences of the whole statements due to gender variable

Table (10) explains that.

*Table (10) (T-test) of two independent groups according to gender variable.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| The whole average | Male | | Female | | t | Sig. (2-tailed)\* |
| Mean | Deviation | Mean | Deviation |
| 3.63 | 0.41 | 3.52 | 0.27 | -0.89 | 0.39 |

\* Statistical significant on the level of (α = 0.05)

As shown on the above table, there is no statistical significant differences between the averages of attitudes of faculty members /language center according to the experience of computerized exams for English courses due to gender at the level of (α =0.05).

**Second Hypothesis:**

There is no significant differences between the averages of attitudes of faculty members /language center according to the experience of computerized exams for English courses due to qualification at the level of (α =0.05).

the researchers used the averages to show the differences of the whole grade statements of the effect of attitudes of faculty members /language center according to the experience of computerized exams for English courses due to to qualification.

Table (11) explains that:

*Table (11) the averages of the whole grade statements due to qualification variable*

|  |  |
| --- | --- |
| Qualification | Mean |
| M. A/M. Sc | 3.59 |
| Ph. Ds | 3.57 |
| Total | 3.59 |

We use (One Way ANOVA) to find out the significant difference of the whole grade statements according to qualification variable within the sample. Table (12) shows that:

*Table (12) (One way ANOVA) shows the significant differences of the whole grade statements according to qualification variable within the sample.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| The whole grade | Source of Variation | Sum of Square | d.f | Mean Square | F | \* Sig |
| Between Groups | 0.00 | 1 | 0.00 | 0.01 | 0.94 |
| Within Groups | 4.32 | 32 | 0.14 |
| Total | 4.32 | 33 |  |

\* Statistical significant on the level (α = 0.05)

As shown on the above table, there is no statistical differences at (α = 0.05) of the whole grade statements according to qualification variable.

**Third Hypothesis:**

There is no significant differences between the averages of attitudes of faculty members /language center according to the experience of computerized exams for English courses due to teaching experiences at the level of (α =0.05).

The researchers used the differences averages of the whole statements to show the effect of attitudes of faculty members /language center according to the experience of computerized exams for English courses due to teaching experiences.

The researchers used (T-test), the relation between two independent groups to show the significant average differences of the whole statements due to teaching experiences variable

Table (13) explains that.

*Table (13) (T-test) of two independent groups according to teaching experiences variable.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| The whole average | 1 – 8 Years | | 8 Years and above | | t | Sig. (2-tailed)\* |
| Mean | Deviation | Mean | Deviation |
| 3.62 | 0.30 | 3.56 | 0.41 | 0.43 | 0.67 |

\* Statistical significant on the level of (α = 0.05)

As shown on the above table, there is no statistical significant differences between the averages of attitudes of faculty members /language center according to the experience of computerized exams for English courses due to teaching experiences at the level of (α =0.05).

**Fourth Hypothesis:**

There is no significant differences between the averages of attitudes of faculty members /language center according to the experience of computerized exams for English courses due to experience of computerized at the level of (α =0.05).

The researchers used the differences averages of the whole statements to show the effect of attitudes of faculty members /language center according to the experience of computerized exams for English courses due to experience of computerized.

The researchers used (T-test), the relation between two independent groups to show the significant average differences of the whole statements due to experience of computerized variable

Table (14) explains that.

*Table (14) (T-test) of two independent groups according to experience of computerized variable*.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| The whole average | Yes | | No | | t | Sig. (2-tailed)\* |
| Mean | Deviation | Mean | Deviation |
| 3.61 | 0.37 | 3.33 | 0.15 | -1.48 | 0.15 |

\* Statistical significant on the level of (α = 0.05)

As shown on the above table, there is no statistical significant differences between the averages of attitudes of faculty members /language center according to the experience of computerized exams for English courses due to experience of computerized at the level of (α =0.05).

**Hypothesis 5:**

There is no significant differences between the averages of attitudes of faculty members /language center according to the experience of computerized exams for English courses due to type of work at the level of (α =0.05).

The researchers used the differences averages of the whole statements to show the effect of attitudes of faculty members /language center according to the experience of computerized exams for English courses due to type of work.

The researchers used (T-test), the relation between two independent groups to show the significant average differences of the whole statements due to type of work variable

Table (15) explains that.

*Table (15) (T-test) of two independent groups according to type of work variable.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| The whole average | Full-time | | Part-time | | t | Sig. (2-tailed)\* |
| Mean | Deviation | Mean | Deviation |
| 3.47 | 0.22 | 3.71 | 0.45 | -2.004 | 0.05 |

\* Statistical significant on the level of (α = 0.05)

As shown on the above table, there is statistical significant differences between the averages of attitudes of faculty members /language center according to the experience of computerized exams for English courses due to type of work at the level of (α =0.05), to the favor of part-time members with average 3.71.

**Discussion:**

The aim of this study was to investigate the attitudes of English teachers on CB exams, in addition to their perceptions of it, taking into consideration a number of variables.

In particular, the focus was on measuring these attitudes based on the following dimensions: Affective factors, Teaching and Learning, Validity, Reliability, Practicality, Cheating, Adoption.

Another purpose was to discover whether instructors considered the CB exams authentic, fair, and practical, and discover what kind(s) of challenges are faced when implementing such exams, in addition to suggestions to overcome these challenges.

For the majority of the variables, there was no significant difference in the attitudes of those teachers according to their Gender, Job title, Qualification, Teaching experience, Computer training, Experience with computerized exams, and Type of work

The only significant differences was relevant to part time teachers of the English language; this can be explained by the lack of experience in this field in contrast to teachers who strongly agreed that CB needed to be included in their teaching.

Concerning the four dimensions, teachers believed that CB was very effective and they were at an advantage while taking them; yet they considered CB exams less fair than PB exams which shows that they still consider PB as the main tool for essential and this could be interrupted due to that CB is still a new method for theme .

Results also show that teachers considered CB as consistent with innovative approaches to learning and have allowed them to demonstrate illicit feedback faster than PB exams.

The only worry among teachers revolved around the need to control cheating due to the low rate of supervision in CB exams. They, however, still believed that shuffling could reduce this, as shown in dimension 6.

This was also reflected in dimension 3, as an element that reduced reliability, which shows that technology is favored by some students, in contrast to other students.

For the most part, teachers agreed that training of teachers was a needed before implementation of CB.

Finally, teachers internet bandwidth and connectivity, and maintenance of equipment as main challenges for CB.

**Limitation of the study:**

The study was conducted in the Spring Semester of 2016. The study was limited to a relatively small sample of teachers (40) it represented the who (population ). There for the results may be generalized to other teachers in other facilities.

**Recommendations:**

The study highlighted the need for further research regarding the reliability and validity of CB exam systems in ANNU as methods for student assessment.

1. Conducting more in service training for faculty members especially who works as part timers.
2. Improve the labs infrastructure so we can reduce the technical problems.
3. Since CB are an aid to learning, it is a practice that is part of the package of a good educational system.
4. Develop an incentive system for teachers who conduct computerized exams.

# References:

Battalio, J. (2009). Success in Distance Education: Do Learning Styles and Multiple Formats Matter? *American Journal of Distance Education*.

Byrnes, R., & Ellis, A. (2006). The prevalence and characteristics of online assessment in Australian universities. *Australasian Journal of Educational Technology, vol. 22, no. 1* .

Chua, Y. P. (2012). Effects of computer-based testing on test performance and testing motivation.  *Computers in Human Behavior 28(5):1580–1586* .

Chua, Y. P., & Mohd Don, Z. (2013). Effects of computer-based educational achievement test on test performance and test takers’ motivation. *Computers in Human Behavior 29(5):1889–1895* .

Fluck, A., Pullen, D., & Harper, C. (2019). Case study of a computer based examination system. *Australasian Journal of Educational Technology* .

Jamil, M., Tariq, R. H., & Shami, P. A. (2012). Computer-Based vs Paper-Based Examinations: Perceptions of University Teachers. *Turkish Online Journal of Educational Technology - TOJET, v11 n4 p371-381* .

Myyry, L., & Joutsenvirta, T. (2015). Open-book, open-web online examinations: Developing examination practices to support university students’ learning and self-efficacy. *SAGE Journals* .

Newhouse, P. (2013). Computer-Based Practical Exams in an Applied Information Technology Course. *Journal of Research on Technology in Education | Volume 45 Number 3* .

Sarrayrih, M. A., & Ilyas, M. (2013). Challenges of Online Exam, Performances and problems for Online University Exam. *IJCSI International Journal of Computer Science Issues, Vol. 10, Issue 1, No 1* .

Yan, P. C., & Zuraidah, M. D. (2013). Effects of computer-based educational achievement test on test performance and test takers’ motivation. *Computers in Human Behavior 29(5):1889–1895* .

Pullen D, Cusack B (2007). Schooling without borders. In J. Sigafoos & V. Green (Eds), Technology and teaching 101-114. New York: Nova Science Publishers.