# Analysis of Student Attitude and Their Acceptance for e-Evaluation during (COVID-19): Implementation and Implications

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## Summary
This research aimed to promote the electronic evaluation tools to tackle the pandemic implications (corona, COVID-19) and analyze the attitude and academic acceptance at the level of the female student's in the department of computer science – faculty of computer science and information technology at Jazan University, Saudi Arabia. The student's attitude toward e-assessment tolls has been measured and the main research sample consisted of 40 students' experimental group. A survey is also conducted to the assessment of the validity and reliability of research questions with the help of 50 students before implementation. There was a statistically significant difference between students' average grades in the post-measurement of the tendency toward electronic evaluation of the experimental groups in favor of the experimental group, at the significance level (0.01). The results also showed a statistically significant difference at the level of significance (0.01) between average scores of students in academic acceptance level in the experimental groups in favor of the experimental group. The findings of this research indicate the achievement of the e-Evaluation Acceptance and are highly recommended to propagate the use of electronic evaluation.
*Keywords:*
*e-Evaluation, Academic Acceptance, Attitude, Implications*

## 1. Introduction

Academic Evaluation is the basic element and important component of the curriculum system. It plays an important role in the teaching and learning process. An academic evaluation is a resource that identifies all met and unmet requirements for a specific program. The academic evaluation is a key tool in determining a student's progress in fulfilling the requirements to complete their degree. The covid-19 pandemic affected all aspects of life including the education process. We do not know when the war of resistance against the pandemic will end but the outbreak has already affected traditional concepts.

Technological innovation has overcome spatial barriers in the field of education and technology has performed a more important role to face this public health crisis in the light of changes in the traditional education pattern. Moreover, life is the best school where various crises and consequences resulting from the pandemic will stimulate deeper thinking about the outside world and the society in which all human lives. This crisis imposed strongly the use of eLearning tools at Jazan University and the College of Computer Science and Information Technology. Preparing an Academic Evaluation is the most important and main element in education [1].

The development of the electronic evaluation has passed through four generations, which are as follows:

**First Generation (Computerized Tests)**
It includes administering the traditional tests only through computers so that there is a role for computers in managing the evaluation process without any interference.

**Second Generation (Computerized Adaptive Tests)**
It includes setting the evaluations' difficulty level (how much difficult or easy) and it can be decided by the caliber of the students.

**Third Generation (Continuous Measurement)**
These are standard measurements that can be made inside the courses that are being taught on regular basis and used to measure unobserved dynamic changes in students' achievement path.

**Fourth Generation (Smart Metering)**
It means smartly inferring scores, interpreting individual profiles and providing advice to the learners through knowledge databases and inference procedures [2]. It depends on the use of electronic technology to prepare a digital evaluation system to make academic evaluation more objective as it takes care of all participants including learners, teachers and presenters [3]. Electronic Evaluation is the process of gathering data and discussing information from different sources. There is a different way to develop the students' understanding to evaluate the student performance accurately and properly [4].

**Sense of Research Problem:**
The world is currently witnessing a momentous event that may threaten education with a huge crisis, perhaps the most dangerous in our contemporary time. As of March 28, 2020, the Coronavirus (COVID-19) pandemic has caused the disruption of more than 1.6 billion children and young

people from education in 161 countries, i.e. nearly 80% of students enrolled in schools and universities worldwide. This came at a time when we are already suffering from a global educational crisis, as there are many students in schools and universities, but they do not receive the basic skills they need in working life. At the present, all educational systems have one mission and that is to overcome the learning crisis that we are currently witnessing to tackle the pandemic that we all face. The challenge today is to reduce the negative effects of this pandemic on learning and education as much as possible to return to the path of improving learning at a faster pace. The educational systems, as they think to deal with this crisis, must also think about how to get out of it while it is stronger than before and with a renewed sense of responsibility on the part of all its players with a clear awareness of the urgency of bridging the gaps in educational prospects and ensuring that all learners have equal quality education opportunities [5].

It contains electronic libraries, search mechanisms, local networks, the computer and its multimedia, including sound, image, and graphics, whether from a distance or in the classroom and its interaction between the teacher and learners on one side and between the learners and some on the other side is possible [6]. Also, the development in the field of smart devices that are used in daily life, the development of the generations of the Internet, and its tremendous capabilities, constitute one of the most important means of communication between learners and their teachers and learning management systems. Development and progress in the field of evaluation, as a new concept of evaluation, have emerged recently [7] and from the reality of the work of researchers in the field of educational technology and their academic background in the field of e-learning and information technology at the University of Jazan, and by dealing with the data of the Corona pandemic, disrupting the study and the trend entirely, and switching to electronic education, through the implementation of all academic activities and ending with holding final examinations at the College of Computer Science and Information Technology, it became clear to the following researchers: By holding previous exams:

•An effort is made in preparing the tests including preparation, selection of questions, printing and imaging.

•There is a huge cost involved in preparing these tests in terms of writing, printing and photocopying for a large number of students of the College of Computer Science and Information Technology.

•After the exams are held, subject teachers need a lot of time to complete the procedures of correction and monitoring grades, especially in the classes where the number of students registered is high.

•Securing regular tests from leakage is difficult if there are insecure elements from those in charge of the tests during printing and photocopying.

By extrapolating the results of previous studies that dealt with evaluation and electronic tests including the study of Saeed Mazhar [7], Ayoub, Nahed Khaled Hindawi [8], Youssef Ayyadat [9], and the study of Rosa and her colleagues [10]. James's study [11] "The study of (Hassan Shawqi Hassanein, Muhammad Ali Al-Shehri [12]) and the study of Muhammad Badawi [13]. We find that the studies and research dealt with many problems related to the development of education, the orientation towards the measurement of electronic tests, the development of the design of electronic tests and the trend toward electronic evaluation among students.

Hewson [14] also emphasized that the electronic evaluation will contribute greatly to addressing the problems of the traditional paper evaluation, which has many negatives as it depends on the human element, which leads to the occurrence of many errors. Anakwe indicated [15]. While comparing between two types; regular and electronic evaluation, it was found that it reduces a great burden on teachers and administrators, especially the process of holding exams, marking, and monitoring grades and it does not affect students' performance during teaching and giving feedback to student's performance after the end of the test; in addition to the possibility of applying more than one form of objective tests such as multiple choice, True/False, Fill in the blanks and pairing tests simultaneously, with a large degree of objectivity and accuracy in the evaluation process. All studies and research have confirmed the importance and effectiveness of electronic evaluation and the researchers address this aspect because of its vital and main role in evaluating male and female students electronically. Whereas previous studies focused on the evaluation in general, and researchers in this aspect are interested in electronic evaluation tools through the Blackboard (e-learning management platform) and applying them to the female students of the Computer Science Department at Jazan University to know the students 'attitudes towards them and their level of academic acceptance.

## 2. Research Problem

The current research tried to answer the following main question: What is the effect of activating electronic evaluation tools to face the implications of the (Corona, COVID-19) pandemic on the academic acceptance of female students of the Computer Science Department - College of Computer Science and Information Technology at Jazan University - Saudi Arabia and their attitudes towards it, in some of the Department of Computer Science courses?

The main survey is divided into the following questions:

i. What is the effect of the electronic evaluation on the level of academic acceptance of female students of the Computer Science Department at the College of Computer Science and Information Technology at Jazan University?

ii. What are the trends of the female students of the Computer Science Department at the College of Computer Science and Information Technology at Jazan University towards the electronic evaluation using the Blackboard system?

## 3. Research Aim

The current research aims to:

i. Identify the level of academic acceptance for female students of the Department of Computer Science at the College of Computer Science and Information Technology at Jazan University through the electronic evaluation using the Blackboard system.

ii. Revealing the trends of female students in the Department of Computer Science at the College of Computer Science and Information Technology at Jazan University towards electronic evaluation using the Blackboard system.

## 4. Research Importance

This research derives its importance from:

**Theoretical importance:**
The current research presented a theoretical study on the use of electronic evaluation through the Blackboard (e-learning management platform), which is used in most Saudi universities. Blackboard shows its importance during the global crisis and the outbreak of the Corona epidemic became the reason for the search for alternative educational solutions in the teaching and learning processes and access to the evaluation by special tools on eLearning Management platforms.

**Applied Importance:**
The current research may be used in measurement for:
**Students:** The students benefit at the college level at Jazan University, as the electronic evaluation has proven its objectivity and accuracy.

**Faculty Members:** Increase the awareness and attitude of faculty members about the importance of electronic evaluation.
**Researchers:** Presenting a set of proposals for research and research tools on the use of electronic evaluation, which may be useful in educational research in the current circumstances of the Corona epidemic in developing a set of educational research and studies in this field.

## 5. Research Terms

**Academic Acceptance:**
Arkof [16] defined academic acceptance as the student's ability to form satisfactory relationships with his teachers and colleagues and a change in his academic behavior according to the scientific material he receives. The procedural definition for researchers of academic acceptance: It is the total score obtained by students in the academic acceptance scale used in this research, which indicates the students' capabilities in facing the Corona pandemic and their acceptance of e-learning and its assessment tools.

**e- Evaluation:**
Ismail [6] defines electronic evaluation as the process of employing information networks, computer equipment, educational software and multi-source educational material by using evaluation methods to collect and analyze student responses, in a way that helps the teacher to discuss and define programs and activities in the educational process to reach a codified judgment based on quantitative data or how it is related to academic achievement. There are many types of electronic assessment but the most common among them are official electronic exams, short online tests, online assignments, electronic documentary bags (Portfolio), special education programs (software) and electronic self-evaluation surveys.
The researchers define it procedurally as "the comprehensive educational process that depends entirely on educational techniques and information in the work of a comprehensive evaluation of the student's performance.

**Attitude:**
Mr. Abdul Mawla [17] defines it as "an acquired motivation evidenced by an emotional readiness that has some degree of stability that determines the learner's feeling and behavior concerning certain training or educational subjects in terms of their preference."

## 6. Research Methodology

The current research used the descriptive and experimental approaches: the descriptive approach was used to prepare the theoretical framework and previous

studies for the research and the experimental method in preparing research tools and verifying their scientific validity including the academic acceptance scale and the trend scale for the electronic evaluation of students of the College of Computer Science and Information Technology and their measurement to demonstrate the effect of using the electronic evaluation to measure academic acceptance and to measure the trend towards electronic evaluation mechanism.

**Research Parameters:**
The current research adhered to the following limitations in its procedures:
**Subject Boundary**: is represented by the independent variable which is the electronic evaluation.
**Spatial Limit:** The Academic Campus for Female Students at Jazan University.
**Time limit:** Evaluation research tools were applied in the second semester of 2019/2020

**Research Materials and Tools:**
For this research the following tools and materials were prepared:

**Measuring Tools:**
•Attitude Scale for Academic acceptance.
•The trend scale towards the electronic evaluation.

**Teaching Material:**
•A guide for using the Blackboard (e-learning management system) prepared by researchers.

## 7. Research Hypotheses

7.1. There is a statistically significant difference in academic acceptance at the level of significance (0.01) between the scores of the pre and post-measurements on the experimental group in favor of the post-measurements.

7.2. There is a statistically significant difference at the level of significance (0.01) between the scores of the experimental group in the post and tribal measurements in the direction of the electronic evaluation in favor of the post-measurements.

7.3. There is no statistically significant correlation between the level of electronic acceptance and the trend towards electronic evaluation.

## 8. Research Procedures

An analytical study of the scientific literature and studies related to the subject of the research to prepare the theoretical framework for research, preparing experimental measurements, designing tools to answer the survey questions and according to what has been learned from previous studies and the theoretical framework of the research; the following procedures were taken:

**8.1. Preparing a manual for using the Blackboard e-learning management platform.**
By referring to previous studies on the use of e-learning platforms, a guide for using the Blackboard e-learning platform was developed.

8.2. **Preparing electronic survey for students of the Computer Science Department**
With reference to the previous studies on the use of e-learning platforms, a set of questions consisting of 80 questions were formulated so that the questions are to some extent comprehensive to the course.
**8.3 Preparing the academic acceptance scale for the electronic evaluation**
With respect to previous studies on academic acceptance and by referring to the measures that have been developed for academic acceptance, a scale of 30 items has been constructed that measures the level of academic acceptance among students.
**8.4. Setting the trend scale towards the electronic evaluation**
In recommendation of previous studies on trends and with reference to what has been established in terms of trends scale related to trends, a trend scale was constructed from 30 items that measure the level of direction among students.
**8.5. Conducting an exploratory measurement** for the used platform and measuring tools to measure the reliability and validity of the research tools, and to know the most important difficulties that the researcher or sample members face when conducting the basic experiment.
**8.6. Implementation of the electronic acceptance scale** for female students for electronic evaluation and knowledge of the most important difficulties facing the researcher or survey members.
**8.7. Measurement of the trend scale** for female students for electronic evaluation and knowledge of the most important difficulties facing the researcher or survey members.
**8.8. Applying the main research measurement** through the electronic evaluation of the experimental group of female students of the Computer Science Department at the second level.
**8.9.** Re-apply the electronic acceptance scale for female students for electronic assessment.
**8.10.** Re-apply the students' attitude scale for electronic assessment.
**8.11.** Monitor results, statistical treatment, and interpretation.

**8.12.** Presenting a set of recommendations and suggested research in reference to the results of the research.

# 9. Theoretical Framework

The theoretical framework of the research will include the following:
• Electronic Evaluation
• Objectives and features of the electronic evaluation
• Drawbacks of the electronic evaluation
• Requirements for electronic evaluation
• Electronic evaluation methods and tools
• What are electronic tests and their features
• Characteristics of electronic tests

**First:    Electronic Evaluation:**
It is a process by which a specific value is given to something,  and the American Association for Public Education (AAHE) defines evaluation as a continuous process aimed at measuring the understanding and improvement of students' learning. The recommendations of the Committee on Online Education in the United States of America focused on a report submitted to the President and Congress on the material and form of evaluation for Online education,  as with the spread of e-learning; its impact on the evaluation will be great and this evaluation must keep pace with the speed of spread. The electronic evaluation has many advantages,  including:

i. Give evaluation scores instantly.
ii. Analyze results statistically and in real-time.
iii. The electronic evaluation contains multiple and different types of exam questions.
iv. Supports the safety feature in displaying results and retrieving data in case of any malfunction.
v. Giving the learner the opportunity to self-evaluation) [18].

**Second: The objectives and advantages of the electronic evaluation:**
Hung [19] refers to a set of general objectives for electronic evaluation as follows:
i. Harnessing technology to serve the educational process.
ii. Encouraging the practice of self-evaluation in the educational process.
iii. Collaboration on many tasks between teachers and learners.
iv. Receive and deliver feedback on an ongoing basis

The most important features of the electronic evaluation:

i.  Flexibility and time-saving [20].
ii. Reducing feedback time limits the time required for the student to obtain the result.
iii. Reducing the required resources Human resources can

be reduced.
iv. Keeping records,
v.  Facilitating the achievement of comfort and ease for all parties [20].
vi. Bjornsson [21] adds other advantages,  the most important of which are: the emergence of each student's results faster,  and the occurrence of a more enjoyable experience for the students. It is better in electronic tests than in regular tests,  in addition to being effective in controlling the response time on all test items [22].
vii. Ease of use of data [20].

**Third: Drawbacks of Electronic Evaluation:**
i. Measuring higher skills is difficult in electronic tests.
ii. Members need training in assessment and electronic examination administration.
iii. All parties involved in testing (academics,  support staff, computer services,  and administrators) must be highly organized [20].

To avoid the drawbacks of the electronic evaluation the researchers see:
i. Create and stick to a test plan.
ii. Continuous improvement of network quality.
iii. Simplifying attention to technical aspects that electronic tests may require extensive technological experience which calls for each college to have a technical support team that can handle these matters from downloading and downloading the tests and making sure that the system is working properly.
iv. When starting the electronic testing program,  focus on the training of technical and academic staff.
v. every professor needs to take the test before students so that he knows exactly what the students are exposed to. It is also important that students are allowed to practice the test to become familiar with the electronic testing [20].

**Fourth: Electronic Evaluation Requirements:**
Dermo [4] defines the most important requirements for electronic evaluation as follows:
i. Developing the performance of faculty members and providing technical support.
ii. Identify leading institutions in electronic evaluation systems and academic cooperation with them.
iii. Establishing a logistical framework to determine the logistical and operational aspects of introducing one of the best electronic evaluation systems in the university.

The two researchers add through what has been done in their research the following requirements:
i. Training of a sufficient number of faculty members to build objective question banks through their training.
ii. Training students on the basic principles of information technology and the basics of assessment through the Blackboard e-learning management system.

iii. Considering students with special needs, making an inventory of them, and providing them with the appropriate technical programs to deal with electronic exams.
iv. Prevent unauthorized file access, fraud and plagiarism.

**Fifth: Electronic Evaluation Methods and Tools:**
Hamdi Ahmed Abdel Aziz [23] believes that evaluation in e-learning programs can be done through the following electronic evaluation methods:
i. Short Quizzes:
ii. Essays: They measure a high level of cognitive abilities.
iii. E-Portfolios are known as electronic portfolios which are an organized collection of student's work that is purposeful and directly related to the content topics that are formed by the learner and under the supervision and guidance of the teacher.
iv. Performance Evaluation: It is concerned with measuring the learner's ability to perform specific skills or accomplish a specific educational task.
v. Interviews: The interview can be conducted in an e-learning environment in a synchronized manner.
vi. Journal: These are reports that the learner keeps constantly on his performance of a certain work, and it is considered one of the formative evaluation tools.
vii. Paperwork.
viii. Paper Reflective Self.
ix. Figures Participation Learner.
x. Assessment Peer.
xi. Learner Self-assessment

Lee, Joyce [24] and Nabil Gad Azmy [25] specify different methods used in electronic assessment which are classified according to the nature of the learning outcomes to be measured, namely:
• Discussion boards.
• Learning activities.
• Research papers.
• Self-measurement (personal websites - magazines - articles).
• Interval and final tests (computer tests).
• Projects / Practical Training.
• Electronic bags (achievement files).
• Group learning.
• Final exams.
• In the opinion of Amanda, Andrea. & Mike [26], the following evaluation methods can be used:
• Formal and informal.
• Self-evaluation.
• Interviews.
• Learners' notes, and feedback from managers and supervisors.

**Sixth: What are electronic tests and their advantages**
The electronic test is defined as "a continuous and standardized assessment process aimed at measuring the student's performance electronically using software simultaneously with a direct connection to the Internet or asynchronously in the electronic classroom"
The researchers believe that it's an easy way to evaluate the student electronically, as it enables the teacher to prepare tests in an easy way to be applied to students and to correct online which ensures credibility and transparency in correction.

**Seventh: Characteristics of electronic tests:**
i. Interactivity: It means the interaction between the student and the test. The ability to quickly respond to the student by responding to what is presented to him in the test.
ii. Simultaneous interaction with diverse students.
iii. Multimedia and Broadband: It is the ability to display test information through multiple means and thus make the tasks measured by the test more appropriate and realistic which helps in measuring skills that cannot be measured and evaluated with traditional tests.
iv. The use of Internet-based networks will increase the efficiency of the evaluation process.
v. Standard-based Network: It means that the network will operate according to a set of unified rules, which allows for the easy exchange of information and access to various interactive educational environments through the computer. [27].

## 10. Research and Measurement Process

This part deals with the research procedures and their measurement to test the validity of the research hypotheses. It begins with presenting the methodology used in the research and describing its sample through the research variables and the tools used. This will end with a statistical plan and a description of the procedures followed.

**RESEARCH METHODOLOGY:**
To answer the research questions, the researchers use comparison, to find out the most important differences between the two measurements, before and after.

**RESEARCH COMMUNITY:**
The survey community belongs to undergraduate students.

**THE RESEARCH SAMPLE:**
**Experimental research sample:**
The Experimental research sample required a group of undergraduate students, and these students were chosen by a simple random method group contained (50) students, whose ages ranged from (19-20) years, and research tools were applied to them to ensure the validity and reliability of the measurements.

**Basic Research Sample:**

The basic research sample required a group of undergraduate students who were chosen in a simple random way. This group had (40) female students, whose ages ranged from (19-20) years.

**Research Tools:**

To achieve the research objectives, a set of instruments were prepared as follows:

**Electronic Adaptive Scale:**

The process of building the electronic evaluation; survey went through four main stages: starting with the use of a set of electronic evaluation measurements then using these measurements start to develop and build a new survey in light of the educational literature that has been revised and related to the subject of the electronic evaluation in addition to the characteristics of the target group.

Psychometric properties of the Academic Acceptance Survey

Validity of the scale as the researcher relied on:

**Virtual validity:**

As this type is concerned with the general appearance of the scale or its external image in terms of the type of vocabulary and how it is formulated, the extent of its clarity and accuracy, the correctness of its arrangement, the clarity of the instructions, and also the extent of the scale's suitability for set goal so he considered the validity of the content as an indicator of the validity of the scale [28]. The test was presented in its preliminary form to eleven arbitrators who were selected from experts specializing in curricula, teaching methods, and psychology in universities. To express their views on the validity and comprehensiveness of the phrases to measure whom they were set for and the appropriateness of the scale of appreciation for the answer. In addition to the clarity of the wording of each statement for students and the possibility of modifying the wording, deleting, or adding new phrases, so that the scale is more capable of achieving the goal for which it was built, this is what expresses the sincerity of the content, and in light of the views and proposals made by the referees (Appendix No. 1, the names of the gentlemen of the arbitrators). Make the following adjustments:

•The final adjustments received from arbitrators (80%) were retained, while some phrases were amended, and some phrases were deleted. The final survey entailed (30) phrases.

•The survey was presented to twenty undergraduate students. Unclear questions were reformulated to verify the transparency of the instructions, phrases, and accuracy in their formulation.

•To conduct an experimental study to verify the reliability and validity of the survey in its dimensions by applying it to a volunteer undergraduate student. They were (50) students who were randomly selected.

Appendix No. (3) shows the final form of the Academic Acceptance Scale.

**Internal consistency:**

To verify internal consistency; a correlation coefficient (Pearson) was calculated between each statement of the survey and the total scale of the dimension to whom it belongs. To know the extent of the correlation and consistency of the survey statements with the total degree of the survey and the dimensions of the survey showed in the following tables.

Table No. (1 and 2) illustrate the following results:

**Table 1: Correlation coefficients between expressions and the overall grade of the dimension to whom they belong (n = 50)**

| The first dimension<br><br>Number of expressions | The expression correlation coefficient in the first dimension | The second dimension<br>The number `of expression | The expression correlation coefficient in the second dimension | The third dimension<br><br>Number of expressions | The expression correlation coefficient in the third dimension |
|---|---|---|---|---|---|
| 1 | .850** | 8 | .775** | 16 | .777** |
| 2 | 705** | 9 | .743** | 17 | .743** |
| 3 | .681** | 10 | .751** | 18 | .726** |
| 4 | .734** | 11 | .812** | 19 | .820** |

| 5 | .718** | 12 | .763** | 20 | .680** |
|---|---|---|---|---|---|
| 6 | .783** | 13 | .743** | 21 | .693** |
| 7 | .721** | 14 | .695** | 22 | .680** |
|   |   | 15 | .671** | 23 | .807** |
|   |   |   |   | 24 | .798** |
|   |   |   |   | 25 | .718** |
|   |   |   |   | 26 | .799** |
|   |   |   |   | 27 | .795** |
|   |   |   |   | 28 | .689** |
|   |   |   |   | 29 | .769** |
|   |   |   |   | 30 | .720** |
| *Significant at (0.01)* | | | | | |

**Table 2: Correlation coefficients between dimensions and the overall score of the survey (n = 50)**

| Dimension | First | Second | Third |
|---|---|---|---|
| Correlation Coefficient | 796** | 759** | .786** |
| *Significant at (0.01)* | | | |

It is evident from the two previous tables that the survey expressions have strong correlation coefficients and are statistically significant with the total degree of the dimension to which they belong. The dimensions of the scale are also closely related to the total degree of the scale and this indicates that the survey with its terms has high internal consistency.

**Stability with the Alpha - Cronbach method:**
The value of the alpha coefficient was calculated for the survey as a whole and reached (.825). This is sufficient evidence that the scale has a high coefficient of reliability and since the survey contains three dimensions so it was found that the coefficient of reliability ranged between (0.869, 0.878). Therefore, all of these are high values of stability and a statistical function at the level of Significance (0.01), which means that the scale dimensions have high stability coefficients. Thus, it is usable and this is evident in the following Table No. (3):

**Table 3: The Cronbach Alpha coefficient for each dimension and the total score of the scale**

| Dimension | First | Second | Third | Fourth |
|---|---|---|---|---|
| *Alfa* | 0.878 | 0.874 | 0.869 | 0. 825 |

**Stability by Split-Half Method:**
The stability coefficients were calculated using the half-segmentation method, where the survey statements were divided into two halves and then the correlation coefficient between the sum of the first half paragraphs and the total of the second half of the questionnaire's paragraphs was calculated, where the Getman correlation coefficient of the scale score was in this way (0.821). After applying the Spearman-Brown equation, the reliability coefficient became (0.827) and this is sufficient evidence that the survey has high reliability.

**Table 4: Spearman's Bron and Getman coefficients for each dimension and overall score for the survey**

| Dimension | First | Second | Third | Fourth |
|---|---|---|---|---|
| Getman | 0.765 | 0.861 | 0.853 | 0.821 |
| Spearman-Brown | 0.765 | 0.861 | 0.857 | 0.827 |

**The trend scale towards the electronic evaluation:**
**Steps to prepare the survey in the current research:**
The process of building an academic acceptance survey went through four main stages:

1- Starting with the use of a set of measures of academic acceptance.
2- Moving to the measures taken to develop and build a new survey in light of the educational literature that was reviewed and related.
3- Academic adjustment in addition to the characteristics of the target group.

4- Psychometric properties of the trend scale towards the electronic evaluation.

**Validate the scale**
The researcher relied on apparent honesty:
This type is concerned with the general appearance of the scale or its external image in terms of the type of vocabulary and how it is formulated. The extent of its clarity, accuracy, the correctness of its arrangement, the clarity of the instructions, and also the extent of the scale's suitability for the purpose for which it was set. So the truthfulness of the content is considered an indicator of the validity of the scale [28].

The test was presented in its initial form to eleven arbitrators who were selected from experts specializing in curricula, teaching methods, and educational technology in universities. In order to express their views on the validity and comprehensiveness of the statements to measure what they were designed for. The appropriateness of the scale of appreciation for the answer. In addition to the clarity of the wording of each statement for students and the possibility of modifying the wording, deleting, or adding new phrases. So that the scale is more capable of achieving the goal for which it was built and this is what expresses the sincerity of the content in light of the views and proposals made by the referees.

**Internal Consistency:**
To verify internal consistency, a correlation coefficient (Pearson) was calculated between each statement of the survey and the total degree of the dimension to which it belongs between the degree of each dimension and the total degree of the survey. To know the extent of the correlation and consistency of the survey statements with the total score of the survey and the dimensions of the survey. Table No. (5) showed these results:

**Table 5: Correlation coefficients between expressions and the overall degree of the dimension to which they belong (n = 50)**

| The first dimension Number of expressions | The expression correlation coefficient in the first dimension | The second dimension The number of expressions | The expression correlation coefficient in the second dimension | The third dimension Number of expressions | The expression correlation coefficient in the third dimension |
|---|---|---|---|---|---|
| 1 | .751** | 11 | .850** | 21 | .696** |
| 2 | .765** | 12 | .705** | 22 | .798** |
| 3 | .684** | 13 | .681** | 23 | .718** |
| 4 | .747** | 14 | .734** | 24 | .799** |

| 5 | .676** | 15 | .718** | 25 | .795** |
| 6 | .682** | 16 | .783** | 26 | .669** |
| 7 | .696** | 17 | .721** | 27 | .769** |
| 8 | .673** | 18 | .696** | 28 | .720** |
| 9 | .807** | 19 | .681** | 29 | .752** |
| 10 | .721** | 20 | .743** | 30 | .765** |
| *Significant at (0.01)* | | | | | |

It is evident from the above table about survey expressions have strong correlation coefficients and are statistically significant with the total degree of the dimension to which they belong. This indicates that the survey with its terms has high internal consistency.

**Stability with the Alpha-Cronbach method:**
The value of the alpha coefficient of the survey as a whole was calculated and reached (0.812), which is a high value of reliability and a statistical function at the level of significance (0.01). This is sufficient evidence that the survey has a high-reliability coefficient thus it is usable.

To conduct statistical management to verify the research hypotheses, statistical analysis of the Statistical Packages for Social Sciences (SPSS) program was used by using the following statistical methods:
- Independent Samples (T) Test to measure the differences between the scores of students in the experimental group in the pre and post-measurements.
- Measurement of the effect size of independent groups by calculating Eta squared ($\eta^2$); to verify the first hypothesis, which states: "There is a statistically significant difference between the scores of the experimental group in the post and pre-measurement of the Academic Acceptance Survey in favor of the post measurement." The researcher used the "T" test for two coherent samples and the results were as shown in Table No. (6).

## Research Results

**Table 6: The "T" test and its level of significance for the difference between the scores of the experimental group in the post and pre-measurement of the Academic Adaptation survey as well as the size of the effect (square value ($\eta^2$)) and impact strength (d) (n = 40)**

| Dimensions | Measurement | Average | Standard Deviation | T Value | Significance Level | ETA² | Impact strength (d) |
|---|---|---|---|---|---|---|---|
| 1 | Tribal | 12.13 | 1.99 | 12.45 | D When | 0.80 | 4.01 |
| 2 | Dimensional | 22.30 | 4.65 | | 0.01 | | High |
| 3 | Tribal | 16.25 | 2.65 | 22.74 | D When | 0.93 | 7.34 |
| 4 | Dimensional | 33.40 | 3.98 | | 0.01 | | High |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 5 | *Tribal* | *28.53* | *5.39* | *18.69* | *D When* | *0.90* | *6.03* | |
| 6 | *Dimensional* | *57.80* | *7.85* | | *0.01* | | *High* | |
| 7 | *Tribal* | *56.90* | *6.03* | *30.34* | *D When* | *0.96* | *9.79* | |
| 8 | *Dimensional* | *113.50* | *10.70* | | *0.01* | | *High* | |

It is clear from the above Table (6) that:

The presence of statistically significant differences at the level of significance (0.01) in each dimension and the test as a whole between the scores of the two pre and post-measurements of the measures of academic acceptance on the experimental group in favor of the post-measurement. Where the value of the order was (12.45) Quality and importance of teaching through the Blackboard Learning Management System, 22.74 The effectiveness of use through the Blackboard Learning Management System, 18.69 the ease and difficulty of interacting with the Blackboard Learning Management System, 30.46 for the Academic Acceptance Survey as a whole) and all this value is statistically significant at the level of significance (0.01).

is a statistically significant difference at the level of significance (0.01) between the scores of the pre and post measurement on the experimental group in favor of the post measurement is accepted.

The following Figure No. (1) shows a comparison between scores of the experimental group students in the pre and post measurements of the electronic adaptation scale.

This result is consistent with studies that dealt with evaluation and electronic tests including the study of Saeed Mazhar (2016). Electronic evaluation of university performance in the light of the systems method: A proposed digital administrative vision for measurement to the Naif Arab University for Security Sciences and the study of
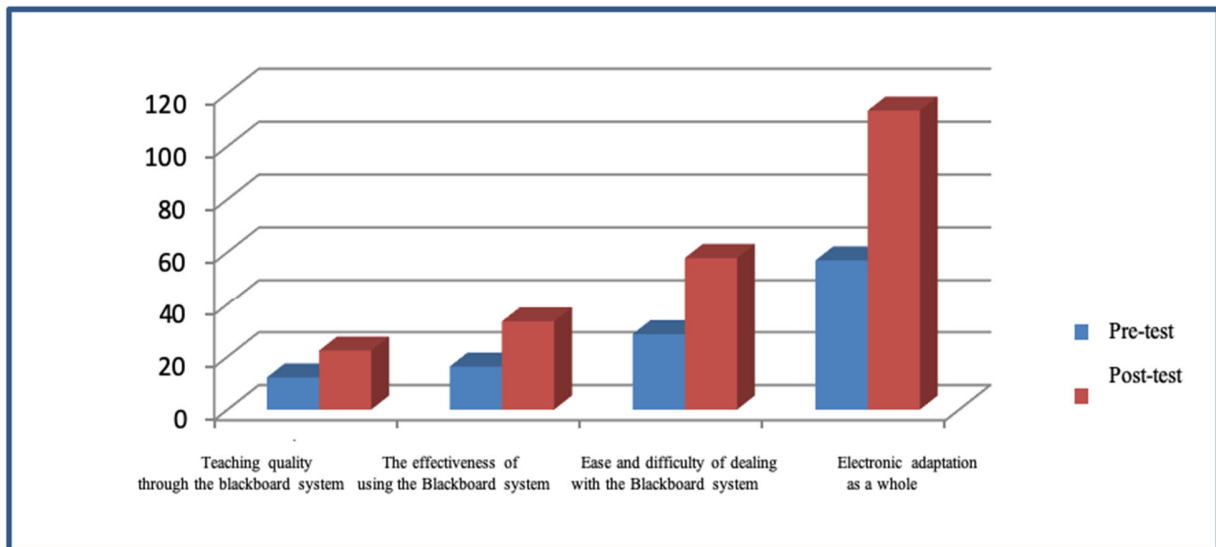


**Figure 1: Differences between the averages of the pre and post measurements of the experimental group of the electronic adaptation scale**

The value of the ETA square was (0.80, 0.93, 0.90, 0.96), respectively, and the impact strength (d) was (4.01, 7.34, 6.03, and 9.79) respectively, and these values indicate a significant. If the value of d is from 0.2 to less than 0.5, the impact strength is weak, and if the value of d is from 0.5 to 0.8, the impact strength is moderate, and if the value of d is greater than 0.8, the impact strength is high. According to this result, the hypothesis that states "There

Muhammad Al-Omari where the results were statistically significant and the study of Youssef Clinics (2016), (Perceptions of faculty members and students about computerized tests in the educational and learning process at Yarmouk University) and the study of Rosa and her colleagues [10]. Knowing the methods used when analyzing computerized tests James [11] study "Knowing students' attitudes towards using computerized tests in the College of

Education, Department of Psychology at the University of New England in Australia. The study of (Hassan Shawqi Hassanein, Muhammad Ali Al-Shehri [12] on the effectiveness of using the electronic formative assessment in reducing test anxiety and motivation for academic achievement of the student/teacher of mathematics at the University of Najran. The study of Muhammad Badawi [13], highlighted the effectiveness of a proposed program in eLearning to develop the skills of designing electronic tests and the trend towards electronic evaluation among graduate students. The results of these studies are statistically significant for the use of electronic tests and electronic evaluation, as there was a link with academic majors in the skill level of using and applying electronic tests.

To verify the second hypothesis, which states that there is a statistically significant difference between the scores of the experimental group in the post and pre-measurement of the trend survey towards electronic evaluation in favor of the post-measurement. The researcher used the "T" test for two correlated samples and the results shown in the following Table No. (7):

The "T" test and its level of significance for the difference between the scores of the experimental group in the post and pre-measurement of the trend toward electronic evaluation survey as well as the effect size (square value ($\eta^2$)) and impact strength (d) (n = 40).

| Dimensions | Measurement | Average | Standard Deviation | T Value | Significance Level | ETA² | Impact strength (d) |
|---|---|---|---|---|---|---|---|
| The trends toward electronic evaluation | Tribal | 50.53 | 8.25 | 14.76 | D When | 0.85 | 4.76 |
| | Dimensional | 100.63 | 18.97 | | 0.01 | | High |

**Table 7: The "T" test and its level of significance for the difference between the mean scores of the experimental group in the post and pre-measurement of the trend toward e-evaluation survey, as well as the effect size (square value ($\eta^2$)) and impact strength (d) (n = 40)= 40**

It is clear from the above Table (7) that:
The presence of a statistically significant difference at the level of significance (0.01) in each dimension and the test as a whole between the scores of the two pre and post-measurements of the trend scale toward the electronic evaluation on the experimental group in favor of the post-measurement. Where the value of the order was (14.76 for the survey of the trend toward the electronic evaluation as a whole) and all of these values are statistically significant at the level of significance (0.01).
The value of the ETA square was (0.85) where the impact strength (d) was (4.76). These values indicate a great

influence as mentioned (Saad Abdel Rahman [28], Fouad Abu Hatab and Amal Sadiq [29]).
**Result:** The hypothesis that states "there is a statistically significant difference at the level of significance (0.01) in the direction towards the electronic evaluation between the averages of the degrees of the pre and post measurements on the experimental group in favor of the post measurement is accepted.
Figure No. (2) below shows a comparison of the scores of students. The experimental group in the pre and post-measurements of the trend scale towards electronic evaluation.
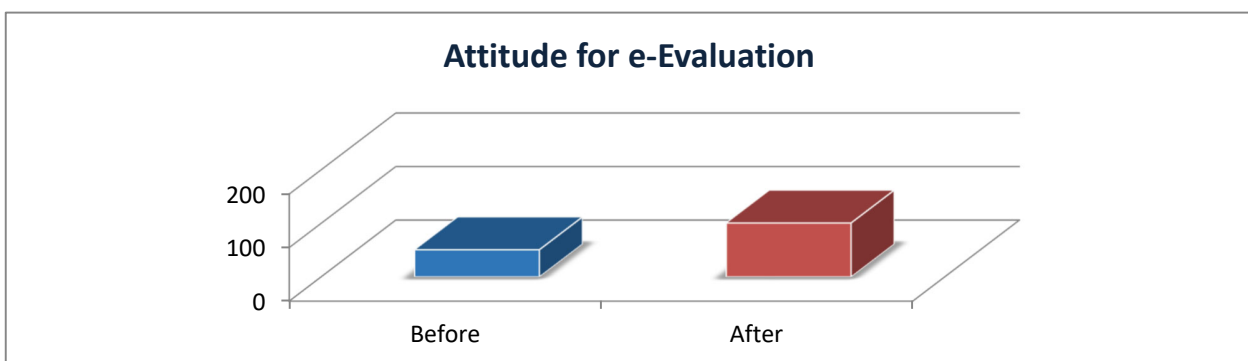


**Figure 2: The differences between the averages of the pre and post measurements of the experimental group for the orientation survey towards electronic evaluation**

This result is consistent with the study of Ayoub, Nahid Khaled Hindawi (2019), as confirmed by Hewson (2012) and concluded that electronic tests save time, money, and effort when compared to regular paper tests, as well as provide advantages and possibilities for preservation, retrieval, and correction. Automatic evaluation and monitoring of grades provide a degree of flexibility, and novelty and are also consistent with the result of Anakwe (2008) [15] as it relieves a great burden on teachers and administrators, especially the process of holding exams, correcting, and monitoring grades which do not affect the performance of students during teaching and giving feedback to student's performance after the test ends. All of which are statistically indicative of the presence of a strong trend for electronic evaluation.

## SUMMARY OF SEARCH RESULTS

i. There is a statistically significant difference in the academic infectivity at the level of significance (01, 0) between the scores of the pre and post-measurement on the experimental group in favor of the post-measurement.
ii. There is a statistically significant difference at the level of significance (01, 0) between the scores of the experimental group in the post and tribal measurements in the direction of the electronic evaluation in favor of the post measurement.
iii. There is a statistically significant correlation between the level of academic acceptance and the trend towards electronic evaluation.

## COMMENTS ON THE RESULTS

i. Handling the crisis of the pandemic of Covid19 and the possibility of conducting educational activities in full swing, starting with teaching and ending with evaluation and what they included in educational activities and achieving good results
ii. Creating a rich educational evaluation environment and opening new paths of thinking for students to be engaged in the learning process to achieve the best results.

The use of the electronic calendar helped students to gather and imply knowledge and to establish correlations between past and future knowledge.

## 11. Research Recommendations

In light of the results of the research, researchers recommend the following:

11.1. The research demonstrated the existence of a statistically significant difference through a strong and statistically significant effect on the academic acceptance of the electronic evaluation. Based on this result, researchers recommend expanding the use of electronic evaluation mechanisms to serve the various university majors to face any emergency that hinders the performance of direct evaluation processes.

11.2. The research proved that there is a statistically significant difference through a strong influence on the trend towards electronic evaluation, and this is an indication for the experiment to achieve its objectives in developing the trend towards electronic evaluation. Researchers recommended from these results that the use of electronic evaluation should be expanded.

11.3. Sharing the results of this research with research and university institutions to benefit from the results of the electronic evaluation and the mechanisms for activating it in light of the current circumstances of the disruption of study in various universities of the world due to the Covid19 pandemic.
Enhancing students' ability by using their digital knowledge and awareness in training to implement electronic tests.

## 12. Suggested Future Research

12.1    Through the current research and in light of what the results indicated, some situations emerged that could be topics for proposed studies and research. Among these problems are the following:

12.2.    Using the electronic evaluation to develop the skills of cognitive thinking and academic acceptance among the students of the University of Malaysia, Terengganu.
12.3.    Utilizing the electronic assessment to develop systemic thinking skills and academic acceptance among students of New Valley University.
12.4.    The use of electronic evaluation and its impact on digital awareness among students of the Deanship of E-Learning at Jazan University.

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# References

[1] Al-Zoghbi, Amal Ahmed. The degree of mathematics teachers 'knowledge and practice of realistic evaluation strategies and tools. The Islamic University Journal of Educational and Psychological Studies**.** Vol. 21no.3, **(2013)**, pp 165-167.

[2] Martin.R."New Possibilities and challenges for assessment through the use of technology". in. Schulman. F & Peria.A. Towards a research agenda of computer – passed the assessment. European Commission. Italy.**.(2008)**

[3] Ripley.M, "Technology in the service of 21 st century learning and assessment – a UK perspective. in Scheuermann. F &Pereia.A.Towards a Research Agenda on Computer". Based Assessment.European Commission.Italy. **(2008 ).**

[4] Dermo. J." e- Assessment and the student learning experience: A Survey of student perceptions of e-assessment". British Journal of Educational Technology, vol.40 no.2. **(2009 )**, pp.204- 209.

[5] Jaime Saavedra. "Education in the Time of Coronavirus: Challenges and Opportunities, World Bank Blogs", accessed 4/4/2020, https://blogs.worldbank.org/ar/education/educational-challenges-and-opportunities-covid-19 -pandemic, **(2020).**

[6] Mohamed Ismail Hassan, Ismail. "The Effectiveness of Cooperative Learning Accompanied and Not Accompanied by E-learning in the Development of Achievement and Skills of Working with a Group in the Field of Educational Technology for Female Students of the College of Education, Qatar University", Journal of Education for Educational, Psychological and Social Research, College of Education, Al-Azhar University, Issue 125, Part One, **(2004).** pp. 359- 394.

[7] Muzhir, Saeed bin Muhammad Ali."Electronic evaluation of university performance in light of the systems method: a proposed digital administrative vision for application to Naif Arab University for Security Sciences Source: Al-Jouf University for Social Sciences Journal, Al-Jouf University, College of Graduate Studies and Scientific Research, vol. 2, no 1, **(2016)**, pp. 125-162.

[8] Ayoub, Nahed Khaled Hindawi, Farouh, Manal Fawzy Mohamed. "The effectiveness of a program based on project strategy and electronic evaluation in developing the achievement of jurisprudence and achievement motivation for students coming to study at Al-Azhar", Journal of Arab studies in education and psychology, Arab Educators Association, Benha, Egypt. (2019).

[9] Muhammad Al-Omari, Youssef Ayyadat, "Perceptions of faculty members and students about computerized tests in the educational learning process at Yarmouk University", The Jordanian Journal of Educational Sciences, vol.12 no. 4, **(2016)**, pp 469-487.

[10] Rosa, S. Coutinho, C. & Flores, M., "Online Peer Assessment: Method and Digital Technologies, Social and Behavior".**(2016).**

[11] James, R.. Tertiary student attitudes to invigilated, online summative examinations, international journal of Educational Technology, vol. 13, no.19, **(2016).** pp2-13.

[12] Hassanein, Hassan Shawky, Al-Shehri, Mohammed Ali. "The effectiveness of using electronic formative assessment in reducing test anxiety and motivations for academic achievement of the student/teacher of mathematics at Najran University", Mathematics Educational Journal, vol.19, no.7, **(2016),** pp34-54.

[13] Badawi, Muhammad Muhammad Abdul Hadi. "The effectiveness of a proposed program in e-learning to develop skills in designing electronic tests and the trend towards electronic evaluation among postgraduate students", The International Journal of Specialized Education, Volume 3, Issue 4, Dar Simat for Studies and Research, **(2014),** pp.146-176.

[14] Hewson, C. "Can online course–based assessment methods be fair and equitable? Relationship between students' preferences and performance within online and offline assessments", Journal of Computer Assisted Learning, Blackwell Publishing Ltd.**. (2012).** https://doi.org/10.1002/pst.300, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5909375/

[15] Anakwe, B. Comparison of Student Performance in Paper-Based Versus Computer-Based Testing, Journal of Education for Business, vol.84 no.1. **(2008),** pp13- 17.

[16] Ahmed, Sarah Mohi El-Din Abdel-Muttalib. "The relationship between academic adaptation and parental treatment methods as perceived by children for students of the University of Khartoum", an unpublished master's thesis, Faculty of Science and Arts, University of Khartoum. **(2007).**

[17] Abu Khotwa, Abdul Mawla Al-Sayed, " The impact of a remote training program with the help of virtual classes in developing electronic evaluation skills and the trend towards remote training among faculty members", Ajman Journal for Studies and Research, vol. 13, no.1. **(2014)**,

[18] Manel Ouji, Jean-Michel Augereau, Lucie Paloque, and Françoise Benoit-Vical."Plasmodium falciparum resistance to artemisinin-based combination therapies ", Published online **2018** Apr 20. doi: 10.1051/parasite/2018021

[19] H.M.James Hung." Approaches to evaluation of treatment effect in randomized clinical trials with genomic subset", Int. J. Technol. Eng. Educ. Copyright 2010, ATEEM Vol.7, No.2 **(2010),**. International Journal of Technology and Engineering Education

[20] Mohamed Abdel-Hamid."Learning system over networks", Cairo, the world of books. **(2005).**

[21] Bjornsson.J." Changing Icelandic national testing from traditional paper and pencil based tests to computer-based assessment. Some background", challenges and problems to overcome in: Scheuermann.F&pereia.A. Towards a Research Agenda on Computer. Based Assessment.European Commission.Italy, **(2008).**

[22] Boyle, A. "Sophisticated tasks in E- Assessment: What are they? And what are their benefits? ", Paper presented at 9th CAA Conference, **(2005).** retrieved from. https://www.researchgate.net/publication/320159848_Exploring_Moodle_Functionality_for_Managing_Open_Distance_Learning_E-Assessments

[23] Hamdi, Ahmed Abdel Aziz. "E-learning, Philosophy - Principles - Tools – Applications", Oman, Dar Al Fikr. **(2008).**

[24] Lee, Joyce & Others. "Facilitating the development of a learning community in an online graduate program ، Quarterly Review of Distance Education, Vol. 7, No. 1**, (2006),** PP. 13-33.

[25] Gad Azmy, Nabil." E-learning technology", Cairo: Arab Thought House. **(2008).**

[26] Amanda, A., Andrea, M&.Mike, M, " Elearning Evaluation, In E-learning Concepts and Techniques", Institute for Interactive – Technologies, Bloomsburg University of Pennsylvania, USA**. ( 2006 ).**

[27] Zaitoun, Hassan Hussein. "A new vision in education and e-learning, the concept - the issues - the application", Riyadh: Al-Sawlatiah House for Education. **(2005).**

[28] Abdel-Rahman, Saad. "Psychometric Theoretical and Practice", 4th Edition, Arab Thought House, Cairo. **(2003).**

[29] Fouad Abu Hatab, and Amal Sadiq "Research Methods and Methods of Statistical Analysis in Psychological", Educational and Social Sciences, 2nd Edition, Cairo, Anglo-Egyptian Library, **(1996).**

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**Dr. Wazir Zada Khan** is an Associate Professor at the Department of Computer Science, University of Wah, Pakistan. He is also serving as a Researcher at the 'Global Foundation for Cyber Studies and Research (https://www.gfcyber.org), which is an independe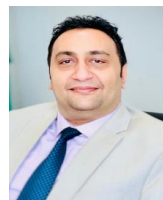nt, non-profit, and non-partisan cybersecurity think-tank based in Washington D.C. Dr. Khan received his bachelor's and master's degrees in computer science from COMSATS University Islamabad, Wah Campus in 2004 and 2007, respectively. He received his Ph.D. from the Electrical and Electronic Engineering Department, Universiti Teknologi PETRONAS, Malaysia in 2015. Dr. Khan has published over 75 research papers in journals and conferences of international repute. He is serving as a reviewer of many reputed journals and also a member of the technical program committee for many international conferences. He has more than ten years of teaching/professional experience in Pakistan and Saudi Arabia. His current research interests include wireless sensor networks, security and privacy, blockchain, IoT, IioT, and reinforcement learning. He is a Senior Member of the IEEE.

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