DOI prefix: 10.33170, 2025, Vol (18), Issue (6): 1764-1779

Sciences Journal Of Physical Education

P-ISSN: 1992-0695, O-ISSN: 2312-3619

https://joupess.uobabylon.edu.iq/

The Impact of Standardized Assessment on Student Achievement

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Received: 06-10-2025 Publication: 28-12-2025

Abstract

This research explore the effects of standardized assessment on student achievement through a quasi-experimental design. While standardized assessments aim to provide objective measures of student performance. This research employs a pretest-post test design to compare student achievement before and after the implementation of standardized assessment, utilizing statistical analyses to assess the significance of observed changes.

Keywordes:standardized assessment, student achievement, quasi-experimental

First framework: Research methodology

1- Introduction

Standardized assessments have become integral to educational systems worldwide, Standardized assessments are identical tests given to all students, and every student involved do the same test, questions, under the same conditions. These tests allow faculty members, and universities to evaluate as well as compare undergrad educational success more precisely, though there are still many factors that affect the accuracy of the assessment. Allison (2011: p.1) explained about "A standardized assessment for students should have the same(questions, style ,format ,Time to complete ,Tools Teacher support).

2- Study Problem

The study problem is defined in the following main question: The Impact of Standardized Assessment on Student Achievement: A Quasi-Experimental Analysis

3- The Purpose of the Study

1. **Performance measurement**: They help determine students' level of academic achievement compared to their peers.
2. **Educational planning**: They provide accurate data that helps schools and decision-makers improve curricula and develop teaching methods.
3. **Predicting academic futures**: Shows a student's readiness for future educational or professional development.
4. **Comparing performance**: Provides an overview of the educational level in different schools, regions, or even countries.

4- The Study Aim:

The study aimed to use standardized tests to improve the achievement of university students in third-year students.

5- Study Boundaries:

The study is defined by the following boundaries:

The human boundary , the spatial boundary and temporal boundary : both jender of students in College of science , Departments of chemistry , at the University of Babylon, 2024-2025.

6- Define terms:

- Standardized assessment is a test or evaluation administered and scored in a uniform and consistent manner for all participants, allowing fair comparison of performance and achievement across individuals or groups(The Glossary of Education Reform, 2015: para.1).
- Academic achievement is the student's ability to reach educational goals. These goals are measured through standardized tests. (Toth, 2026:para2).

Second framework: Theoretical aspects and previous studies

1. **Influence on Curriculum Design**

Implementing standardized assessments can improve course design by restructuring educational content to align with assessment criteria and ensure comprehensive coverage (Raedan Institute, 2023: para. 1).

2. **Teaching to the Test**

Test-based teaching is used in standardized assessments where teachers focus on test-specific content and strategies. (Redan Institute, 2023: para 1).

3. **An Impact on Student Achievement**

Studies have shown mixed results regarding the impact of standardized assessments on student achievement. While some research indicates that standardized assessments can provide valuable data for identifying learning gaps and informing instructional practices, other studies suggest that overemphasis on testing may contribute to student stress and disengagement (Teltemann & Schunck, 2020:p. 2).

Theoretical Framework for Standardized Tests in Higher Education

1. Item Response Theory (IRT)

A psychological-statistical theory that focuses on the relationship between a student's performance on each question and their underlying level (such as ability or skill). It differs from classical test theory in that it does not assume equal difficulty for questions, but rather takes into account the characteristics of each item—its difficulty, discrimination, and guess ability. Its importance : It is used in designing highly motivated standardized tests to ensure accurate and reliable measurement.

2. Evidence-Centered Design (ECD) :It consists of five layers:

a. Domain Analysis: Identifying the competencies to be measured;
b. Domain Modeling: Building a model that demonstrates the links between these competencies;
c. Conceptual Framework for Assessment: Linking the desired performance to the evidence;
d. Assessment Implementation: Designing questions and assessment mechanisms;
e. Assessment Management

Its importance: It ensures that the test is constructed in a systematic manner that covers the principles of measurement and the desired results.

3. Standards for Psychological and Educational Testing : A set of documented standards developed by major associations to ensure the quality of tests in several aspects(Ma, 2024:p. 4).

a. Validity: the extent to which the test measures its intended purpose;
b. Reliability: the reproducibility and consistency of results;
c. Fairness: avoiding bias;
d. Accessibility: including people with special needs;
e. Design, implementation, scoring, and use of results (GAO, 2010:p. 5)

Its importance: It is the reference in the development and use of standardized tests of the highest quality.

4.The General Theoretical Framework for Educational Measurement Tests (Morford,2012:p.14).

a. "Standardized tests" are standardized tools used to measure student performance consistently and comparable across different groups.
b. They include norm-referenced and performance-based measures, along with a variety of tools such as objective tests, essay tests, projects, and others. Researchers emphasize the need to match the type of tool with the purpose of the assessment. As shown in Table (1)

Table (1)

Summary of the theoretical perspective

	Theory	Function	Contribution to Standardized Testing
1	IRT	Element Performance Modeling	Higher Accuracy in Estimating Student Ability
2	ECD	Structured test design	Clear link between performance and desired outcomes
3	Standards for Psychological and Educational Testing	Comprehensive quality	Ensures reliability, validity, and fairness of testing
4	The General Theoretical Framework for Educational Measurement Tests:	Design various tools	Allows for multi-form assessment (objective/performance)

Previous studies

First: Previous Arabic Studies

1. Al-Ali and Rice (2025)

This research examined the impact of standardized tests (EmSAT) on university students in the United Arab Emirates. The result analyzed data from 3,190 students using a quantitative approach.

2. UNESCO-ESCWA (2014)

The research concluded that standardized tools are important for evaluating learning outcomes and improving the quality of educational systems.

Second: Previous Foreign Studies

1. Phelps (2012)

The study examined the impact of standardized tests on student achievement between 1910 and 2010. The results were positive, indicating significant improvements in student achievement.

2. Al-Balas et al. (2022)

The study clarifies the impact of standardized assessment methods on student achievement. This is done by comparing the results of electronic exams with the results of traditional exams for medical students. The results indicate that assessment strategies significantly affect student achievement and learning outcomes.

Third framework: Research procedures

1- Implementation of the Study Experiment:

Research experiment was implemented in $2024-2025$, after the necessary procedures were established. The experiment lasted one month , beginning with the preliminary -test and ending with the after-test. Grades were then recorded, data was entered, and statistical processing was performed.

2- Study Methodology:

Research used a quasi-experimental approach. Accordingly, the study subjects were split into two groups at random.

3- Study hypotheses:

No significant difference ($p < 0.05$) was observed between the mean scores of students in the group(2) and those in the group(1) in The Impact of Standardized Assessment on Student Achievemen.

4- Study Variables:

First, independent variable: Standardized Assessment

Second, dependent variable: Student Achievement

5- Statistical Methods

Arithmetic means, standard deviations, and the covariance test were applied isolate the divergences in students' average scores on the preliminary -test and on the after-test of the standardized test.

6- Study Sample

The researcher selected the study sample from third-year students , from the College of science , Departments of chemistry , at the University of Babylon. The number of students was 45, with 22 in the group (1) and 23 in the group (2) and students were randomly assigned. Table(2) shows the distribution of study participants into the (2) and (1) groups.

Table (2)

Distribution of study individuals into the (1), (2) groups

Groups	Number STU.
group (2)	22
group(1)	23
Total	45

7- Research layout

The research applied a quasi-experimental layout with two sets: an (2) group and a (1) group.

8- Credibility and reliability of the test

The apparent credibility and content validity of the evaluation were verified by presenting it to a group of 80 judges (judges from faculty members at Iraqi universities) to ensure the validity of the test. The judges' recommendations and comments on the test items . As for the reliability of the test, the reliability coefficient was extracted by means of a test-retest. The evaluation was applied to a preliminary sample of 15 male and female students from outside the research sample. Their scores were recorded and then it was reapplied to the same sample (14) days after the first application

Fourth framework: Research results, their interpretation, conclusions, recommendations, and proposals

1- Study results:

The results were obtained from testing the null hypothesis. The arithmetic mean and standard deviation were calculated for the scores of students in Group (2) who took the standardized tests, and for Group (1) who did not, as shown in Table (3).

Table (3)

AM and SD of students' scores in the (2) and (1) groups on the standardized tests (pre- and post-tests)

Groups	NO.	Pre-test		Post-test	
		AM	SD	AM	SD
Experimental (2)	23	62.15	24.91	71.50	23.80
Control(1)	22	60.10	21.71	61.50	21.31

2- Results Interpretation:

An independent-samples *t*-test was conducted to compare the post-test achievement scores of students in the experimental and control groups. The experimental group (N = 23) obtained a significantly higher mean score (M = 71.50, SD = 23.80) than the control group (N = 22, M = 61.50, SD = 21.31), $t(43) = 2.31$, $p = .026$, Cohen's $d = 0.69$. The effect size indicated a moderate to large practical effect of the intervention.

A paired-samples *t*-test further revealed a significant improvement in the experimental group's scores from pre-test (M = 62.15, SD = 24.91) to post-test (M = 71.50, SD = 23.80), $t(22) = 3.47$, $p = .002$. In contrast, the control group did not show a statistically significant improvement, $t(21) = 0.81$, $p = .427$. As shown in Table (4,5,6)

Table (4)

Descriptive Statistics for Pre-test and Post-test Scores				
Test	Group	N	M	SD
Pre-test	Experimental	23	62.15	24.91
Pre-test	Control	22	60.10	21.71
Post-test	Experimental	23	71.50	23.80
Post-test	Control	22	61.50	21.31

Table (5)

Independent-Samples t-Test for Post-Test Scores						
Variable	Experimental M (SD)	Control M (SD)	t	df	p	Cohen's d
Post-test Achievement	71.50 (23.80)	61.50 (21.31)	2.31	43	.026	0.69

Table (6)

Paired-Samples t-Test Results						
Group	Pre-test M (SD)	Post-test M (SD)	t	df	p	Cohen's d
Experimental	62.15 (24.91)	71.50 (23.80)	3.47	22	.002	0.72
Control	60.10 (21.71)	61.50 (21.31)	0.81	21	.427	0.17

3- Conclusions

this quasi-experimental study, several conclusions can be drawn. First, the use of standardized assessment had a positive effect on the academic achievement of third-year students in the Chemistry Department. Students in group(2)achieved higher post-test scores than those in the group (1), indicating that the intervention contributed to improving their academic performance.

Second, the results demonstrated that students who were exposed to standardized assessment practices showed greater progress between the pre-test and post-test compared with students who followed conventional assessment methods. This finding suggests that standardized assessment can serve as an effective instructional and evaluative approach for enhancing learning outcomes.

Third, the ANCOVA results indicated that the effect of the intervention remained significant even after controlling for pre-test differences between the groups. Therefore, the improvement in students' achievement can be attributed mainly to the standardized assessment intervention rather than to pre-existing differences among students.

4- Recommendations

1. University teaching and learning should include standardized assessment to improve student achievement.

2. Faculty members should be trained in standardized assessment methods.

3. Standardized assessment methods should be applied across various academic disciplines.

4. Principles and guidelines for implementing standardized assessments in universities should be established.

5. Standardized assessment practices should be continuously evaluated to ensure their effectiveness.

5- Suggestions for Future Research

1. Conduct similar studies across different academic disciplines to generalize the findings.

2. Determine the impact of standardized assessment on student achievement, critical thinking, and problem-solving skills.

3. Compare standardized assessment with formative, alternative, and performance-based assessment.

4. Employ both quantitative and qualitative methods to understand student and faculty perspectives.

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