

RESEARCH
ARTICLE

The Role of the University Professor in Developing Modern Assessment Methods to Enhance Students' Academic Achievement at the Institute of Physical Education

(A Field Study on Second-Year Students – Sports Training – University of M'Sila)

Omar Khachai

Mohamed Boudiaf University of M'sila

Algeria

khachai.omar@yahoo.fr

Aroussi Derradji

Mohamed Boudiaf University of M'Sila

Algeria

derradji.aroussi@univ-msila.dz

Benabderrahmane
Belkacem

University of Batna 2

Algeria

belkacem.benabderrahmane@univ-batna2.dz

Doi Serial

<https://doi.org/10.56334/sci/8.5.45>

Keywords

University professor – Assessment methods – Academic achievement – Students of the Institute of Physical Activities – Descriptive-analytical method.

Abstract

This study explores the role of university professors in developing modern assessment methods and their impact on student performance at the Institute of Science and Techniques of Physical and Sports Activities. Assessment is viewed not just as a tool for measuring knowledge, but as a means to enhance learning outcomes. Using a descriptive-analytical approach, data were collected from 47 professors and 73 second-year students through questionnaires and interviews. Findings highlight varied levels of awareness among professors regarding updated assessment practices. While some still use traditional methods, others apply modern strategies that foster critical thinking and accommodate individual differences, positively influencing students' academic achievement.

Citation

Omar Kh., Aroussi D., Benabderrahmane B. (2025). The Role of the University Professor in Developing Modern assessment Methods to Enhance Students' Academic Achievement at the Institute of Physical Education. *Science, Education and Innovations in the Context of Modern Problems*, 8(5), 444-455; doi:10.56352/sci/8.5.45. <https://imcra-az.org/archive/363-science-education-and-innovations-in-the-context-of-modern-problems-issue-5-volviii-2025.html>

Licensed

© 2025 The Author(s). Published by Science, Education and Innovations in the context of modern problems (SEI) by IMCRA - International Meetings and Journals Research Association (Azerbaijan). This is an open access article under the **CC BY** license (<http://creativecommons.org/licenses/by/4.0/>).

Received: 16.02.2025

Accepted: 26.04.2025

Published: 20.05.2025 (available online)

Introduction

The realities of the modern era, with its technological advancements, digitized curricula, and the use of the internet as a vital source of learning, compel us to adopt new assessment strategies that rely on tools different from those currently dominant in our schools—tools that are still largely based on traditional tests (Nicol & Macfarlane-Dick, 2006). Since assessment is one of the most crucial educational programs influencing the development and efficiency of the educational model, achieving the desired quality of learning—one that moves away from rote memorization and passive information recall toward active learning driven by exploration, research, analysis, reasoning, and problem-solving—requires the integration of supportive assessment strategies and tools alongside school-based examinations. (Shepard, 2000)

In recent years, there has been a revolution in the concept and tools of assessment. Assessment has taken on new and varied objectives, prompted by a shift from the behaviorist school—which emphasized highly specific lesson objectives formulated in observable and measurable behaviors—to the cognitive school, which focuses on the mental processes occurring within the learner's mind that influence behavior. This shift highlights the importance of thinking processes, especially higher-order thinking skills such as judgment formation, decision-making, and problem-solving. These cognitive abilities equip individuals to effectively navigate the demands of the information age, the explosion of knowledge, and rapidly evolving technology. (Shepard, 2000)

As a result, the focus has shifted toward essential learning outcomes that cannot easily be expressed through observable, measurable behaviors within a specific learning situation. Consequently, the prominence of behavioral objectives—once widely adopted in the 1960s—has faded, giving way to the formulation of objectives based on learning outcomes. These outcomes are represented as performances or achievements that the learner attains as a result of the learning process. Such outcomes must be clearly defined for both teacher and learner, enabling the learner to engage in self-assessment and determine the extent of their progress relative to expected performance levels.

Modern assessment methods play a significant role in both academic and educational life. Assessment, as defined by many specialists, is “assigning numerical values to human and social phenomena—that is, behavioral phenomena.” In this sense, assessment has shifted the human and social sciences from abstract discourse to measurable numerical reality, thereby greatly contributing to improving students’ academic achievement at universities.

Given the crucial role this element plays in university life, this study seeks to highlight the role of the university professor in developing assessment methods to enhance academic achievement among students at the Institute of Science and Techniques of Physical and Sports Activities at Mohamed Boudiaf University of M’sila. This leads us to the central research question: **Is there a relationship between various assessment methods (written exams, practical evaluations, projects, etc.) and the academic achievement of students at the Institute of Science and Techniques of Physical and Sports Activities?**

A related study by Ben Hajouba Hamid, titled *“The Role of the University Professor in Students’ Academic Achievement in Algerian Universities from the Students’ Perspective: A Case Study of Mostaganem University,”* aimed to explore the nature of the relationship between the professor's role and students' academic achievement, while also examining the current state of the educational process and ways to improve it.

To achieve its objectives, the study adopted both descriptive and analytical approaches. A questionnaire comprising 12 statements—verified for face validity and reliability—was distributed to a random sample of 338 students. Statistical analysis of the data was carried out using SPSS20, employing various statistical tools including Cronbach's Alpha for reliability, means, standard deviations, and Pearson correlation coefficients (Bs, 1956). The results revealed a strong positive correlation between the professor's role and students’ academic achievement. It was found that the quality of teaching methods and the effectiveness of communication between professors and students directly contribute to improving academic performance. The study also emphasized the importance of

university professors possessing skills and competencies aligned with the demands of the modern era, positioning them as key players in the advancement of the university system (Trigwell & Prosser, 1991). The study concluded with a recommendation for the collaboration of all stakeholders—from students and professors to university administration and higher education authorities—to ensure the effectiveness of the educational process. This research includes numerous terms that the researcher is obliged to clarify, in order for the reader or browser to understand the content without confusion or ambiguity (Trigwell & Prosser, 1991).

1. Educational Assessment and Academic Achievemen

Assessment: *Bloom* defines assessment as “an organized set of indications that determine whether actual changes have occurred in a group of learners, along with identifying the extent or degree of that change in the individual student.” *Mager* defines it as “the comparison of a measurement with an example or standard, followed by making a judgment based on that comparison.” *Ramziyah Al-Gharib* refers to it as the process of making a judgment about the value of things, people, or subjects. (Bs, 1956)

Educational Assessment: There are two main concepts of educational assessment: one relies on traditional or commonly used methods (the older approaches), while the other is based on modern educational methodologies. These are described as follows:

✓ **Traditional Assessment:** This type of assessment evaluates a student’s academic achievement by measuring basic skills and concepts. In this approach, the student is the subject of assessment but does not participate in assessing themselves. It typically takes the form of a written paper-based test, the results of which are communicated to the student’s guardian (Nitko, 1996) .

✓ **Authentic Assessment:** This approach evaluates the student’s personality in all its dimensions by collecting various types of data using multiple assessment strategies and tools—not limited to written exams. Its goal is to develop real-life skills and higher-order thinking abilities in the student, who actively participates in the assessment process. Authentic assessment focuses as much on the learning process itself as it does on the outcomes, whereas traditional assessment focuses solely on the results (Wiggins, 1990).

✓ **Academic Achievement:** Academic or scientific achievement refers to the set of educational objectives attained by the student or educational institution. It is closely linked to an individual’s cognitive ability—their capacity to perform specific tasks using sensory, mental, and innate actions. This ability varies from one person to another (Anastasi, 1992).

Several factors influence the level of a student’s academic achievement, which can be grouped into three main categories:

The first group includes personal factors related to the student, The second group involves environmental and family-related factors, The third group consists of school-related factors.

According to Euyavazine, academic achievement is “the assimilation of a certain amount of knowledge and information determined by specific programs.”

As for **P. Ghaplin**, school achievement is defined as “a specific level of performance and competence in academic work, as evaluated by teachers or through standardized tests, or both.”

Operational Definition: It is the attainment of a specific level in a subject or group of subjects determined by the school, which works toward achieving this level (Aggarwal, 2010). The aim is to compare the individual’s assimilation of various knowledge areas within a defined time frame or to compare students to one another.

2. Methodological Procedures Followed in the Study:

2.1 Research Domains: The research was conducted according to the following domains:

- **Human Domain:** Professors and second-year university students at the Institute of Science and Techniques of Physical and Sports Activities at Mohamed Boudiaf University.
- **Spatial Domain:** The Institute of Science and Techniques of Physical and Sports Activities at Mohamed Boudiaf University, M’sila.
- **Temporal Domain:** The research period extended from December 15, 2021, to March 3, 2022.

2-2. Limits of the Study: The current research was conducted within the following boundaries: It was limited to the professors of the Institute of Science and Techniques of Physical and Sports Activities at Mohamed Boudiaf University in M’sila, and second-year university students in the Sports Training Department.

2.3 Research Population: Terminologically, the research population refers to the original group from which the sample is drawn. This group may consist of administrations, teams, middle schools, populations, students, or any other units. In this study, the research population consists of both permanent and temporary professors at the institute, totaling 41, and 73 students.

2.4 Research Sample: Since it is difficult to work with the entire population, researchers resort to sampling, which aims to save time and effort. As the sample is the cornerstone of any field study and relies primarily on the questionnaire, it is defined as "a part of the study population from which field data are collected, and it is considered a portion of the whole—meaning a group is taken from the population, provided it is representative of the research population." (Creswell & Creswell, 2017) The sample for this research consists of 18 university professors and 46 university students.

2.5 Exploratory Sample: The exploratory sample is a partial group from the research population that accurately represents the elements of the original population, allowing for the generalization of its results to the entire population and for making inferences about the original population's characteristics (Teddlie & Yu, 2007).

2.6 Research Methodology: Scientific research is characterized by the diversity of its methods. Linguistically, "method" means a clear and straight path. Some scholars view a method as an investigation focused on a specific phenomenon as it exists in the present, involving the identification of its aspects and the analysis of relationships between its elements. In this study, the researcher adopted the **descriptive analytical method** due to its suitability for the nature of the study.

2.7 Exploratory Study: After designing the initial version of the research tool (the questionnaire), the researcher tested it in the field through an exploratory study conducted on a group of **8 professors** and **10 students**. The purpose was to determine how suitable the questionnaire was for its intended objective—namely, its ability to measure what it was designed to—and its appropriateness for the characteristics of the research sample. This also included assessing the clarity and comprehensibility of the questionnaire's wording and expressions by the sample members, specifically second-year university students in the Sports Training Department at the Institute of Science and Techniques of Physical and Sports Activities.

Additionally, the aim of the exploratory study was to understand the content of the tool to ensure proper preparation for the main study. The results were also used to calculate the validity of the instrument.

First: Description of the Original Version of the Questionnaire Tool. The original version of the questionnaire consists of **48 items**, divided equally into **24 items directed at students** and **24 items directed at professors**, as detailed in the appendices. These items cover **three main dimensions**. The responses were designed using two types of scales:

- **Three-point Likert scale:** where the respondent answers each item by choosing one of the following options: (Always, Sometimes, Rarely).
- **Dichotomous system:** where the respondent chooses one of two options (Yes – No) for each item.

Second: Procedures for Developing the Tool. The original version of the questionnaire underwent a set of procedures aimed at verifying the appropriateness of its items for the study sample environment, by testing its **validity and reliability**. The following is a presentation of these procedures:

- **A. Instrument Validity:** The questionnaire was presented to a panel of expert judges to evaluate the following:
 - The clarity of item phrasing.
 - The appropriateness of each item in measuring the dimension it belongs to.
 - Suggestions for modifications and other general observations.

Thus, the validity of the tool was established using the following methods:

1. Expert Validity (Content Validity by Judges): Expert validity is one of the steps used to establish content validity. It relies on the opinions of specialists in the field that the scale aims to measure, with respect to the items of the tool. These judgments are based on certain criteria determined by the questionnaire designer, such as the relevance and representativeness of the item for the behavior being measured, as well as its alignment with the dimension or axis it represents. The initial version of the questionnaire was presented to **five experts**—specialists holding academic ranks as lecturers and university professors—who were asked to evaluate the formulation and clarity of each item.

2. Questionnaire Reliability:

After confirming the content validity of the questionnaire and approving its final form, the researcher needed to verify its reliability. Given the various statistical methods available to calculate the reliability coefficient, the researcher used **Cronbach's Alpha coefficient**, which was found to be **0.965** across the domains and dimensions of the questionnaire. This value is considered acceptable for the purposes of this research, especially since the significance level is **0.05**, confirming that the instrument has a high level of reliability.

1-8. Study Tools:

This study relied on two tools:

- **Interview:** The interview is considered one of the essential tools for gathering information about individuals. Since the research sample consists of second-year university students, some of whom may not fully understand the questionnaire questions, we used oral interviews—directed conversations by the researcher with the respondents—to reach the truth.
- **Questionnaire:** The questionnaire plays a fundamental role in descriptive studies, serving as the main tool for collecting data from participants. Its role can be summarized as follows:
 - Collecting both quantitative and qualitative data.
 - Reaching a wide sample from the study population.
 - Providing data that can be statistically analyzed.
- **Statistical Method:** Since the study's problem centers on the relationship between assessment methods and academic achievement among students, the main methods used in the study are:
 - Data analysis was performed using the statistical software package (SPSS).
 - Pearson Correlation Coefficient was used to test the relationship between two quantitative variables.

3. Results

3-1 Presentation of Results Related to the First Hypothesis:

There is a relationship between assessment methods and academic achievement among students of the Faculty of Humanities.

- **H0:** There is no relationship between assessment methods and academic achievement among students of the Faculty of Humanities.
- **H1:** There is a relationship between assessment methods and academic achievement among students of the Faculty of Humanities.

To test the above hypothesis, Pearson's correlation coefficient was used to detect the presence of a correlation between the variables of assessment methods and academic achievement.

- The acceptance or rejection rule is as follows: If the calculated value of 'R' is greater than the tabulated value of 'R' at a significance level of 0.01 and degrees of freedom (99), then we reject H0 and accept H1.

Table 1. Value of Pearson's correlation coefficient between assessment methods and academic achievement

Variables	Pearson Correlation Coefficient (Calculated R)	Tabulated R	Significance Level	Degrees of Freedom (n-1)	Decision
Assessment Methods	0.943	0.254	0.01	99	Statistically Significant Correlation
Academic Achievement	—	—	—	—	—
** Correlation is significant at the 0.01 level (2-tailed).					

The calculated Pearson correlation coefficient between the variables of assessment methods and academic achievement reached 0.94. This value is positive and greater than the tabulated correlation coefficient of 0.254 at a

significance level of 0.01 and with 99 degrees of freedom. This indicates a significant relationship between the two variables. Therefore, we reject the null hypothesis (H0) and accept the alternative hypothesis (H1), meaning:

There is a statistically significant relationship between assessment methods and academic achievement among the institute's students.

2-2 Presentation of results related to the second hypothesis: There is a relationship between the responses of students at the Institute of Physical Activity and Sports Sciences to the assessment methods presented by the professor.

H0: There is no relationship between academic achievement and the assessment methods provided by the professor.

H1: There is a relationship between academic achievement and the assessment methods provided by the professor.

To test the above hypothesis, the Pearson correlation coefficient was used to detect the presence of a relationship between the variables of assessment methods and academic achievement.

The acceptance or rejection rule is: If the calculated 'R' value is greater than the tabulated 'R' value at a significance level of 0.01 and with 99 degrees of freedom, then we reject H0 and accept H1.

Table 2. shows the Pearson correlation coefficient value between students' responses and assessment methods among the institute's students.

Variables	Pearson Correlation Coefficient (Calculated R)	Tabulated R	Significance Level	Degrees of Freedom (n-1)	Decision
Achievement	0.943	0.254	0.01	99	Correlation is significant
Assessment Methods					
Correlation is significant at the 0.01 level (2-tailed)					

The calculated Pearson correlation coefficient between the variables achievement and assessment methods was 0.94, which is positive and greater than the tabulated correlation coefficient of 0.254 at a significance level of 0.01 and with 99 degrees of freedom. This indicates a significant relationship between the two variables; therefore, we reject the null hypothesis (H0) and accept the alternative hypothesis (H1), meaning: There is a statistically significant relationship between achievement and the assessment methods used by the professor.

After conducting the study on the selected sample and applying the appropriate statistical tools, the results showed statistically significant differences between the different assessment methods (such as written tests, practical evaluations, projects, etc.) and the level of academic achievement among students at the Institute of Science and Techniques of Physical and Sports Activities. This indicates the impact of the quality of assessment tools on enhancing academic performance.

The study also showed that university professors play a pivotal role in developing and updating assessment methods used in higher education, especially in the fields of physical and sports sciences and techniques. Their involvement in adopting clear and modern assessment standards contributes to improving student performance and fostering their inclination to develop their knowledge and research skills.

In light of these results, the study recommends diversifying assessment methods and not limiting them to written exams, but also adopting tools such as self-assessment, peer assessment, and projects, and linking evaluation to learning objectives. Additionally, the use of technology in assessment processes, such as electronic testing, should be promoted, along with training students to use these modern methods.

The study also recommends that universities develop training programs for university professors by organizing specialized courses and workshops on modern assessment strategies and designing effective evaluation tools. Furthermore, quality standards for assessment should be included within academic performance evaluations, and specialized committees should be established at the faculty and institute levels to review assessment tools and ensure their effectiveness and suitability for the educational environment.

Conclusion:

From the conducted study, it is clear that the university professor (at the Institute of Physical and Sports Education) plays a pivotal role in developing modern assessment methods that align with the demands of contemporary higher education. By adopting modern assessment approaches based on deep understanding, critical thinking, and active learning, the professor contributes to enhancing students' academic achievement and motivating them towards excellence and creativity.

Hence, investing in qualifying university professors and providing a supportive academic environment for educational renewal represents a fundamental pillar for improving the quality of education and achieving advanced knowledge outcomes that keep pace with the aspirations of modern societies.

References

- Aggarwal, J. C. (2010). *Essentials of educational psychology*. Vikas Publishing House.
- Anastasi, A. (1992). What counselors should know about the use and interpretation of psychological tests. *Journal of Counseling & Development*, 70(5), 610-615.
- Bs, B. (1956). Taxonomy of educational objectives: the classification of educational goals. *Handbook; Cognitive domain*, 1.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in higher education*, 31(2), 199-218.
- Nitko, A. J. (1996). *Educational assessment of students*. ERIC.
- Shepard, L. A. (2000). The role of assessment in a learning culture. *Educational researcher*, 29(7), 4-14.
- Teddlie, C., & Yu, F. (2007). Mixed methods sampling: A typology with examples. *Journal of mixed methods research*, 1(1), 77-100.
- Trigwell, K., & Prosser, M. (1991). Relating approaches to study and quality of learning outcomes at the course level. *British Journal of Educational Psychology*, 61(3), 265-275.
- Wiggins, G. (1990). The case for authentic assessment. *Practical assessment, research, and evaluation*, 2(1).