

Assessment of Comprehensive Candidate Assessment Methods and Their Relationship to Academic Achievement and Student Retention

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	Abstract The article discusses current trends and problems of assessing students' academic achievements in higher education. Particular attention is paid to the holistic review method as a tool for increasing the inclusiveness and accuracy of applicant selection, taking into account academic, personal, motivational and social factors. Based on modern research and empirical data, the advantages and limitations of this approach, as well as its impact on academic success and student retention, are discussed. The main problems of implementing holistic review related to subjectivity, social inequality and high resource costs are identified.
Keywords: Higher education, assessment of academic achievements, adaptive testing, portfolio analysis, holistic review, academic success, student retention, inclusiveness, admissions policy.	

Introduction

The scientific novelty of the article lies in the comprehensive analysis of modern methods for assessing students' academic achievements with an emphasis on a comprehensive approach to admission to universities (holistic review). The work systematizes the key components of this method and presents empirical data confirming its effectiveness in the context of increasing academic success and student retention. Particular attention is paid to a critical analysis of the risks and limitations associated with subjectivity and social inequality, which allows us to formulate recommendations for increasing the fairness and effectiveness of admissions policies in the context of increasing diversification of the student body. A pressing problem in modern higher education is to ensure an objective and comprehensive assessment of students' academic achievements. Traditional assessment methods, including oral surveys, written tests and tests with closed-ended tasks, demonstrate limited effectiveness in a comprehensive assessment of the development of students' competencies and their ability to practically apply the knowledge they have acquired. These methods, as a rule, do not take into account the individual characteristics of students, their personal qualities and manifestations of creative potential.

In this regard, there is a tendency to introduce innovative approaches to assessing academic achievements based on the use of modern information and communication technologies, methods of mathematical modeling and data analysis. One of the promising areas is adaptive testing, which

is a method that allows for the selection of tasks that correspond to the level of training of each individual student, which ensures a more accurate and reliable assessment of his or her knowledge and skills. Empirical data obtained as a result of a study conducted at Stanford University indicate that the use of adaptive testing can increase the accuracy of assessment by 15-20% compared to traditional methods. At the same time, there is a reduction in the time spent on testing by 30-50%. An alternative and promising direction in improving the assessment of academic achievements is portfolio analysis. This method involves a comprehensive assessment of a student's achievements based on the analysis of an individual portfolio, including the results of projects of various focus areas, creative tasks, research papers and other types of educational activities. Portfolio analysis allows not only to assess the level of professional competence development, but also to promote the development of self-assessment, reflection and critical thinking skills in students. The results of an experimental study conducted at Harvard University indicate a positive impact of the introduction of portfolio analysis into the academic achievement assessment system, which is manifested in increased student motivation and an increase in their academic performance by 10-15%. The use of simulation technologies and gamification in assessment activities deserves special attention. These methods allow creating realistic scenarios of professional activity in which students can apply the acquired knowledge and skills, demonstrating their competencies in conditions as close as possible to real practice. An example is the widespread use of simulation centers in medical education, equipped with high-tech mannequins-simulators. These centers allow practicing the skills of providing emergency care, performing surgeries and other medical manipulations. A meta-analysis of data conducted by a team of researchers from the University of Toronto shows that the use of simulation technologies in medical education can increase the effectiveness of learning by 20-30% compared to traditional methods.

An alternative to the traditional approach to admission to higher education institutions, based primarily on standardized tests, academic performance, and GPA, is the holistic review method. This approach involves a move away from a predominant focus on quantitative indicators and seeks to take into account a wide range of personal, behavioral, social, and motivational characteristics of applicants [1]. This approach, which has become widespread in the United States and a number of European countries, is seen as a tool for increasing inclusivity and ensuring academic diversity in the university environment [2]. The key principle underlying holistic admissions is the recognition that academic potential cannot always be objectively assessed through standardized tests. Consequently, there is a risk that students with significant potential may go unnoticed if their life experiences, obstacles overcome, and motivation to study are ignored.

Holistic assessment is based on a number of key components, each of which provides unique information about the candidate. Below is a table that systematizes the main elements of this approach.

Table 1 - Main components of a comprehensive assessment of candidates

Component	Content	Appointment in the evaluation process
Academic performance	Grade Point Average (GPA), Exam Scores, Difficulty of Curriculum	Reflect the level of academic preparation and learning ability
Motivational essays	Texts that reveal goals, values, motivation, interest in the specialty	Demonstrate depth of reflection, purposefulness and semantic orientation
Personal qualities	Perseverance, leadership, self-organization, emotional intelligence	Demonstrate resistance to stress, maturity, and potential for professional growth
Extracurricular activities	Participation in clubs, volunteering, sports, creativity	Demonstrates social activity, responsibility, and teamwork skills
Contextual factors	Socioeconomic status, affiliation to vulnerable groups, life difficulties	Taken into account to assess achievements adjusted for living conditions
Recommendations from mentors	Feedback from teachers, lecturers, project coordinators	Provide a third-party assessment of a candidate's potential, character and achievements

The presented components illustrate the multidimensional nature of the holistic review method. Each of these elements contributes to the formation of a more complete and contextualized picture of a potential student, going beyond the assessment of purely academic performance. An integrated consideration of personal, motivational, social and educational factors ensures more informed and fair decisions in the selection process, which in turn increases the likelihood of academic success and sustainable learning of students in the long term.

Modern research in the field of higher education confirms that a holistic review has a higher predictive value for the academic success of students than traditional metrics based on standardized tests and grade point averages [3]. In the context of academic success, as a rule, indicators are considered that include the level of academic performance at the university, the degree of involvement in the educational process, compliance with the deadlines for completing courses, as well as the successful completion of the educational program. Traditional selection methods that focus primarily on quantitative data (GPA, SAT/ACT scores) have long been viewed as reliable indicators of future academic achievement. However, research suggests that they do not always predict the academic sustainability of students, especially those from socially and culturally diverse groups [4]. Therefore, the introduction of a comprehensive assessment approach allows for the consideration of factors with high predictive value that are not taken into account in traditional assessment methods.

Academic success is determined not only by cognitive abilities, but also by a number of personal characteristics, including persistence, stress resistance, motivation, and self-organization. Research conducted by A. Duckworth and co-authors revealed a significant correlation between characteristics such as grit (a sense of purpose and passion for achieving long-term goals) and

academic and professional success, exceeding the predictive power of IQ or standardized test scores [5].

Other researchers also emphasize the importance of non-cognitive variables such as intrinsic motivation, self-determination, interpersonal skills, and the ability to overcome obstacles. These factors are especially valuable when selecting students from underrepresented and marginalized populations whose academic performance may have been reduced due to the influence of external circumstances. Empirical studies confirm the positive relationship between components of a comprehensive assessment, such as motivation letters, recommendations, leadership qualities, and participation in socially significant projects, and academic engagement and successful completion of studies. In particular, a study of admissions practices to master's and doctoral programs conducted by Julie R. Posselt showed that students selected on the basis of expanded criteria demonstrated results that were not inferior to, and in some cases, superior to, students with exceptionally high GRE scores [6]. A systematic review conducted by American sociologists confirms that holistic review contributes not only to increased academic success, but also to the formation of a more stable and motivated student environment, especially in the context of STEM (science, technology, engineering, mathematics) programs. Moreover, according to the study by Michael N. Bastedo et al., students selected based on personal and social factors demonstrate a higher degree of satisfaction with the learning process and are more actively involved in academic and research activities [7]. Despite the positive correlations found, it is important to keep in mind that holistic assessment is not a one-size-fits-all solution. The effectiveness of this approach is largely determined by the level of preparation of the admissions committee, the degree of standardization of assessment procedures, and the level of subjectivity in interpreting essays and recommendations (Lopez, 2017). In addition, the implementation of this approach requires significant resources, time, and professional expertise.

Nevertheless, the general data indicate that holistic assessment can provide a fairer, more predictable, and more sustainable selection mechanism, especially when used in combination with traditional academic criteria.

Ensuring student resilience to academic and social challenges and reducing dropouts are key tasks of higher education. Student retention is an important indicator of the quality of the educational environment and the effectiveness of admissions policies. Research shows that holistic assessment of applicants contributes to the formation of sustainable student communities and a reduction in academic failure. The traditional focus on academic indicators (UNT/USE scores, GPA) does not reflect all the factors that influence successful completion of education. V. Tinto and William E. Sedlacek emphasize the influence of stress resistance, intrinsic motivation, support and experience of overcoming difficulties.

A meta-analysis by Stephen B. Robbins and co-authors confirms that non-cognitive variables (striving for achievement, engagement, self-regulation, self-esteem) are significant predictors of student retention, identified in the process of comprehensive assessment [8].

Table 2 - The impact of comprehensive assessment components on student retention

Components of a comprehensive assessment	Factors that contribute to retention	Examples of positive influence
Motivation letter	Intrinsic motivation, clear goals	Students with a strong sense of purpose are more resilient to academic challenges
	Support from significant adults	Helps to identify social stability and potential for development
Recommendation letters	Involvement, team orientation	Associated with higher levels of social integration
	Stress resistance, persistence	Promote adaptation in conditions of educational stress
Leadership and volunteer experience	Self-organization, internal discipline	Indicates maturity and motivation to complete education
	Identification with the university, sense of belonging	Increase emotional attachment to the educational institution

A holistic assessment that takes into account academic, personal and social aspects of an applicant allows universities to more accurately predict student behavior during the learning process. Taking these factors into account helps to increase student retention, especially from vulnerable groups. The implementation of a holistic assessment requires further institutional support: mentoring, counseling and academic supervision. The combination of these factors ensures a sustainable reduction in dropouts and an increase in the effectiveness of education.

Despite the promotion of the holistic review concept as a fairer and more inclusive approach to the selection of applicants, this method is not without significant shortcomings and is criticized by researchers and practitioners involved in admissions campaigns.

One of the main problems of a holistic assessment is its subjective nature. Unlike standardized tests based on objective criteria, the interpretation of motivation letters, references and extracurricular achievements is influenced by the individual views of admissions committee members. This can lead to cognitive and social biases, including bias against candidates based on gender, race, social background, and other factors. The use of 360-degree assessments can exacerbate social inequality, as access to volunteer opportunities, cultural and sporting events, and the ability to obtain quality letters of recommendation are more common among students from wealthy families and prestigious educational institutions. This puts applicants from rural areas or socially disadvantaged groups at a disadvantage. As D. Klasik notes, “extracurricular and leadership achievements are unevenly distributed among applicants and often reflect differences in available resources rather than individual characteristics” [9].

The lack of standardized criteria for assessing components such as motivation, emotional stability, or leadership potential makes it difficult to compare candidates and reduces the predictive validity of the process. In addition, there is a risk of using external consultants or artificial intelligence to prepare motivation letters and essays, which reduces their authenticity and information content.

Conducting a comprehensive assessment requires significant time and personnel resources compared to traditional methods based on test results and scores. Analysis of the applicant's full set of documents as part of a holistic review can take from 20 to 60 minutes. This creates the risk of overloading admissions committees and reducing the quality of application analysis in the context of mass admissions.

Critics note that a comprehensive assessment can violate the principle of openness and predictability, which is especially important for national education systems, where admissions decisions must be justified and understandable to all participants. The lack of clear scales and rubrics increases doubts about the fairness of the decisions made [10]. Thus, although holistic assessment broadens the understanding of an applicant's potential beyond academic scores, it also raises a number of ethical, organizational, and methodological challenges. To minimize these risks, transparent and valid instruments need to be developed, admissions officers trained, and institutional support provided to applicants from less privileged backgrounds. Holistic assessment of candidates plays an important role in building a sustainable and successful student body, allowing for diversity of experience and potential to be taken into account, going beyond traditional metrics. Despite these challenges, further development and standardization of holistic admissions can contribute to a fairer and more predictively accurate admissions system to higher education institutions.

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