REPUBLIC OF AZERBAIJAN

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ABSTRACT

of the dissertation for the degree of Doctor of Philosophy

SCIENTIFIC AND PEDAGOGICAL FOUNDATIONS OF WORK ON SUMMATIVE ASSESSMENT OF STUDENT ACHIEVEMENTS IN SECONDARY SCHOOLS

Speciality: 5804.01 – general pedagogy, history of pedagogy and education

Field of science: Pedagogy

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BAKU – 2025

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GENERAL CHARACTERISTICS OF THE RESEARCH

Relevance and degree of development of research. As a logical outcome of the "Education Sector Reform Program" approved in 1999 by National Leader Heydar Aliyev, the implementation of new educational programs (curricula) was initiated in Grade 1 of secondary schools starting in 2008. The adoption of these new curricula brought about the need for a novel mechanism for the internal assessment of student achievement. In response to this need, the Cabinet of Ministers of the Republic of Azerbaijan issued Decision No. 09 on January 13, 2009, which officially approved the document titled "Assessment Concept of the General Education System of the Republic of Azerbaijan."

This conceptual framework emphasized that modern assessment practices must not only account for students' cognitive activity but also consider the qualitative indicators of the knowledge acquired and the extent to which such knowledge is applied. The concept identifies summative assessment as a principal instrument for evaluating students' progress toward mastering educational standards. Furthermore, the document highlights a specific feature of summative assessment, namely, its function in revealing the degree to which learners have acquired the ability to apply what they have learned.

In order to support the practical realisation of the Assessment Concept within general secondary education, the Ministry of Education of the Republic of Azerbaijan formulated the 'Guidelines for Internal Assessment Procedures in Secondary Schools'. Both documents collectively affirmed the necessity of employing all three forms of internal assessment – diagnostic, formative, and summative – for the purpose of evaluating student achievement comprehensively and objectively.

Summative assessment of student achievement in secondary education is understood as the process of identifying and comparing students' learning outcomes at a given stage of the instructional process against the requirements set forth in the national education standards and curriculum frameworks. In essence, summative

assessment serves as a mechanism for measuring the extent to which students' academic achievements and the quality of their acquired knowledge align with established normative benchmarks.

The outcomes of summative assessment are subject to systematic analysis, wherein students' existing knowledge base, demonstrated competencies, and acquired skills are evaluated. Based on this evaluation, teachers may implement pedagogical adjustments in subsequent phases of instruction to address identified gaps. Within traditional school practice, the objectivity of assessing student achievement has often been confined to this evaluative function alone.

However, the purpose of summative assessment in secondary schools extends beyond the mere quantification of learners' knowledge levels. It also involves diagnosing the underlying causes of academic underperformance and utilising such insights to forecast and support the trajectory of future learning activities. In this regard, summative assessment serves both diagnostic and prognostic functions within the educational process.

Different stakeholders engaged in the summative assessment process are interested in different types of information, contingent upon the specific purposes for which the assessment results are utilised. For instance, students may interpret assessment outcomes in relation to their peers as a means of identifying their own strengths and learning deficiencies. Graduating students may rely on these results to make informed decisions regarding their future educational pathways. Teachers, on the other hand, may employ summative assessment data to identify learning gaps within the class and restructure their teaching strategies accordingly.

Furthermore, based on the results of summative assessment, both teachers and school administrators are better positioned to implement differentiated instruction by identifying which students require additional support or clarification of learning materials. At the institutional level, the aggregate data derived from summative assessments enable schools to design targeted interventions aimed at enhancing the overall quality of instruction.

In particular, the clarification of difficult-to-master content areas and the successful resolution of such challenges call for the

systematic planning of subject-based methodological group activities. These collaborative initiatives are essential for addressing curricular complexities and promoting student achievement across the school community.

In the contemporary educational context, the internal assessment of student achievement in general secondary schools represents one of the most pressing issues in both theoretical discourse and pedagogical practice. At various stages of societal development, the measurement of instructional quality and learning outcomes – along with the analysis of these measurements – has consistently remained at the forefront of interest for educational theorists and methodologists. While the theoretical dimensions of the issue have predominantly attracted the attention of academic researchers, the practical concerns of ensuring the quality of instruction and the accessibility of mechanisms for evaluating student achievement within general secondary schools have posed challenges for both educational administrators and practitioners.

Against this backdrop, the successful fulfilment of key educational objectives in secondary schools – when viewed through the prism of contemporary educational demands – necessitates the development of a new legal and normative framework for the summative assessment of student achievement. This imperative also calls for the organization of professional training courses aimed at enhancing the pedagogical expertise and methodological competence of school administrators and teachers, the development of methodological guidelines, and the resolution of several other critical issues. Within such an approach, the precise and objective measurement of student achievement in general secondary education becomes central to evaluating institutional performance and compels the establishment of new, scientifically grounded, and reliable assessment mechanisms.

In pursuit of this objective, it becomes particularly important to examine the existing theoretical and scientific perspectives on summative assessment, to systematically investigate its essence, content, goals, and functions, to reveal its pedagogical potential, and to determine the most effective strategies for its application within educational settings.

An analysis of theoretical, pedagogical, and methodological literature reveals that no systematic and comprehensive research has been undertaken – either in Azerbaijan or internationally – on the summative assessment of student achievement specifically within the context of general secondary schools. Without a targeted, consistent, and scientifically substantiated approach to the summative evaluation of student learning outcomes, it is virtually impossible to gain accurate insights into the quality of teaching and learning processes at the school level.

In recent years, researchers such as A.O. Mehrabov, Y. Sh. Karimov, A.A. Agayev, A.N. Abbasov, F.B. Sadigov, A.M. Abbasov, E.B. Beylerov, P.B. Aliyev, and I.A. Javadov have contributed to the study of internal assessment of student achievement in general secondary schools. Their investigations have yielded valuable recommendations and theoretical insights, which have been published in periodic pedagogical journals. Nevertheless, the practical implementation of these findings remains limited.

Internationally, researchers from the United States – such as C. Garrison, M. Ehringhaus, S. Chappuis, J. Chappuis, N. Glazer, and C. Moss – along with British education specialists P. Black and D. Wiliam, and prominent Turkish scholars such as H. Tekin and D. Özçelik, have carried out empirical studies on the topic and have articulated significant theoretical positions regarding the nature of student achievement assessment.

In the Russian Federation, educationalists and psychologists such as Sh.A. Amonashvili, V.M. Polonsky, N.V. Seleznev, G.Y. Ksenzova, N.N. Dikanskaya, E.V. Gerasimenko, and G.Ch. Takhtamysheva have also engaged in substantial research related to internal student assessment in secondary schools. Their findings have offered a range of thoughtful proposals and recommendations for the improved organization of teachers' evaluative activities.

However, an in-depth examination of both national and international experiences confirms that the summative assessment of student achievement in secondary schools has not been thoroughly investigated either by local or foreign scholars.

The need to enhance quality in educational institutions and to address the pedagogical, psychological, scientific, and methodological foundations of challenges encountered in the field of summative assessment of student achievement constitutes a clear indication of the relevance and timeliness of this research topic. It reinforces the urgency of developing a coherent and evidence-based framework for assessing student performance in secondary education settings.

The object and subject of the research:

The object of the study is the process of summative assessment of students' achievements in secondary schools.

The subject of the research: The subject of the research comprises the scientific and pedagogical foundations underlying the implementation of summative assessment of student achievement in secondary schools.

The purpose and objectives of the research:

The purpose of the research is to identify the scientific and pedagogical foundations for the implementation of summative assessment of student achievement in secondary schools.

In order to achieve the stated purpose, the following research objectives have been formulated:

- to define the essence and content of summative assessment;
- to analyze the problem from the perspective of scientific and pedagogical literature;
- to investigate the historical development of student assessment models in the practice of foreign countries;
- to study the practical implementation of summative assessment of student achievement in secondary schools;
- to develop methodological guidelines for the organization of summative assessment in in secondary schools;
- to determine the methods and tools used in summative assessment;
- to identify the didactic requirements for the development of summative assessment tools;
- to organize and conduct a pedagogical experiment, and to analyze its results.

The following research methods were used during the study:

- Theoretical analysis and the analysis of school documents, learning and generalization of previous experience, pedagogical observation, interview, survey and pedagogical experiment.

- Analysis of school documents. Documents on the assessment of student achievements in secondary schools, including the protocols of the pedagogical council, progressive approaches used in schools for the assessment of student learning achievements were studied and analyzed.

- Study and generalization of advanced practice. The work experience of school principals and individual teachers was studied, effective ways of summative assessment of student achievements were studied.

- Pedagogical observation. The activities of schools on the summative assessment of student achievements were observed, the collected materials were analyzed, grouped and summarized and reflected in separate paragraphs of the dissertation.

The main provisions for the defense:

1. The methods and tools determined in accordance with the research objectives enhance the effectiveness of the use of summative assessment.

2. Summative assessment tools developed on the basis of didactic requirements expand their applicability and have a positive impact on the teaching process.

3. The teacher's level of professional competence and experience in the field of pedagogical activity serve as one of the key factors in the effective assessment of student learning outcomes in general education schools.

Scientific novelty of the research. The essence of summative assessment of student achievements as an integral component of the content of education in general education institutions has been scientifically and pedagogically substantiated. Its role in enhancing the quality of education has been examined, and the methods and tools of summative assessment of student learning outcomes, along with the system of didactic requirements for their development, have been identified.

Theoretical and practical significance of the research. The findings of this research contribute substantively to the advancement of instructional theory by refining and expanding the conceptual framework concerning the assessment of student achievements. The study underscores the vital role and significance of specialized methodological approaches in the effective evaluation and measurement of academic performance.

Practical significance of research. This study represents a pioneering effort within the Republic of Azerbaijan to thoroughly investigate, synthesize, and conduct a scientific-pedagogical analysis of the existing practices related to summative assessment of student achievement in general education schools. As a result, it has formulated novel, scientifically and methodologically grounded approaches aimed at enhancing the professional competencies of educational practitioners.

The results of this research may be effectively applied in the following domains:

- the professional practice of educators engaged in the instructional process;
- the development and updating of curricula for foundational courses such as Pedagogy and Didactics;
- the revision and enrichment of specialized methodology courses across general education disciplines;
- the design and implementation of professional development programs for teachers;
- the formulation of master level courses on educational assessment;
- the preparation of training curricula for education administrators and managers.

Approbation and result. The approaches to summative assessment of students' learning achievements reflected in the dissertation were applied in secondary schools of Baku and Shirvan city, Aghdam and Hajigabul regions and positive results were achieved.

The results of the research were discussed at the seminars of the Theory and History of Education, Economy and Management of Education departments of the Institute of Education of the Republic

of Azerbaijan, at the meetings of the pedagogical and methodical councils of the schools where pedagogical experiments were conducted, at the conferences of doctoral students and young researchers. The main provisions, conclusions and proposals of the dissertation were reflected in the current and final reports of the Education Quality Department of the Educational Institute and were published in the form of 6 articles (including one article abroad) in leading scientific journals of the republic. In addition, 6 conference materials (including one abroad) were published.

Name of the organization where the dissertation was performed. The dissertation was completed at Department of Theory and History of Education of the Institute of Education.

The total volume of the dissertation in marks, indicating the volume of the structural sections of the dissertation separately. The dissertation consists of an introduction, two chapters, each containing ten paragraphs, a conclusion and a list of used literature. The introductory part of the dissertation – 9 pages, 15441 marks, Chapter I – 66 pages, 117585 marks, Chapter II – 37 pages, 63581 marks, conclusion – 8 pages, 15616 marks, the total volume of the dissertation, excluding the list of used literature, is 212223 marks.

MAIN CONTENT OF THE RESEARCH

In the **Introduction**, the relevance of the research topic is substantiated, and the aim and objectives of the study, as well as its object, subject, methodological and methodical foundations, scientific novelty, theoretical and practical significance, are elaborated. Furthermore, the main theses submitted for defense are identified.

Chapter I of the dissertation is entitled **"General theoretical issues of the research"** and consists of four paragraphs. The first paragraph of this chapter is titled **"*The essence and purpose of summative assessment*."**

The issue of providing methodological support to teachers in ensuring objectivity in the assessment of students' learning achievements has long been a concern for educational

methodologists and remains relevant to this day. This concern arises from the fact that ongoing socio-economic transformations in society impose new demands on schools, necessitating the continuous improvement and renewal of their educational practices in accordance with contemporary requirements.

According to modern educational philosophy, the student is regarded as a central subject of the teaching and upbringing process, occupying a pivotal position within the pedagogical framework. In the current era, the primary objective of education is to foster students' logical, critical, and creative thinking skills, as well as to cultivate their capacity for independent inquiry and research.

Research findings indicate that teachers who utilize the outcomes of summative assessment of student achievement gain a clear understanding of what knowledge students have acquired, to what extent, and through which means during the instructional process. These insights enable teachers to effectively structure the learning process in a manner that both meets students' needs and supports continued progression toward subsequent learning objectives. Summative assessment of student achievement does not aim to restructure the instructional process itself; rather, it serves as a mechanism for informing both teachers and learners about the outcomes of their educational engagement. The results of summative assessment may be employed to gauge the overall quality of education provided within the school as well as to monitor students' cognitive development, thereby informing the planning of future pedagogical actions. In this sense, summative assessment functions as an indicator of educational attainment. That is, the evaluation of student achievement should be grounded in the data obtained through assessment processes, which allows for the identification of strengths and weaknesses within the instructional framework. Based on such diagnostic insights, appropriate administrative, pedagogical, and methodological interventions must be implemented to support and enhance areas in need of improvement. Consequently, decisions derived from summative assessment data should contribute directly to the refinement of the educational practices of students, teachers,

and school leadership alike, ultimately fostering continuous improvement in school performance and student learning outcomes.

The second paragraph of the first chapter is entitled ***"The formulation of the problem in scientific and pedagogical literature."*** As the title suggests, this section explores the research problem through the lens of scientific and pedagogical literature.

The issue of assessment is by no means a simple or straightforward process. As a foundational step, it is essential to consider the perspectives put forth by Azerbaijani educators and psychologists, and to refer repeatedly to their recommendations. Within the field of Azerbaijani pedagogical science, there has been a noticeable absence of pedagogically and psychologically substantiated views and positions regarding the principles and methods by which the problem of summative assessment of student achievement should be implemented, as well as concerning its specific roles and functions.

In his scholarly works, academician M.M. Mehdizade emphasizes the essential role of assessing students' knowledge, skills, and competencies within the instructional process. According to his conclusions, without taking into account the quality of the teaching process or understanding how students have assimilated the instructional content, it is not possible to organize and manage pedagogical activities effectively. Mehdizade argues that "*the purpose of evaluating the quality of instruction is not an end in itself, but rather a means to improve the process, identify underachieving students, and provide them with targeted support.*"

In the textbook *Pedagogy*, authored by Professors Y.R. Talibov, A.A. Aghayev, A.I. Eminov, and I.N. Isayev, it is similarly stated that teachers must utilize student performance assessment as a refined pedagogical tool. The authors explicitly warn against employing assessment as an instrument of fear or punishment. Instead, they stress that, "*in assessing students'* academic performance, it is imperative to consider their individual *abilities, logical reasoning, and capacity to apply critical thinking strategies.*"

As these perspectives suggest, in the evaluation of student achievement, a teacher's primary focus should not be on the student's

ability to recall information, but rather on their cognitive development – specifically, how they can apply what they have learned. Hence, assessment should prioritize students' intellectual engagement with content over mere memorization.

Summative assessment, in particular, is designed to measure learners' academic outcomes at the conclusion of specific instructional stages. The principal aim of this type of assessment is to determine the extent to which students' achievements align with the expected learning outcomes outlined in the implemented curriculum. Based on our research, it can be concluded that, in order to implement summative assessment consistently and systematically across general education institutions, it is essential to develop well- defined and reliable assessment tools that are directly aligned with curriculum objectives.

The third paragraph of the chapter, entitled ***"The historical development of student assessment models in the experience of foreign countries",*** approaches the problem through an analysis of international practices. In order to investigate the forms, methods, and mechanisms of student achievement assessment at various educational levels within general education institutions, a broad range of academic sources and internet-based materials were consulted. The experiences of several countries in this domain were systematically explored, the collected data were analyzed, synthesized, and generalized for comparative insight.

The examination of student assessment practices in nine countries – including Azerbaijan, the United Kingdom, the United States, Finland, Singapore, Japan, Turkey, Russia, and Ukraine – has led to the conclusion that diverse assessment models are employed in each national context to ensure fairness, transparency, and objectivity in the evaluation process.

It has been determined that the assessment models applied in the schools of each country are fundamentally shaped by the respective national education policies. Furthermore, the outcomes of student assessments are used strategically to inform and advance the development of the education system.

In the fourth paragraph of Chapter I, titled ***"Study of school experience related to the researched problem"*** an analysis of the current school practice was conducted.

In recent years, ensuring the quality of education has become one of the key objectives of the state's educational policy. To achieve this goal, the establishment of educational institutions equipped with modern infrastructure, the presence of highly qualified teachers, the implementation of student-centered teaching and learning, as well as the application of an objective and unbiased system for evaluating student achievements are critically important conditions.

Since this issue constitutes one of the primary aims of the present research, we first designed a questionnaire survey to investigate the actual state of summative assessment of student achievement in various types of general education schools. The questionnaire comprised twelve questions in total, including seven closed-ended and five open-ended items.

The survey encompassed general education schools located in the districts of Narimanov, Khatai, Nizami, Sabail, and Sabunchu in the capital city, as well as schools in the city of Shirvan, and the districts of Hajigabul and Aghdam. Participants in the survey included 310 pedagogical staff members from schools such as those operating in Sabail district (numbers 7, 203, 163), Narimanov district (numbers 39, 29), Nizami district (number 214), and other aforementioned city schools, including the full secondary school in Tazekend village.

Educators reported encountering difficulties both during the implementation of summative assessment and in the development of the associated evaluation tools.

Furthermore, educators did not assign significant importance to the final outcomes of summative assessment as a means of managing their professional activities, fostering motivation, enhancing student learning incentives, or promoting self-development and professional improvement.

The second chapter of the dissertation is entitled **"Practical issues of the research"** and consists of four sections. The first section, titled ***"Methods and tools used in summative assessment",***

presents valuable insights and considerations regarding the methodology for the development of assessment instruments.

As can be inferred, when conducting summative assessment, it is essential to clearly and precisely determine the following components: the content of the assessment (i.e., what should be assessed?), the method of data collection (i.e., which assessment tools will be used?), and the intended purpose of utilizing the assessment results (i.e., how and for what objectives will the outcomes be employed?).

In the "Regulations on the assessment of learners at the general education level (excluding final certification/attestation)," approved by the Collegium of the Ministry of Science and Education of the Republic of Azerbaijan, the use of the task-based method during the summative assessment of student achievement is explicitly emphasized.

Furthermore, in the guidelines prepared by the Ministry of Education regarding the implementation of the above-mentioned regulations, it is stated that a variety of methods and techniques – such as compositions, tests, essays, term papers, dictations, presentations, and projects – are recommended for use in summative assessment practices.

In the educational practices of developed countries such as the United States, the United Kingdom, Japan, the Netherlands, Australia, and others, the application of test-based technologies in the assessment of student achievement has become widely established. Since the 1990s, the scope of using test methods for the evaluation of student learning outcomes has expanded significantly in Azerbaijan as well, and their application has become increasingly professionalized.

In the contemporary educational context, the use of test methods in assessing students' knowledge and skills is considered a necessary pedagogical requirement. Today, test tasks occupy a prominent place in the summative assessment of student achievement within schools.

In the 21st century – an era characterized by the widespread development and integration of information and communication technologies (ICT) – tests are regarded as one of the most effective and efficient tools for assessing student learning outcomes. This is due to their ability to evaluate a large number of students across

various subject areas within a limited time frame. Moreover, test-based assessments facilitate the rapid collection of substantial statistical data on student performance, allow for efficient mathematical processing of results, and support the derivation of objective conclusions regarding the effectiveness of the teaching and learning process.

By identifying students' areas of weakness, teachers are able to engage in purposeful reflection on the shortcomings within their own instructional practices. This process enables them to determine which aspects of the curriculum should be prioritized in future instruction in order to address existing gaps in students' learning outcomes more effectively.

In the second paragraph, entitled ***"Methodology for the organization of summative assessment,"*** it is emphasized that the rooms in which the summative assessment is to be conducted must be prepared in advance. It is recommended that the environment be familiar to students – preferably the regular classroom in which they usually receive instruction. During the preparation of the assessment environment, the following factors must be taken into consideration:

• conditions should be created to ensure that students can work independently and without distractions or noise.

• the distance between desks should allow teachers and observers to freely approach any student during the assessment process.

• an instruction board displaying the examination guidelines should be clearly visible to all students.

• any informational materials, posters, or visual aids displayed on the classroom walls that may assist students in completing the tasks must be covered or removed prior to the assessment.

Teachers may utilize the results of summative assessment to analyze the extent to which students have effectively mastered the content of the educational program (curriculum) and to identify the specific skills they have acquired. Furthermore, the outcomes of summative assessment can serve as a valuable resource for teachers in the planning and adjustment of future instructional processes.

In the third paragraph of Chapter II, entitled ***"Didactic requirements for the development of summative assessment***

instruments" the topic is explored in greater depth, and the scope of the research direction is expanded accordingly.

Various pedagogical publications feature differing viewpoints presented by educational researchers regarding the requirements for the assessment of student achievement. According to scholars, the organization of assessment based on unified standards and requirements serves to ensure the objective and transparent measurement of students' acquired knowledge and skills.

Summative assessment of student achievement yields effective results only when the teacher purposefully integrates instruction and assessment activities during the planning stage. This is because the teacher should not merely use assessment results to inform students about the extent to which they have achieved learning objectives, but must also provide clear guidance to support them in reaching those targeted outcomes.

The conducted research and subsequent analyses have revealed that, in the development of summative assessment instruments, it is of critical importance to take into account the following didactic requirements:

• consideration of the specific characteristics, aims, and objectives of the respective subject area;

• formulation of questions and tasks in such a way that they allow for the determination of the level to which the content – expressed in the implemented standard or group of standards – has been mastered;

• inclusion of items that enable the measurement of students' logical, critical, and creative thinking abilities;

orientation of tasks toward assessing the level of development of both theoretical and practical knowledge and skills;

• alignment with the four-tiered difficulty model of mastery (20%–30%–30%–20%);

• articulation of task instructions in clear and accessible language;

• consideration of students' age-related developmental characteristics;

• optimization of the time allocated for the assessment process;

• appropriate calibration of the difficulty level of the questions and tasks.

The fourth paragraph of the chapter is entitled ***"Organization of the pedagogical experiment and analysis of its results."*** The first part of this paragraph discusses the "Organization and analysis of the formative experiment." The experiment was conducted during the period from 2016 to 2025 in the following general education institutions: schools No. 7, 36, 39, 86, 95, 163, 203, 214, and 310 in Baku city; schools No. 10, 11, 16, and 20 in Shirvan city; school No. 81 in Agdam district; the full secondary school of Tazakend village; and schools No. 1 and 5 in Hajigabul district.

In accordance with the research objectives, the study investigated how the effective organization of summative assessment of student achievement in general education schools can be implemented based on a scientifically, pedagogically, psychologically, and methodologically substantiated framework. The following specific objectives were established:

- to determine the extent to which teachers appropriately utilize the methods and tools of summative assessment;

- to identify the challenges encountered by teachers during the summative assessment of student achievement and the underlying causes of these difficulties;

- to propose relevant recommendations and suggestions aimed at overcoming the challenges faced by teachers in the process of summative assessment of student achievement.

The pedagogical experiment was conducted in three stages: preliminary, instructional, and evaluative. To investigate how teachers organize summative assessment of student achievement in general education schools, a combination of mass surveys, observations, interviews, analyses, and syntheses were employed.

During the first stage of the preliminary experiment, covering the 2016/2017 and 2017/2018 academic years, work was carried out in the following directions:

- reviewing and analyzing literature that could serve as a theoretical foundation for addressing the identified problem;

- determining the level of teachers' awareness regarding summative assessment in various urban and rural schools across the Republic;

- examining the professional experience of teachers in the field of summative assessment of student achievement in several city and village schools throughout the Republic.

In order to assess teachers' awareness concerning the researched problem, a questionnaire survey was conducted involving 310 teachers from 16 schools.

The preliminary stage of the pedagogical experiment provided a clear understanding of the current situation regarding the problem examined in the dissertation. Both positive aspects and shortcomings were identified. Experimental and control classes were established in the schools selected for the pedagogical experiment. Efforts were made to ensure the equivalence of the levels of teachers (both experimental and control) and students involved in the experiment. Attention was also given to the absence of significant differences in the pedagogical experience of the teachers.

In the city general secondary schools No. 163 and No. 310 of Baku, as well as in the city general secondary school No. 81 of Agdam district, where the pedagogical experiment was conducted, the awareness level of 18 teachers (9 teaching in the experimental classes and 9 in the control classes) in the field of summative assessment was determined through the following questions:

The following questions were addressed to the teachers participating in the pedagogical experiment in order to determine their level of awareness regarding summative assessment:

1. On the basis of which official document do you conduct summative assessments?

2. Which methods do you most frequently employ during summative assessment?

3. What are the main requirements for the development of summative assessment tools?

4. Over what period is the classroom summative sssessment (CSA) conducted?

5. Who is responsible for developing the tools for the school summative assessment (SSA)?

The results of the survey can be reviewed in Table 1.

Table №1.

Results of initial survey conducted with teachers teaching in experimental and control classes

Questions	Teachers teaching in the experimental class				Teachers teaching in the control class			
	Correct answer		Wrong answer		Correct answer		Wrong answer	
	People	%	People	%	People	%	People	%
Question 1	2	22	7	78	1	11	8	89
Question 2	9	100	-	-	8	89	1	11
Question 3	7	78	2	22	8	89	1	11
Question 4	4	44	5	56	4	44	5	56
Question 5	6	67	3	33	7	78	2	22
Question6	7	78	2	22	8	89	1	11
Question 7	8	89	1	11	9	100	-	-

Diagram 1.

Results of a repeated survey of teachers teaching.

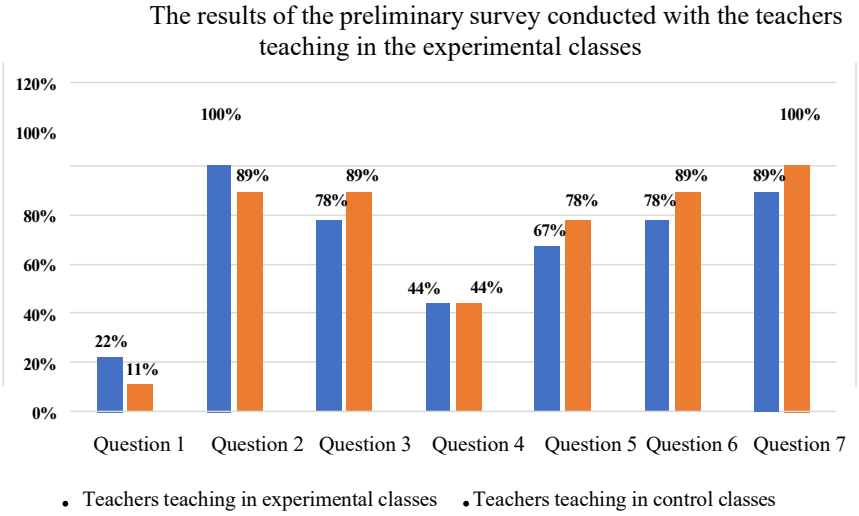


Diagram 1 presents the correct response indicators to the questions designed to determine the level of awareness among teachers working in experimental and control classes with regard to summative assessment. As evidenced by the diagram, the level of awareness concerning summative assessment among teachers in both experimental and control groups was largely consistent.

It should be noted that no scientific or methodological guidance was provided to the teachers of the control groups. These educators continued to apply traditional instructional methods. In contrast, to address the gaps in knowledge and skills among teachers in the experimental groups and to meet their professional development needs, a series of discussions and instructional seminars were organized. The following topics were addressed during these sessions:

The essence and content of summative assessment;

– the methods and tools employed in summative assessment;

– the didactic requirements for the construction of summative assessment instruments;

– adherence to procedural regulations during the administration of summative assessment;

– the processing of summative assessment results and their pedagogical utilization;

– the nature and scope of recent modifications in summative assessment practices.

The findings obtained through the conducted research revealed that in general education institutions, the assessment of student achievement within the framework of summative evaluation predominantly relies on questions and tasks aimed at measuring the students' level of information retention. It was further determined that various test models such as cause-effect, matching, sequencing, relational reasoning, and other alternative assessment tools are rarely employed. The underlying reason for this limited use is that, during the discussions, a considerable number of teachers openly acknowledged their reliance on pre-constructed assessment instruments. This approach is favored primarily due to its simplicity, as it does not demand creative input or additional effort on the part of the teacher. Many teachers justified this preference by citing the lack

of sufficient time required to develop their own assessment materials in accordance with methodological standards.

The second part of the fourth paragraph is devoted to the analysis of the results of the evaluative stage of the pedagogical experiment.

The findings of the research demonstrated that the systematic, uninterrupted, and purposefully organized pedagogical interventions carried out with teachers of the experimental classes had a significant impact on improving the academic performance of students in those classes. Furthermore, these interventions contributed to the development of students' independent and creative thinking abilities.

In order to monitor and evaluate the observed changes, a follow-up survey was administered to the same group of 18 teachers who had participated in the formative experimental phase. These teachers were engaged in instruction at the experimental and control classes of secondary schools No. 163 and No. 310 in Baku, and school No. 81 in Aghdam district, where the pedagogical experiment was conducted. Among the surveyed participants, 9 teachers were teaching in experimental classes, while the remaining 9 were teaching in control classes.

Table 2.

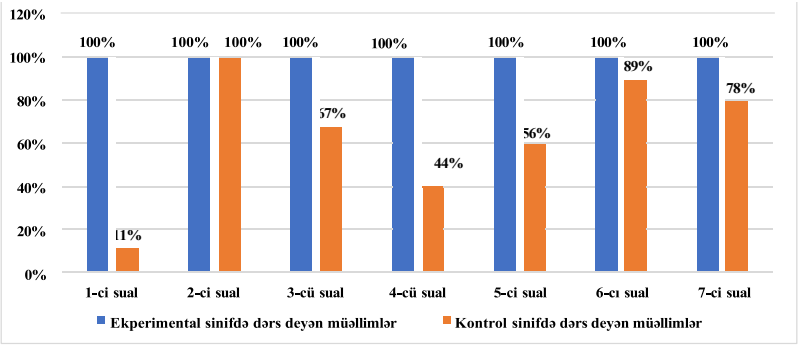
Results of a repeated survey of teachers teaching in experimental and control classrooms

Questions	Teachers teaching in the experimental class				Teachers teaching in the control class			
	Correctanswer		Wronganswer		Correct answer		Wrong answer	
	People	%	People	%	People	%	People	%
Question 1	9	100	-	-	1	11	8	89
Question 2	9	100	-	-	9	100	-	-
Question 3	9	100	-	-	6	67	3	33
Question 4	9	100	-	-	4	44	5	56
Question 5	9	100	-	-	5	56	4	44
Question 6	9	100	-	-	8	89	1	11
Question 7	9	100	-	-	7	78	2	22

Diagram 2.

Results of a repeated survey of teachers teaching in experimental and control classes

The results of the preliminary survey conducted with the teachers teaching in the experimental classes



Question 1 Question 2 Question 3 Question 4 Question 5 Question 6 Question 7

• Teachers teaching in experimental classes • Teachers teaching in control classes

As illustrated in Diagram 2, significant shifts were observed in the outcomes of the follow-up survey conducted after the implementation of structured and targeted interventions with the teachers of the experimental classes. Specifically, teachers instructing the experimental groups demonstrated a marked improvement, providing accurate responses to all items in the post- intervention questionnaire. In contrast, teachers from the control groups, when compared with the results of the initial survey, correctly answered only the second question in a unanimous manner. Of the control group respondents, 8 teachers (89%) answered the first question incorrectly, 3 teachers (33%) failed to respond correctly to the third question, 5 teachers (56%) erred on the fourth, 4 teachers (44%) on the fifth, 1 teacher (11%) on the sixth, and 2 teachers (22%) gave incorrect responses to the final item.

The comparative analysis of the pedagogical experiment's findings provides further empirical support for the relevance and necessity of the investigated issue. The conducted experimental

procedures, including surveys and interviews, affirm that when summative assessment of student achievements is appropriately implemented by teachers, it significantly enhances the quality of subject instruction. Under such conditions, teachers are better able to ensure that all learners meaningfully engage with and internalize the educational content, thereby affording students the opportunity to gain a comprehensive and in-depth understanding of the course material.

The research findings further suggest that the accurate organization and execution of summative assessments contribute to the elevation of students' cognitive competencies, the enhancement of their intellectual engagement, and the efficient utilization of instructional time by teachers.

A number of significant **findings** have emerged as a result of the present research. Among them, the following are particularly noteworthy:

In view of the evident need to enhance the system of summative assessment of student academic achievements in general education institutions, the present study has investigated the essence and content of in-school summative assessment. Furthermore, it has examined the requirements set for the evaluation of students' learning outcomes and developed the scientific, pedagogical, and methodological foundations for the appropriate use of various types of summative assessment at different stages of the instructional process.

Summative assessment serves as a tool for structuring the priorities and methodologies of the teaching process and for determining what students have learned and how they have learned it. Based on this, summative assessment, conducted at specific intervals, aims to provide an overview of student progress and to report on achievements within both classroom and school contexts. In this regard, summative assessment is implemented with the objective of establishing an evaluative framework that is objective, reliable, transparent, and practically applicable within educational institutions. It facilitates the analysis of the current state of student learning outcomes, the identification of existing challenges, and the

elaboration of scientific, pedagogical, and methodological principles that underpin effective assessment practices.

On this basis, the present dissertation, drawing upon empirical data obtained through research instruments such as surveys, pedagogical experiments, and classroom observations, has arrived at the following **conclusions**.

1. The findings of the research indicate that summative assessment creates the necessary conditions for obtaining reliable data on students' academic achievements and the extent of their acquired knowledge and skills. Consequently, this facilitates learners' awareness of their mistakes, fosters increased learning motivation, and ensures the provision of appropriate support. At the same time, it serves as a pivotal tool for teachers in identifying instructional gaps and addressing them accordingly, while also enabling school administrators to detect and remedy shortcomings in school management processes.

2. Despite the recognized importance of summative assessment in education, this key factor influencing student achievement remains insufficiently explored. The principal reason for this is that summative assessment is typically conducted after the completion of the instructional process. As a result, its diagnostic potential is diminished, making it less effective in identifying students who have fallen behind and in guiding teachers to address learning difficulties in a timely manner. Nonetheless, summative assessment retains a fundamental role in the educational landscape by contributing to the resolution of systemic deficiencies. It provides teachers with valuable insights for evaluating the effectiveness of subject-specific instruction, supports evidence-based decision-making, and allows for the assessment of the overall efficacy of general education initiatives.

3. Based on the outcomes of the conducted research, it can be concluded that summative assessment offers teachers and school leaders comprehensive insights into the challenges students face during the learning process. This includes understanding how these difficulties influence students' knowledge and skill acquisition, whether the learning content aligns with students' levels of

comprehension, and the availability and accessibility of pedagogical technologies and instructional strategies.

4. Both local and international sources—comprising pedagogical, psychological, and methodological literature—have been reviewed concerning the summative assessment of student academic achievement. The views reflected in these sources suggest that summative assessment is a critical tool for ensuring the quality of the instructional process, assessing students' mastery of current material, and evaluating their ability to apply acquired knowledge and skills in practice. The reviewed literature also confirms that summative assessment is a planned and purposeful activity. In this context, international best practices underscore the importance of designing assessment systems that align with predetermined objectives, ensuring their reliability, transparency, sustainability, and practical applicability. For instance, the sustainability of assessment is associated with the validity of the results produced and their relevance to the intended purposes. High reliability in assessment ensures that various dimensions of students' academic performance are evaluated with precision. Therefore, reliability is essential for ensuring accurate measurement in educational evaluation processes.

5. The research findings indicate that the quality of the teaching and learning process is evaluated through the results obtained from summative assessment of student achievement. In this context, one of the core objectives of national education policy is to enhance the quality of instruction and to improve student performance through the implementation of effective assessment criteria. It is therefore believed that the data derived from the research methods employed in this study contributes to a more nuanced and comprehensive understanding of the current situation.

6. Observational analysis has revealed that the assessment of student achievement in general education schools predominantly relies on memory-based tests. In addition to such tests, other formats including cause-effect, matching, sequencing, and relational models have also been utilized to a certain extent. The reliability of teacher-led assessment can be significantly improved through the use of clearly defined scoring rubrics that include detailed descriptions of

performance levels, as well as exemplars that illustrate high achievement. When teachers are provided with a clear understanding of the learning goals, and especially when they participate in the development of assessment criteria, they are more likely to apply those criteria accurately and effectively.

7. In the development of summative assessment tools, it is essential to consider the specific characteristics, objectives, and intended outcomes of each subject area. Furthermore, the tools must align with students' cognitive developmental levels and age-appropriate comprehension. Questions and corresponding answer options should be articulated in clear and accessible language. Moreover, didactic principles such as the degree of difficulty and cognitive demand of the tasks must be systematically addressed to ensure fairness and educational relevance.

8. In order to explore the difficulties encountered by teachers during the summative assessment of student achievement, and to investigate the underlying causes of these challenges as well as the purposeful use of appropriate assessment tools and strategies, a comprehensive pedagogical experiment – comprising diagnostic, formative, and confirmatory stages – was conducted. The comparative analysis of this experiment substantiates the effectiveness of the experimental framework proposed in this dissertation. Specifically, the findings confirm that the application of the suggested methodology has led to improved student achievement. The initial and final evaluations of the pedagogical experiment demonstrate that the correct organization and implementation of summative assessment substantially enhances the quality of instruction within the school setting.

A comparative analysis conducted between experimental and control classes revealed that students in the experimental groups were significantly more active and independent in applying both theoretical and practical knowledge. The results of the experiment indicate that, when implemented accurately, summative assessment enables students to acquire knowledge and skills more effectively and to internalize the course content in a comprehensive and holistic manner. Consequently, the implementation of a new mechanism for

the assessment of student achievement, as outlined in this study, is considered a positive advancement for the contemporary education system.

Given the paramount importance of summative assessment, it is particularly crucial to ensure that the evaluation aligns precisely with the instructional objectives and the anticipated learning outcomes. It is anticipated that the findings derived from the present study will exert a positive influence on the educational system of the Republic of Azerbaijan. Accordingly, the incorporation of the following **recommendations** is deemed essential to facilitate a more reliable, objective, and efficient organization of summative assessment of student achievement.

1. Students can be motivated to enhance their effort and performance. Grades, transcripts, or diplomas associated with summative assessment should be regarded as rewards for the successful completion of evaluation tasks. Information about student performance can be disseminated to various stakeholders, including the students themselves, their parents, and other relevant personnel within the school environment.

2. The use of rubrics or specification grids is advisable. Instructors may employ rubrics to establish clear performance criteria corresponding to various grade levels. Such rubrics serve to delineate the characteristics of an ideal task outcome and provide a summary of the expected performance at the beginning of the academic year, thereby offering students a clear trajectory and a sense of completion.

3. Clear and effective question design should be prioritized. When constructing questions for written assessments, educators must ensure that items conform to established criteria while simultaneously granting students the creative freedom to express their knowledge. Furthermore, attention should be paid to how students comprehend and internalize the meaning of the questions posed.

4. Comprehensive assessment practices can be implemented. Effective summative assessments allow students to review the entirety of the course content, establish broad connections,

demonstrate synthesized skills, and explore deeper understandings that govern or uncover the core ideas and substance of the course.

5. Clarification of assessment parameters should be considered. In preparation for final evaluations, instructors should ensure that parameters are explicitly defined, including the length of the assessment, the depth of responses required, timing and deadlines, and assessment standards. The knowledge evaluated must be explicitly aligned with the course content, and necessary support should be provided for students experiencing difficulties.

6. Alternatively, blind grading may be explored. To ensure truly impartial summative assessment, instructors might consider the adoption of various blind grading techniques. In this approach, identifying information is removed prior to the review of student work. Awareness of such practices can enhance students' confidence in the fairness and accuracy of the grading process.

7. The development of guidelines for conducting in-school assessments in general education subjects can assist in overcoming the challenges faced by teachers in their evaluation activities.

The content of the research, its main scientific ideas, and the obtained results have been reflected in the following publications authored by the candidate:

1. Improving assessment as an important component of the educational process // Materials of the republican scientific conference on socio-economic, political and cultural development of Azerbaijan in the years of independence, – Sumgayit: – 13-14 October, – 2016, – pp.226-227
2. The nature and content of summative assessment // – Baku: Azerbaijan school, – 2017. № 1, – pp.90-93
3. Summative assessment of student achievements // – Baku: Pedagogy, scientific-theoretical-methodical journal, – 2017. № 3, – pp.49-59
4. Assessment of student achievement in international practice // – Baku: Scientific works of EIAR, – 2017. № 4, – pp.225-229
5. Summative assessment: in school practice // – Baku: Scientific works of IEAR, – 2018. № 6, – pp.294-301

6. Methodology of organization of summative evaluation // – Odesa: Rychornomorsk Research Institute of Economics and Innovation, innovative pedagogy. Scientific journal. – Edition 11, – 2019. Volume 1, – pp.49-52
7. Problems of assessing student progress in a modern school // Scientific journal, NEWS Baltic State Fishing Fleet Academy, – 2020. № 2 (52), – pp.211-215
8. The role of assessment methods in assessing student achievement // LVIII International Scientific and Practical Conference «WORLD SCIENCE: PROBLEMS AND INNOVATIONS», – Penza: – October 30, – 2021. – pp.152-154
9. Methodology of summative assessment // MODERN ASPECTS OF MODERNIZATION OF SCIENCE: STATUS, PROBLEMS, DEVELOPMENT TRENDS Materials of the 22th International Scientific and Practical Conference, – Ljubljana (Slovenia) remotely: – July 3, –2022. – pp. 285-288

The defense will be held on 24th of october 2025 at 14^{00} at the meeting of the Dissertation council FD 2.49 of the Supreme Attestation Commission under the President of the Republic of Azerbaijan operating at the Khazar University

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Dissertation is accessible at the Khazar University Library.

Electronic version of abstract is available on the official website (https://www.khazar.org) of the Khazar University.

Abstract was sent to the required addresses on 9th of September 2025

Signed for print: 20.06.2025

Paper format: 60x84 1/16

Volume: 46151 characters

Number of hard copies: 20