

Theme: The three most important considerations in testing: validity, validity, validity

Sub-themes: Score reporting: the cornerstone of validity

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TOPIC: Analytical report as a tool in ensuring the validity of examinations.

Abstract

It is crucial for educational organization, especially those which main focus is testing assessment quality to ensure that students achieve the results stipulated by subject programme.

Nazarbayev Intellectual Schools is implementing external summative assessment (ESA) which is absolutely different from National Testing System in structure and content, and is aimed to assess 21-century skills.

The present research is based on first ESA results which are processed and summarized in Analytical Report (2013-2014). It was important to see how students succeed and what kind of improvements should be made.

For example, it was obvious that students demonstrate the higher-order thinking skills, on the other hand, results showed lower performance on some subjects where functional reading skills were assessed.

The aim of this study is to examine the Report and to identify the validity of the assessment.

Key words: external summative assessment, Analytical report, validity of examinations, NIS

Introduction

The educational system of the Republic of Kazakhstan is undergoing huge reforms. One of the area that is under the change is the educational assessment system at the secondary schools. It is important for educational organization, to ensure that students achieve the results stipulated by subject programme and syllabus.

The change of the external assessment system is aimed to evaluation of students' acquired knowledge, its understanding and application and to the promotion of the country to the higher educational level. In this regard, the secondary education in Kazakhstan is expected to shift to the international standards in external and internal assessment of students' performance.

Since 2012 Nazarbayev Intellectual schools (hereinafter referred to as NIS) started implementing the new project in international external assessment of NIS graduates' academic performance. The ESA was developed jointly by NIS and Cambridge International Examinations (hereinafter referred to as CIE). Unlike the Common National Test system that is used as an external assessment with the multiple choice questions in Kazakhstan comprehensive schools, the external summative assessment of NIS and CIE is absolutely different in structure and content, and is aimed to integrally assess the academic achievements of graduates. One of the main goals of the examination is to assess to what extent NIS students develop the 21-century skills such as critical thinking, creative application of knowledge, informative and communicative skills, collaboration and individual work, research and experimental work skills and language skills.

Model Overview

External Summative Assessment (ESA) is part of Integrated criteria-based assessment model (ICBAM) which is carried after grades 5, 10, 11 and 12 as indicated in the External Summative Assessment model in the form of examinations. The content of ICBAM is based on the Subject Programme, i.e. ESA is based on subject programme.

ESA includes different activities, including written examinations, practical activities, laboratory works, coursework and etc.

Assessments, whatever their purpose, must be **valid, reliable and practicable**.

In deciding whether and how the assessment model meets these requirements it is first of all important to know how the results of the assessment will be used.

The ESA results will be used as a measure of what has been learned and how well learners are able to apply their knowledge, and study at the university courses of their choice.

In the ESA model validity has two principal dimensions:

1. The exams must assess knowledge, understanding and skills in regard to the subject, and provide achievements of aims of assessment (graduating subject course, enrolling to higher educational institution, etc.).
2. The assessments properly designed must provide a true guide to the extent to which each learner has mastered all aspects of the programme of study.

Subject assessment descriptions by grade

Assessments for Grade 5 will be implemented from 2018. Assessment will be in the first language.

Assessments for Grade 10 will be implemented from 2016 on the following subjects:

Mathematics, History of Kazakhstan, Physics, Chemistry and Biology, First language (Kazakh and Russian) and Integrated second language and literature (Kazakh and Russian), English Language, Computer science

Assessments for Grade 11 have been implemented in 2014 on the following subjects: First and second language exams (Kazakh/Russian)

Assessments for Grade 12 have been implemented in 2014 on the following subjects: Mathematics, Kazakhstan in the modern world, Physics, Chemistry and Biology, English Language, Computer Science, Geography

Framework for understanding

Work on implementing external assessment has started from 2012 together with strategic partner Cambridge International Examinations (CIE). In 2012 NIS conducted work on studying necessary documents, informing participants on new format of exams and establishing normative and procedure documents. Then, the first pilot of examinations and assessment procedures took place in 2012-2013 academic year on basic subjects.

In 2013-2014 academic year first external summative assessment was officially conducted for the first time in grade 12 of 5 NIS schools and grade 11 of 10 NIS schools. Exams were organized in accordance with international requirements with participation of CIE advisors.

Unlike Unified National Testing in Kazakhstani comprehensive schools, which consist of tests with multiple-choice questions, ESA is completely different both in content and forms of organizing. ESA is directed to assess 21-century skills of students, for instance such as critical thinking, self-development and deep information analysis.

Methodology

In order to address the validity of the examination tasks and the subject programme content, the results of the examination were documented and analyzed from different aspects in order to see to what extent the students were able to acquire the skills. It is believed that the role of results' analysis is crucial in understanding the limitations of the subject programme and defining the areas for further improvement. In this regard, it is expected that by means of the analytical report and its content, it will be possible to assess the validity of the examination tasks (or test) and define the areas for further improvement with the test validity.

This study is considering the analytical report which was made at the end of ESA 2013-2014 by Center for Pedagogical Measurements under Autonomous Educational Organization 'Nazarbayev Intellectual schools'.

It is written by Principal examiners on each subject of grades 11 and 12. Subject experts counted academic progress and the quality of knowledge of learners

Findings and discussion

The effective Analytical report shall provide the educators not only with the statistical data but also its interpretation of the data and help to understand what kind of skills have been assessed and whether the learners have been able to achieve the main academic objectives defined under the subject programme.

Analytical reports help to analyze the entire examination process and show overall picture of students' results in order to improve the testing in further years.

Improvement can be made in the production of examination materials, the structure of exam and even in assessment model.

Analytical report helps to analyze what kind of skills were demonstrated by the students and what kind of skills need to be developed further. Thus, the results of the first ESA in 11 and 12 grades in 2013-14 years showed that students are capable to demonstrate knowledge, explain and justify their own perspectives, understand main concepts, formulas and approaches, systematise and present the information from different sources, apply knowledge in new contexts, follow the safety requirements while using equipment.

The results showed low achievements in such subject as Math, IT and Economics among students of 12 Grade. The reason was that students faced challenges with skills of functional reading:

- highlight key words;
- differentiate main information from subordinate;
- determine the relation between extracts of information;
- make conclusions about the priority of information in the text;
- read and interpret the graphs;
- interpret complex texts.

In addition, students struggled with the solving the problems requiring integration of math, physics and economics (inter-subject relation).

The results of 2014 ESA revealed that it is necessary to make amendments into the model of assessment. Thus, jointly with CIE, the results of exams were analysed, possible causes were taken under expertise, the content and conduction technology were compared with the exams that are recognised by the top universities. There was made a decision to reduce the number of exams and components. After revision, the number of exams was decreased till 7 per 1 student and the number of components in some subjects such as language from 4 components till 2 and Kazakhstan in Modern World from 3 to 2 components.

The results of ESA in 2014-2015 revealed the following positive aspects:

- exams of ESA were conducted following the international standards of CIE;
- students demonstrated responsible attitude and academic honesty;
- subject teachers and students noted that the exam materials were developed based on the school curriculum;
- students demonstrated excellent achievements in tasks aimed to the assessment of knowledge and understanding.

Nevertheless, the analysis of the student results showed that still new format of assessment causes particular challenges among students.

Firstly, most of students manage to solve the tasks which aim to assess the basic subject knowledge, but fail to show good skills in analysis, application and evaluation of the information, ability to work with images, diagrams, tables.

Secondly, majority of test-takers lack the skills in mathematical calculation, which results in low mathematical literacy, inability to apply knowledge in math, economics while solving applied problems in other subjects.

Thirdly, there is a problem related to the language of acquisition. Many students struggles to demonstrate good competencies and express their opinion in the subjects that are held in the second or third languages. The examination of the students' works revealed that in IT (students with Kazakh language completed the tasks in Russian), Geography, Kazakhstan in modern world (students with Russian language completed the tasks in Kazakh) students struggled to express ideas in non-native language and even did not completely understand the task itself.

Fourthly, the analysis revealed that in language subjects the challenge for students was to give open-ended answers with expanded ideas and arguments on the basis of the text. The students made grammar mistakes and the lack of vocabulary was evident.

Fifth, some students even did not bother to complete the tasks because the results of ESA made up only 10% of the final mark and do not make significant impact on the marks. This issue decreases the motivation of students to complete the effective ESA.

On the basis of results analysis, some recommendations were made for NIS schools, such as:

- increase the motivation of test-takers to participate in ESA;
- take into account the results while organizing the educational process;
- arrange explanatory work for students about the format of ESA though studying the test specifications;
- pay more attention to the development of skills required by ESA (understanding the tasks and the instructions to the tasks, work with schemes, graphs, diagrams, terms);
- develop inter-curricular or inter-subject relations;
- develop critical thinking among students and ability to apply the theoretical and practical knowledge in unfamiliar contexts;
- independently make analysis and conclusions of completed works;
- develop ability to argument and justify the stages of the tasks;

- develop research skills and coherent analysis and collection of evidence within the task.

As the analysis 2014-15 showed, in general there is a positive tendency among the students' results in summative assessment, the knowledge quality comprises 35,8% which exceeds the previous year on 6,5%.

The results of ESA have impact in two areas. Firstly, it influences teaching and learning under the school curriculum. Both stakeholders – teachers and students – are interested in achieving the best results by the end of academic year. Secondly, it influences the progress of students in the next grades, university or employment place. Accurately developed ESA is believed to support learning that contributes to the progress of students at the following stages of their education.

The implications made by the analysis of students' achievements in summative assessment helped to define the areas that require the further improvement in order to support the education process at NIS. Thus, the recommendations that were drawn out within the study should be taken into account by the policy makers while arranging the educational process or making amendments into educational policies in order to increase the validity and efficacy of the programme.

Conclusion

The results of ESA can be considered as objective indicators of effective realization of criteria based assessment of educational achievements at NIS schools. The participation of NIS schools in ESA gives an opportunity to define the level of educational achievements among students, make analysis of results in different subjects by schools, make comparison of the previous and current year achievements and detect the development progress.

Multi aspect analysis of students' works allowed to:

- define the advantages and shortages of criteria-based assessment,
- determine the preparation level of graduates at the final stage of educational process,
- provide with the analytical material which might be basis for the alterations into the Integrated Model of Criteria-Based Assessment,
- provide with the feedback for the management team of Autonomous Educational Organization "Nazarbayev Intellectual Schools" in defining the quality of educational material acquisition.

It is expected that Analytical Report will be contribution for teachers to gain the data for self-analysis and planning the further educational activities with application of various approaches and instruments of assessment, and also creates a platform for proposals on improvement of educational program content.

Analytical Report focuses on the key issues that influenced the academic achievements of NIS graduates and is aimed to make improvements into the Integrated Programme of Development.

Analysis revealed that it is necessary to make quality updated of educational programs, increase the professional level of teachers, responsible attitude to summative assessment, making effective managerial decisions to improve the students' achievements in summative assessment in the following years.

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