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Criteria assessment of students' residual knowledge of professional disciplines in mastering nizhny tagil decorative painting in higher education

Abstract. The article presents the definition and tasks of the criterion system of students' knowledge assessment in an art university. The content and types of criterion evaluation are investigated. The basic principles and methods of criterion evaluation and practical application in the field of Nizhny Tagil decorative painting are considered. It is analyzed how criterion evaluation contributes to the development of students' competences, improvement of education quality and training. The model of the map of realization of criterion evaluation of students' residual knowledge in the disciplines «Performing Mastery of Decorative Painting» and «Improving Mastery of Decorative Painting» is given.

Keywords: Criterion-referenced assessment, summative assessment, formative assessment, assessment tools, academic disciplines, impactful learning.

The criteria-based assessment of students' residual knowledge in the context of higher education is an integral part of a dynamic and continuous learning process. It serves not only as a means of determining the individual abilities of students but it is also aimed at constantly improving the process of mastering educational materials and developing their academic achievements. The purpose of criteria-based assessment is both grading and creating conditions for effective learning, stimulating students to self-development and improving results [1, p. 215].

In higher education special attention is paid to modern teaching methods which ensures the training of graduates in demand in the professional field. Criteria-based assessment plays a key role in this process providing an objective assessment of students' knowledge based on predetermined criteria [3, p.127].

Therefore, in recent years one of the main directions of methodological work at the Research Institute of Traditional Arts and Crafts of the Higher school of folk arts (academy) has been the introduction of criteria-based assessment into the educational process. One of the important aspects of criterion assessment is the establishment of clear and objective information about the results of students' studies. Based on assessment criteria it helps students to understand and analyze their own result of mastering educational material opportunities for growth and improvement of skills which in turn improves motivation and learning effectiveness.

Scientific research was conducted on the criteria assessment of the residual knowledge of students of the Higher school of folk arts who were mastering the knowledge and skills of Nizhny Tagil decorative painting. In the course of the work the following basic requirements for the criterion assessment of residual knowledge were developed:

- **transparency:** The assessment process should be clear to all students. At the same time students must have access to information about the assessment criteria and expectations in order to understand what efforts they need to make to achieve the desired results;

- **objectivity and independence:** the assessment is based solely on the cognitive activity of the student in mastering the educational material. The assessment should not depend on the student's desires or external factors such as the teacher's sympathies;

- **compliance with educational goals:** assessment criteria are aligned in accordance with the goals and objectives of the curriculum;

- **comparability with the sample:** the student's work should be compared with a predetermined sample of the work performed. This ensures the standardization of the assessment process and a clear idea of what results are expected.;

- **continuity:** assessment should be carried out continuously during the course of study in order to have a complete understanding of the residual knowledge and skills of students and the possibility of their correction;

- **effectiveness:** criteria-based assessment should help to encourage students to actively participate in learning and development, evaluate their knowledge clearly and effectively.

These requirements contribute to the creation of a fair and effective assessment system that encourages students to actively study and develop their academic achievements [1, p. 218].

Let's define the essence of the criteria assessment. **Criterion assessment** is the process of correlating the actual learning outcomes achieved by students with the expected learning outcomes based on clearly defined criteria [1, p. 216].

The main objectives of the criteria assessment in our opinion are:

- determining the level of preparation of each student at each stage of the educational process;

- identification and tracking of individual progress and correction of the individual trajectory of the student's knowledge and skills development;

- motivating students to acquire new knowledge skills and abilities to achieve the expected learning outcomes.

The issue of an effective system for assessing students' competence is important for stimulating their educational interest and academic achievements; it is one of the most important issues in the field of education.

The development of educational and cognitive competence of students is proposed to be considered through the prism of a criterion assessment of educational achievements which is one of the advanced directions in modern pedagogical science [5, p. 29].

It is necessary to consider the types of criteria assessment in the educational process to develop educational and methodological materials aimed at the formation of knowledge, skills and abilities of students.

Criterion assessment is divided into formative (activity-based, local, modular, residual) and summative (intermediate, final) assessment [1, p. 215] (fig. 1).

Summative assessment includes an assessment of students' knowledge skills and abilities at the end of the academic period the purpose of which is to determine the level of achievement of learning goals and summarize learning outcomes for grading. Such an assessment of learning serves to definitively determine the level of material development by students [4 p. 11].

A final summative assessment is conducted at the end of each semester to determine the final learning outcomes. The final summative assessment can be carried out using the following tools: written papers design and research papers.

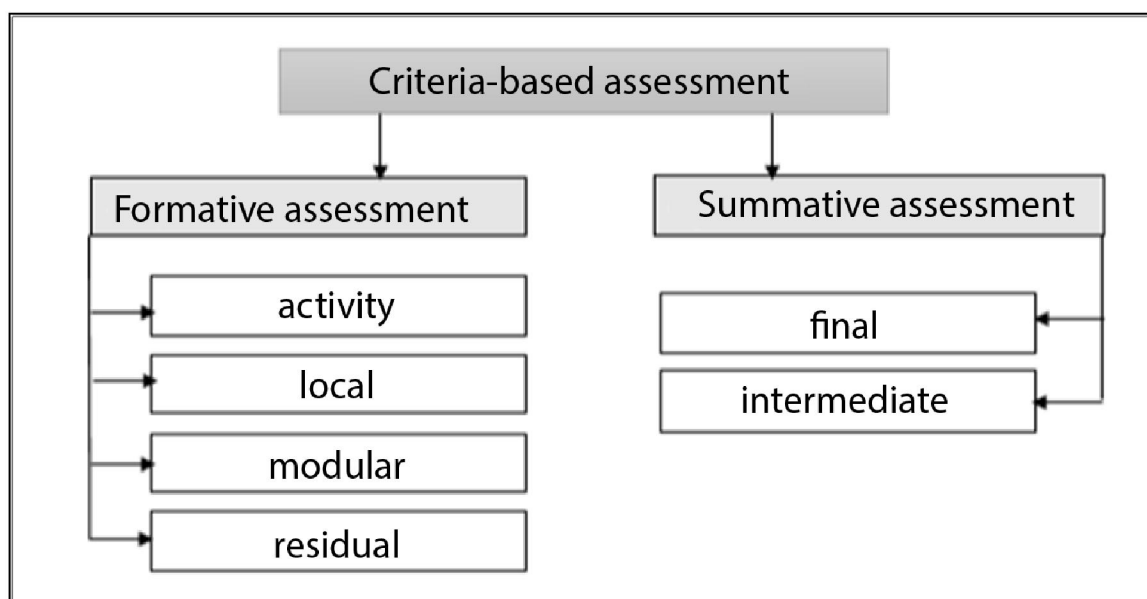


Fig. 1. Types of criteria assessment

An intermediate summative assessment is an assessment that takes place in the middle of the semester. This assessment system allows you to identify the level of acquired knowledge and skills of students upon completion of a specific section and if necessary eliminate gaps in the topics covered [6, p. 9].

Formative assessment on the contrary is carried out throughout the entire educational process and is aimed at identifying ways to improve the educational process, choosing methods and forms of their implementation. This assessment serves to develop learning.

Activity-based formative assessment is an assessment of students' activities implemented in the process of presenting mastering and consolidating the curriculum in one lesson (2 hours). This type of assessment provides continuous basic training for the implementation of local formative assessment [2].

Local formative assessment is carried out on the basis of educational materials selected for the criterion under consideration within a certain academic period and can be implemented equally for all students of a particular group or differentially with attention to specific students who are selected depending on the level of their cognitive abilities [1, p. 216]. Local formative assessment is instrumental and can be implemented using tests with multivalued answers.

The assessment of students' academic achievements conducted at the end of a major training module is called modular formative assessment. This type of

assessment provides intermediate stages of assessment and prolongs the development of assessment criteria provided for summative assessment conducted at the end of the academic period [4, p. 10].

Modular formative assessment is instrumental and can be carried out using the following tools: written works which include testing (open and closed type), portfolio and oral works, i.e. survey conversation. This type of assessment in relation to the student is reflexive and creates conditions to self-control the development of new knowledge and self-regulation of learning.

Teachers choose methods of using formative assessment tools to ensure an effective learning process that promotes students' deep learning of educational material before starting classes.

We note that it is necessary to test the residual knowledge acquired earlier in the training sessions on mastering performing skills with regard to the development of knowledge and skills in the field of Nizhny Tagil painting at the Higher school of folk arts. This will allow to identify the missing knowledge of students on the content of previously completed topics of the curriculum. In addition, it will ensure high-quality planning by the teacher of the learning process since it is possible to analyze the residual knowledge of students. The assessment of students' residual knowledge with the help of test papers is called residual formative assessment. Implementing residual assessment methods such as oral questioning and testing are most often used [2].

A criterion-based formative assessment (testing) was conducted among students of the II-IV courses aimed at evaluating students' academic achievements and analyzing their knowledge of the passed sections of professional disciplines for evaluating students' academic achievements at the Higher school of folk arts at the department of decorative painting named after A.N. Golubeva (Nizhny Tagil painting). The purpose of the study is to increase the level of the assessment process of residual knowledge in the disciplines of "Performing skills in decorative painting" and "Improving skills in decorative painting".

The results of the study showed that the process of criteria-based assessment of students' academic achievements has a positive effect on the perception of educational material and increasing the level of knowledge in the disciplines of "Performing skills in decorative painting" and "Improving skills in decorative painting".

9 students were selected as respondents. Students were tested on mastering knowledge in the disciplines of "Performing skills in decorative painting" and "Improving skills in decorative painting" (table 1).

Table 1.

The results of testing the knowledge mastered by students of the II–IV courses in the academic disciplines "Performing skills in decorative painting" and "Improving skills in decorative painting"

<i>№ n/n</i>	<i>Criteria</i>	<i>Analysis of students' responses to the test</i>
1	<i>Mastering the two-color hand (mahovaya) painting</i>	
1.1	Knowledge of the essence of the concept of "heels" and "socks" in the brush for Nizhny Tagil painting	All students of the II-IV courses gave the correct answer
1.2	The sequence of the paint set on the brush when performing the hand painting	
1.3	The need for a "track" on the palette when performing hand painting	
1.4	Characteristics of the technique of two-color hand painting	The students described the technique of two-color painting but not all students gave a detailed answer. None of the respondents gave an answer that this is a continuous paint stroke and is written in one step
1.5	Determining the element from which the painting of a floral motif begins	Painting in a floral motif begins with large main flowers. In the second year one student gave the wrong answer indicated the first stage of painting small shapes – a bud which is a clear violation. In the third year the student did not disclose the answer indicating only the "underdrawing". This is not entirely true; perhaps, the student did not understand the essence of the question
1.6	Stages of the Nizhny Tagil painting	Students of all three courses identified the stages of the Nizhny Tagil painting correctly
1.7	The sequence of execution of the "flower" element	Students of all courses gave the correct answer
1.8	Decorative elements characteristic of Nizhny Tagil painting	In this question the students had to determine which elements are characteristics of the Nizhny Tagil hand painting. It was revealed that 1 second-year student and 1 third-year student also refer to this type of fishing as an element of "postscript". And also one second-year student did not define "binding" as a characteristic element
1.9	The final element when writing a flower (separate forms of composition)	Students of all courses gave the correct answer
1.10	The final connections when writing a floral or fruit composition of the Nizhny Tagil painting	One second-year student and three third-year students answered incorrectly indicating "plotting" because this is the final element when writing individual shapes of flowers leaves etc. When analyzing the mistakes made together it was revealed that the students were simply inattentive when reading this question

Continuation of the table.

1.11	Features of materials and tools used in Nizhny Tagil painting	All students of the II-IV courses gave the correct answer
2	<i>Auxiliary operations in the technology of Nizhny Tagil painting</i>	
2.1	Necessary operations when writing the shape of a flower with semi-transparent and transparent oil paints	One second year student answered incorrectly
2.2	Preparing the brush for the next task.	Five students gave a different answer to this question "leaving the brush in linseed oil." This will only prevent the paint from drying on the brush until the next work with it. After analyzing the students' work with the test a joint conclusion was made that the students did not quite understand the essence of the question; based on this we can assume an inaccuracy in the wording of the question
2.3	Workplace organization when working with metallized powder on a product	Only 2 students of the second year and a student of the fourth year answered correctly
2.4	Ways to transfer the painting pattern to the product	The students answered correctly gave a detailed answer
3	<i>Tray decoration options</i>	
3.1	Background options for decorating the tray and their technological process	The students described the background options and their technological process but only one student from the II-IV courses answered correctly. Most of the students did not specify the design of the tray under "malachite" as one of the options for a decorative solution
3.2	Processing of wood or metal products before “smoking”	The students gave the correct answer
3.3	Solvent options for making ornaments with gold paste	
4	<i>Historical information about the Nizhny Tagil lacquer painting</i>	
4.1	The emergence of Nizhny Tagil lacquer painting	Three second year students made a mistake in their answer
5	<i>The technique of Nizhny Tagil multilayered writing</i>	
5.1	The sequence of execution of the Nizhny Tagil multi-layered writing	The fourth-year student answered since the study of the technique of multi-layered writing begins in the third year. The student gave the correct answer
5.2	The technique of Nizhny Tagil multilayered writing	The student correctly described the technique of multi-layered painting

After passing the test an analysis of the mistakes made by the students was carried out. It is determined that students make mistakes in answering questions starting from the history of the Nizhny Tagil painting to the technology of

performing works of this type of art. An analysis of the answers to the test questions showed that the overall level of mastering students' knowledge is above average.

One of the reasons for the lack of knowledge among students on the content of the previously completed topics of the curriculum is their inattention in the classroom skipping lectures. A student who skips classes often faces the problem of incomplete knowledge acquisition which may be due not only to the student's absence from lectures but also to insufficient independent work on learning new material. This leads to a loss of necessary knowledge and makes it difficult to understand the content of the curriculum of professional disciplines in depth. Thus, the importance of regular attendance at classes and self-study of the material is emphasized.

After analyzing the results of the students' testing a conversation was held with the students. The purpose of this conversation was to analyze the mistakes made in the testing answers and determine the reasons for their admission. This form of education allows students to realize responsibility for the results of their own education which increases their motivation.

The study showed that the process of criteria-based assessment of the development of students' residual knowledge in the disciplines of "Performing skills in decorative painting" and "Improving skills in decorative painting" according to the profile of decorative painting (Nizhny Tagil painting) allows:

- to improve the process of teaching these disciplines;
- students should increase the level of mastering professionally significant knowledge.

It was noted that new educational and professional opportunities of each student are revealed during the examination of students' knowledge with the help of tests. In our opinion, assessment of residual knowledge should be used systematically by teachers since the regularity of assessment contributes to the development of responsibility and independent action for the development of educational material.

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