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INSTRUMENTS AND TYPE OF INSTRUMENTS THAT ARE USED FOR EVALUATING IN THE TEACHING OF NATURAL SCIENTIFIC AREA

Abstract

In this paper we tried to answer the question about effective evaluation, especially, techniques and instruments that teachers apply for pupil's achievements evaluation, in this area. For that aim, we realized micro research, in which we start with the hypothesis that teachers used few instruments mostly tests, check lists and assessment scales to evaluate pupils achievements, and their need for another education for making and applying instruments necessary for effective evaluation.

We applied quantitative and qualitative techniques for finding the relevant data such as interviewing and interview protocol designed for teachers, and representatives of the BDE, an analysis of pedagogical documentation, observation.

We hope that this effort will contribute to enriching the field evaluation of educational work.

Key words: instrument, evaluation, pupil's achievement

"Good teaching is only one in which students want their work to be checked and it is feasible only with the teacher in whose good faith test does not doubt any student ... because everyone knows that the teacher does not check to give more poor grades, but to give them the opportunity to show what they know and are able and to see if something has to change in the way of teaching, to become more successful. The teachers must always be aware that checking the results of the students actually checks the success of his work."

(Bakovljev)

Integral and indispensable component, stage in the learning process, its nimble mechanism, is an evaluation. Is present in all stages of the educational process - preparation, operational and confirmative. Assumed monitoring, measurement and evaluation of the following components: knowledge, abilities, motivation (desires, interests, and needs), work habits, subjective possibilities, and objective conditions. Assessment for learning activity includes the processes of: monitoring, validating, estimating, measuring and evaluating the course and the results of learning activity. Each of these elements, integrated, component, has its essence, attributes, purpose and manner of performance.

Continuous, planned process that the teacher performs and covering a range of activities including monitoring, controlling, recording and so on is called monitoring. Monitoring means a system of procedures, techniques and instruments for determining the developmental progress and degree of realization of certain pedagogical activities in educational institutions

It means application of appropriate pedagogical documentation for recording, relating to the activities of the students, the results that they achieved in the teaching process. Is directed towards to procedural activities in which the student is involved, in which can be ascertained his individual development, and its manifests in the application of the knowledge, skills, abilities, attitudes, degree of autonomy in work and behavior. In the teaching of natural-science area, students perform various activities such as

compulsory activities during the regular teaching, independent activities related to teaching and free independent creative activities. Hence, at the student records, in the space for describe monitoring teacher can set: previous student knowledge at the beginning of the school year, his interest in nature, environment, practical, organizational and creative abilities, activities, etc. in the school yard.

The second integral component of the evaluation process is checking. It is defined as the totality of cognitive and other processes and procedures contained in the initiation of various verbal, nonverbal responses or development of students cognitive, and psychomotor or socio- emotional nature, due to systematic and planned data collection for students progress in achieving educational goals, discovery, understanding and concluding, determining the current status of the various competencies of students. It is performed in order to have a retroactive impact on the students, to help them to improve their achievement.

With the checking sequence is initiated procedures (oral questioning, written answers, practical performances, etc.) for initiate certain types of students activities to collect data for detecting and revealing of the knowledge, skills, and abilities. It enables to inspect the type and quantity of results which students achieved in natural-scientific area, his advancement.

Depending of the considered criteria there are different types of testing. Bearing in mind the criterion time we have: current testing, final inspection. Depending on the examination form may be: verbal, written and practical... In literature are spoken for: assessment for learning (AFL) whose goal is to answer the following questions: which children have reached in their learning? Where (in which direction) is the progress in their learning? How children can reach in the next stage in their learning? It is usually present in everyday interaction in class between teachers and students, and evaluating learning (EL), which includes evaluating what a child learned at the end of a period, as the end of a lesson at the end of the week , at the half school year or school year.

Each type of testing has its own strengths and weaknesses that the teacher has to know to make it a combination of them successfully applied in everyday work.

Lately, more apparent is request for self-evaluation of students work. In this way, and learning will become a responsibility, and assessment will be an awareness of the values of their own labor.

Measuring pupil's achievement is also part of the evaluation. It established relations in the quantification of pedagogical phenomena. It answered the question "how" - how many of the planned work is performed, the possible results are achieved. Involves application of specific instruments such as scale, inquiring, for example, how many tasks the students decided to test, how many pages read and so on.

The school evaluation is a kind of measurement because it contains three essential components for each measurement, the existence of variables measured; the property can be expressed by a number, using a measuring instrument with known measurement characteristics; measurement is performed according to established rules or object to be measured or what it wants to measure, measuring instrument and technique or method of measurement.

The assessment defined as a procedure that determines or rent or grade number value of what is assessed either as a cognitive process in which is largely represented

indirect measurement , when the evaluator has a strictly defined units of measurement or process of giving the courts to student achievement in a given area.

There are several types of assessment such as: analytical; number; globally, diagnostic, criteria, formative assessment, descriptive assessment for student's characteristic of the first cycle of compulsory nine year education, and so on.

Its function is to provide accurate data on the outcome of the educational effects, to enable them to perform their assessment with high reliability and high degree of accuracy. Data from the assessment are intended to:

- Students - get information for their own advances in the designated area; insight into their strengths, opportunities, abilities, serve as extra motivation;
- the teachers - to enable the teacher to perceive effects of teaching, enabling decision makers to change strategies if deficiencies are observed, arising from the strategies of teaching, helping in detecting the causes of certain failures of the students, how teachers can most effectively helps students' learning in the future;
- information for parents about their child's progress;
- educational authorities - to assess the success of the school, the appropriateness of the curriculum and their coordination with child characteristics of a certain age, achievement of children of a certain age, measures to enhance achievement;

For successful realization of all these components of evaluation, the teacher uses strategies that adequate cover a multitude of methods and procedures, as well as their respective instruments. The choice of methods to be applied in the evaluation of student achievement depends on the following factors: the purpose and context of assessment, goals and objectives of the curriculum, age, previous experience of pupils' strengths, and the limitations of certain methods.

The primary and essential in the selection of methods is to know which teacher is the purpose of the method that will apply. How will he gather information with its assistance, specifically which instruments will be used for collecting, recording data? Whether it is in complete form or need to develop independently? Is it possible to successfully apply? How will use the information anyway? Does the selected method can be combined with other methods and so on?

At literature we found various methods of evaluating each of these methods provides the application of different instruments for assessing student achievement:

Methods	Instruments
Self-assessment - includes meta cognitions. Mean of ability to effectively asking questions, thinking, problem solving, comparative analysis	Lists of self-evaluation, check list, thematic lists, ZSU table diagrams Plus minus, interesting (PMI), ladders, lights, network lists
Conversations with students, enabling the exchange of information between child-teacher. The subject of conversation can be some students works (written compositions, essays, drawings, projects)	Protocols, notepad
Portfolio-a collection of child papers	Various types of student papers

in which can be viewed child development and child learning on some period	
Thinking maps - similar to the graphs Have aimed to present the child's thinking about certain ideas, serve as a guide in learning. The teacher gives information about how children learn - how to connect ideas.	Student papers - made a list of map
Asking questions - to determine the depth in children's learning. The most often used for checking	List with issues
Monitoring the work of the pupils provides information on methods of learning, the process of children's activities, communication... May be: oriented-focus on just one child, observation at some time interval, anecdotal, longer	Anecdotal notes, check lists, daily observation and monitoring sheet
Testing - the tests and testing procedure shall be determined as achieved (but not how) in some work. In this context used above, tests of knowledge and skills tests, respectively, as is commonly known, tests of achievement.	Various types of tests-standardized, non standardized

But what happens in practice: whether and which of the above methods are applied in practice? What instruments are used? What types of instruments are used for evaluating student achievement in the teaching of natural-scientific area?

To answer this question we came to the realization of micro research, in which we start with the hypothesis that teachers used few instruments mostly tests, check lists and assessment scales to evaluate students achievements, and their need for education for preparation and application the same for effective evaluation.

Applied qualitative techniques for finding the relevant data such as interviewing and nonchalantly interview protocol designed for teachers, and representatives of the BDE, and an analysis of pedagogical documentation.

Based on data obtained from the survey came to answer the following questions:

- **Analysis of the curriculum (mathematics and introduction to the environment)** of the first cycle of primary education showed that in all the programs above in the section that refers to how the evaluation, emphasis is placed on micro sum and sum evaluation, and evaluation instruments are lists of evident, check lists, anecdotal notes, children's works, case studies.

- **Types of evaluation that are commonly used** - the answer to this question came on the responses of the interviewed teachers and representatives from BDE. We concluded that teachers often apply formative, diagnostic and micro sum evaluation, which have solid knowledge as a result of their education during the initial education, and also realized the training of teachers, mostly from the PEP project.

- **Most widely used instruments for evaluation of student's achievements** - applied interviewing technique designed for teachers and protocol on the free interview. Based on the answers conclude the following: apply check lists, schedules, notebooks in that register data from focused observation, portfolio, anecdotal notes, and tests of knowledge.

G.Z. As a longtime teacher, I have applied a number of instruments for evaluating student's achievements. Frequently applying: tests, anecdotal notes, schedules which contain information from conversations with students, from the observation of certain students, worksheets, quizzes and lately as a result of the completed training, the portfolios of pupils that we're used to calling directory for each child which sets all the ingredients of the child.

- **Need for education for the manufacture of instruments and their immediate application**

Almost all teachers interviewed stressed the need for education on the development of instruments for evaluation

V.G. The tests usually are made independently. Depart from the curriculum topic; I try to ask questions of all study units, set different types of questions-open, closed, set points based on the severity of the issue, and in accordance with the standards, array and ratings based on points. I need additional training in the method of instruments preparation for monitoring and evaluating students.

S. A By way of preparing of some of the instruments, we have been informed of the training, such as prepares a portfolio. For the way of making of some instruments, we have been educated in our teacher education, for particular cases-methodology, but unless read in textbooks and other appropriate literature and training on how to be prepared, for example as points in the test do not transform in assessment. Celebrity us standards for evaluating from the BDE. But we miss training - how to properly prepare? What to include? What are the goals to be allocated? How many questions need to contain? The score of each question? How to evaluate and transform them into the assessment?

Reasoning perception

The analysis of the teoretical discussions of this problem as the empiric data to which we came in the exploring using techniques as: analyzing pedagogy documents, interview, are leading us to the next facts:

1. The questions that were asked previously, in the introduction, during the examine,had found their answer in the theorethical discusion and in the data as a result of the examine.
2. The conclusions in this examine should not be accepted as categorical because they refer to a concrete example, in actual time. Meanwhile the same should be regarded in a direction of finding approachable ways of realizing lifelong education.
3. Teachers have a need of further education necessary for preparation of instruments for evaluation, like component of their pprofessional development.
4. There are no differences in opinions and ideas between the teachers and representatives from BDE about the need of further teacher's education about instruments preparing.

5. Need to establish greater cooperation between BDE, schools, teachers colleges in the preparation and care needed for future professional training of teachers.

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