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PEDAGOGICAL QUALIMETRY AS A MEANS OF MEASURING THE QUALITY OF THE ACTIVITIES OF THE MAIN SUBJECTS OF THE PEDAGOGICAL PROCESS DOI: 10.24234/miopap.v21i1.427

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#### **ABSTRACT**

The article is devoted to grounding of the need to measure the quality of the activities of the main subjects of the pedagogical process, that is, the pedagogue and the student, to the interpretation of the concept of pedagogical qualimetry, as well as contemporary forms of its application in the modern pedagogical process. The article presents a variant of the application of pedagogical qualmetry developed by us.

**Key words.** qualimetry, pedagogical qualimetry, pedagogical process, quantitative and qualitative measurement, assessment, pedagogue, student.

# INTRODUCTION

In all developed countries of the world, much attention is paid to the problems and final results of improving the quality of any work. This applies to all spheres of human activity: industry, agriculture, construction, trade, environment protection, transport, healthcare, education, etc. Specifying education in this list does not mean that we consider education as a service, business or a source of profit. Not at all. Education, upbringing, knowledge are priorities and most important values for us. However, this does not prevent us from understanding that through the implementation and expansion of additional educational programs, it is possible to invest in education for the sake of ensuring the perfection of the sphere and improve the quality of education.

Today there is a need to create a new scientific field of measuring the quality of the final result of work, which will define its content, methods and means. This refers to qualimetry. Qualimetry (Latin: qualis / quality / and Greek: metron / size /) is an

interdisciplinary concept that studies indicators and methods for quantifying the quality of a product or processes (Polonsky V.M., 2004):

Qualimetry, being an interdisciplinary concept, was also introduced into the field of pedagogy, aiming to evaluate the pedagogical process and to measure it from a quantitative and qualitative perspective.

Before referring to the concept of "Pedagogical qualimetry", first let's talk about the assessment or measurement of the pedagogical process in general. In general, we can say that measurement, in general, is the expression of a phenomenon in conditional numbers based on specific criteria. The pedagogical process can be measured and expressed in conditional numbers as well. For example, in the pedagogical process, it is possible to measure the activity of a teacher, the activity of a student, the effectiveness of the pedagogue's teaching, certain personal qualities of the pedagogue or student, etc. It should be noted that technologized pedagogical processes are measured more accurately.

The most frequently used tool for measuring one or another aspect of the pedagogical process are various tests. However, other tools are also applicable, such as a teacher's or student's portfolio, rubrics, "Case study", oral surveys, etc. However, not everything can be subjected to accurate measurements in the pedagogical process. It is connected with the human factor underlying the pedagogical process. After all, the pedagogical process is a process of creative, pedagogue-student cooperation, interaction, mutual understanding, where not everything will be measured. In general, the main purpose of evaluating or measuring the pedagogical process is to obtain and present objective information about the real level, nature, direction, development trends, and possible challenges.

The effectiveness of assessing the quality of the pedagogical process largely depends on the accuracy of the selected evaluation criteria, the choice of evaluation tools and their objective application. The objectivity of the information will make it possible to identify the shortcomings, difficulties and risks of the pedagogical process, find ways to correct them and ensure the effectiveness of further work. Improving the quality of education largely depends on how well the right decisions are made in each case in accordance with the situation, how adequate the methods chosen and applied for their implementation are, to what extent they contribute to the qualification of pedagogues.

Thus, the main task or difficulty of assessing the pedagogical process is to develop the methodological foundations of pedagogical measurements, improve the accuracy of these measurements, create methods for decoding measurement results and improve methods for scaling acquired data (Tretyakova T. V., 2013).

Now let's turn to the concept of pedagogical qualimetry. Pedagogical qualimetry has been talked about since the 70s of the 20th centuries. Pedagogical qualimetry is defined as a scientific field that studies the methodology and tasks of quantitative assessment of pedagogical innovations, and the quality of the pedagogical process in general (Naumchik V. N. et al., 2006).

As we can see, here the quantitative assessment of the pedagogical process is emphasized, meanwhile, both quantitative and qualitative indicators are important when evaluating the pedagogical process in our opinion. Only quantitative indicators cannot provide objective information and express the real level of the pedagogical process. For an objective assessment of the pedagogical process, it is necessary to combine quantitative measurements with qualitative measurements. This will make it possible to see the essence of the pedagogical process, the inner side, identify cause-and-effect relationships and make objective predictions.

Pedagogical qualimetry is a direction of pedagogical research, the main content of which is the measurement and evaluation of the pedagogical process, as well as the diagnosis of pedagogical abilities. A number of pedagogues observed the problem of pedagogical qualimetry, in particular, M. Minasyan, A. Amonashvili, E. S., A. Yakunina and others. The theoretical foundations of the modern theory of pedagogical qualimetry are the main tenets of the theories of measurement, modeling and mathematics. Meanwhile, its practical application is mainly in the field of monitoring the educational process and evaluating the results of educational and cognitive activity of students (Khvedchenya L. V., 2011).

Nowadays pedagogical qualimetry is the basis of various pedagogical certifications. With the help of pedagogical qualimetry, we diagnose and measure the professionalism of the pedagogue. It is necessary to take into account the fact that the effectiveness of pedagogical qualmetry is largely conditioned by the maintenance of a number of principles. Particularly:

- The principle of objectivity. This principle is aimed at minimizing the subjective influence of the evaluator in the process of evaluating pedagogical measurements and the pedagogical process, as well as increasing the role of evaluation rules, selected criteria and tools that are used.
- The principle of unity of quantitative and qualitative assessment. This principle suggests that when evaluating one or another aspect of the pedagogical process, it is necessary to rely not only on quantitative, but also qualitative assessment data, thereby

making the assessment more complete, informative and in-depth:

- The principle of fairness and transparency. The existence of a unified system of criteria, requirements, tools for evaluating the pedagogical process, the exclusion of special rights and privileges, and transparency and control of the entire evaluation process
- **Principle of systematicity.** This principle suggests that the assessment of the pedagogical process should not be of a one-time nature, but periodic and pre-planned. The evaluation system is important for obtaining more objective information about the course of the pedagogical process and the current state.
- **Principle of comprehensiveness.** This principle obliges to fully and objectively evaluate all the nuances and aspects of the pedagogical process.
- The principle of scientificness and efficiency. This principle assumes that the evaluation of the pedagogical process should be grounded on science-based criteria, requirements and evaluation tools. Moreover, the selected criteria and tools should be so effective, that will allow to achieve higher results using fewer resources:

There are different approaches to pedagogical qualimetry:

The components of the traditional approach are (Podlasy I. P., 2011):

- 1. the scientific-theoretical preparedness of the pedagogue,
- 2. methods of teaching the subject of the pedagogue,
- 3. psychological and pedagogical culture of the pedagogue,
- 4. the general culture of the pedagogue.

As we can see, all the components relate only to the teacher and his activities, in the traditional approach and no reference is made to the student. Whereas, the student is an important subject of the pedagogical process as well, and the evaluation of the pedagogical process cannot be effective and complete without evaluating the student's activities and studying the mutual harmony between them and existence of feedback.

Recently, more specific characteristics of pedagogical qualmetry have been used: Let's present one of them /N.Portnov 's approach/ (Podlasy I.P., 2011).

- 1. the quality of knowledge and the level of upbringing of students within the framework of the subject that is taught,
- the existence of actual knowledge of students within the framework of the taught subject,
- 3. the ability to apply students' knowledge in practice / to write competently, solve problems, etc./,
- Comprehending the nature and essence of different phenomena and processes in society,

- 5. the degree of independence of students and the ability to acquire knowledge independently,
- 6. the degree of practical preparedness of students for life,
- 7. students' attitude to work, behavior at school and out of school, social activity, the existence of aesthetic and physical education.

As we can see, the distinctive characteristics of pedagogical qualimetry suggested by N. Portnov fully relate to students. There is no component concerning the teacher himself and his activities as well. Furthermore, N. Portnov's approach does not take into account creativity, initiative, critical thinking of students, the ability to make independent decisions and to have their own opinions, etc.:

Some additional components are (Podlasy I.P., 2011)

- the qualifications and trainings of the pedagogue,
- the quality of the organization of classes and extracurricular activities of the pedagogue,
- the attractiveness and emotionality of educational work,
- the pedagogue's individual approach to students,
- pedagogical support to the family, etc.:

In our opinion, qualitative and quantitative assessment of the pedagogical process will be more objective and effective if the traditional approach to pedagogical qualimetry is combined with modern approaches, that is, the activities of two important subjects of the pedagogical process will be evaluated simultaneously.

This will allow

- to measure the quality of pedagogue's work,
- to evaluate the quality of students' work,
- to evaluate students from the level of teachers' work,
- to evaluate the pedagogue from the level of students' work.

Particularly, we propose to include the following components in pedagogical qualimetry: / see the table /

# Components and assessment tools of pedagogical qualimetry

KNOWLEDGE, ABILITY				
PEDAGOGUE STUDENT				
COMPONENT	ASSESSMENT TOOL	COMPONENT	ASSESSMENT TOOL	
	TOOL			

Scientific-	1. listening to	Existence of factual	1. listening to
theoretical	another	knowledge within	another teacher's
training within	teacher's lesson	the subject	lesson
the framework	(open lesson),		2. tests
of the taught	organizing inter-		3. questionnaires
subject	listening lessons		for testing
	and discussion		knowledge
	2. tests		4. oral inquiries
	3. questionnaires		5. residual
	for testing		knowledge review
	knowledge		with question-
	4. oral inquiries		answer method
	5. preparation of		6. organizing
	article		competitions /
			Olympiad, quiz /
			7. projects
			8. portfolio
Knowledge of	1. listening to	Understanding the	1. listening
related	another	essence and	2. tests
sciences or	teacher's lesson,	interconnectedness	3. questionnaires
ensuring	organizing inter-	of various	for testing
interdisciplinary	listening lessons	phenomena,	knowledge
connection	and discussion /	processes in	4. oral, written
	for revealing	nature and society	inquiries
	interdisciplinary	and applying the	5. debates
	connections /	knowledge gained	6. research work
	2. tests	in practice.	7.review of residual
	3. questionnaires		knowledge
	for testing		
	knowledge		
	4. oral inquiries		

Knowledge of	1. listening to	Identification of the	1. written requests
the	another teacher's	quality and range of	2. oral requests
methodology of	lesson	knowledge and	3. projects
teaching the	2. interactive	skills within the	4. debate
subject	discussion and	subject	5. round table
	justification of the		debates
	methods used		
	3. «Case study»		
	4. research of the		
	individual portfolio		
	of the teacher		
	5. interview		
Taking into	1.listening to	The application of	1. oral inquiries
account the age	lessons, analysis of	the principles of a	2. scenarios
and individual	the methods used	healthy lifestyle, the	3. making up the
characteristics	and practical tasks,	ability to recognize	daily routine
of students and	analysis of	the strengths and	4. compilation of
ensuring the	homework:	weaknesses of	the weekly ration
valeological	2.The	your own body,	table,
requirements	correspondence of	prevent diseases,	5. debates
for the class	the time spent on	properly allocate	6. research work
	their	time	7. methods of self-
	implementation to		knowledge
	the age of the		8. Self-analysis
	children		
	2. tests		
	3. questionnaires		
	for testing		
	knowledge		
	4. oral requests		
	5. solutions to		
	pedagogical		
	situations		
Qualification	1.Study of	The presence of	1. listening to
and retraining	documents	self-improvement,	another teacher's

	confirming	self-awareness,	lesson
	qualification and	consciousness of	2. pedagogical
	retraining	self-improvement	situations
	2.An oral inquiry to	and practical	3. testing
	verify the	abilities	knowledge on the
	knowledge gained		roads to gain
	from retraining:		independent
	3.Debate within the		knowledge
	framework of new		4. practical work
	knowledge, formed		5. research work
	new abilities and		6. role-playing
	skills.		game,
			7. debate
Pedagogical	1. listening to	Equal opportunities	1. study of the
innovations	another teacher's	and conditions for	learning
	lesson	students and	environment
	2. interactive	participation of	2. listening to
	discussion and	children in the	another teacher's
	justification of the	regulation of school	lesson
	innovations used	life.	3. conversation with
	3. analysis of the		students
	individual teacher		4. conversation with
	development plan		parents
	4. individual		5. analysis of class
	portfolio research		traditions
	5. "Case study"		6. revealing real
	6. interview		class leaders
Application of	1. listening to	Application of	1. listening to
modern ICT,	another teacher's	modern ICT, media	another teacher's
media	lesson-discussion	technologies in the	lesson
technologies in	2. Analysis of ICT	learning process.	2. research work
the learning	and media		with the use of ICT,
process	technologies used in		3. doing homework
	the learning process		using media
	3. identification of		technologies,

	their goals, determination of the appropriateness of use in terms of compliance with the		4. search for information, verification of its reliability and application in the
	goals		learning process
Ability to make	1. listening to	Ability to make non-	1. listening to
non-standard	another teacher's	standard decisions	another teacher's
decisions	lesson		lesson
	2. «Case study»		2. pedagogical
	3. oral requests		cases
	4. tests		3. scenarios
	5. analysis of		
	pedagogical		
	situations		
Communicative	1. listening to	Communicative	1. listening to
and	another teacher's	and collaborative	another teacher's
collaborative	lesson	abilities	lesson
abilities	2. inquires within		2. pedagogical
	students		situations
	3. observation of		3. group work
	the teacher-teacher		4. group projects
	relationship		5. debate
	4. implementation		6. round table
	of joint projects,		debates
	developments		7. role-plays,
	5. organization of		8. competition of
	events		sermons,
			presentations
Ability to self-	1. listening to	The possibility of	1. listening to
educate	another teacher's	acquiring	another teacher's
	lesson	knowledge and	lesson
	2. research of the	necessary	2. pedagogical
	individual portfolio	information	cases

	of the teacher	independently.	3. research work
	3. oral requests		4. preparation of
	4. participation in		reports, PP
	various retraining		presentations,
	programs		ability to make
			presentations
Ability to	1. listening to	The ability to set the	1. pedagogical
motivate	another teacher's	right goals, predict	situations
students	lesson	your future.	2. projects
	2. creating success	, , , , , , , , , , , , , , , , , , , ,	3. conversations to
	situations		justify the choice of
	3. surveys among		profession,
	students		4. debates, debates
	4. analysis of the		5. identification of
	availability of a		opportunities for
	favorable		the development of
	educational		imagination
	environment		
	5. Having common		
	teacher-student		
	goals		
Ability to self-	1. listening to	The possibility of	1. listening to
educate	another teacher's	acquiring	another teacher's
	lesson	independent	lesson
	2. research of an	knowledge and	2. pedagogical
	individual portfolio	necessary	cases
	of a pedagogue	information	3. research work
	3. oral inquiries		
The	1. listening to	Availability of	1. listening to
manifestation of	another teacher's	pedagogical	another teacher's
pedagogical	lesson	compatibility	lesson
tact and the	2. conversation with		2. pedagogical cases
culture of the	students		3. identification of the
word	3. observation of the		teacher's authority
	teacher-teacher		and analysis of its

	relationship		foundations		
	relationship				
			4. analysis of the		
			methods of		
			cooperation used		
Pedagogical	1. monitoring the	Identification of	1. listening to		
support to the	pedagogue-family	methods and	another teacher's		
family	relationship	principles of family	lesson		
	2. oral inquiries	upbringing և	2. pedagogical cases		
	among parents	analysis	3. research work		
	3. Analysis of parent		4. scenarios		
	meeting topics		5. holding joint		
	4. Availability of		meetings of children-		
	parents's education		parents		
	methods		6. analysis of the		
			classroom teacher's		
			hours		
	ATTITUDE, VALUES				
PEDAGOGUE					
PE	EDAGOGUE	STU	DENT		
PE ASSESSMENT	EDAGOGUE COMPONENT	STU ASSESSMENT	DENT		
ASSESSMENT	COMPONENT	ASSESSMENT	COMPONENT		
ASSESSMENT TOOL	COMPONENT	ASSESSMENT TOOL	COMPONENT		
ASSESSMENT TOOL Awareness of	COMPONENT  1. interview,	ASSESSMENT TOOL Awareness of the	COMPONENT  1, interviews,		
ASSESSMENT TOOL Awareness of the high value	COMPONENT  1. interview, 2. self-analysis	ASSESSMENT TOOL Awareness of the need to combine	COMPONENT  1, interviews, 2. Debate		
ASSESSMENT TOOL  Awareness of the high value of the child,	COMPONENT  1. interview, 2. self-analysis 3. analysis and	ASSESSMENT TOOL  Awareness of the need to combine law and	COMPONENT  1, interviews, 2. Debate 3. Self-analysis		
ASSESSMENT TOOL  Awareness of the high value of the child,	COMPONENT  1. interview, 2. self-analysis 3. analysis and evaluation of	ASSESSMENT TOOL  Awareness of the need to combine law and	COMPONENT  1, interviews, 2. Debate 3. Self-analysis 4. role-playing games		
ASSESSMENT TOOL  Awareness of the high value of the child,	COMPONENT  1. interview, 2. self-analysis 3. analysis and evaluation of pedagogical	ASSESSMENT TOOL  Awareness of the need to combine law and	COMPONENT  1, interviews, 2. Debate 3. Self-analysis 4. role-playing games 5. game-trial		
ASSESSMENT TOOL  Awareness of the high value of the child,	COMPONENT  1. interview, 2. self-analysis 3. analysis and evaluation of pedagogical situations	ASSESSMENT TOOL  Awareness of the need to combine law and	COMPONENT  1, interviews, 2. Debate 3. Self-analysis 4. role-playing games 5. game-trial 6. Mutual descriptions		
ASSESSMENT TOOL  Awareness of the high value of the child,	COMPONENT  1. interview, 2. self-analysis 3. analysis and evaluation of pedagogical situations 4. discussion	ASSESSMENT TOOL  Awareness of the need to combine law and	COMPONENT  1, interviews, 2. Debate 3. Self-analysis 4. role-playing games 5. game-trial 6. Mutual descriptions		
ASSESSMENT TOOL  Awareness of the high value of the child,	COMPONENT  1. interview, 2. self-analysis 3. analysis and evaluation of pedagogical situations 4. discussion 5. availability of	ASSESSMENT TOOL  Awareness of the need to combine law and	COMPONENT  1, interviews, 2. Debate 3. Self-analysis 4. role-playing games 5. game-trial 6. Mutual descriptions		
ASSESSMENT TOOL  Awareness of the high value of the child,	COMPONENT  1. interview, 2. self-analysis 3. analysis and evaluation of pedagogical situations 4. discussion 5. availability of conditions and	ASSESSMENT TOOL  Awareness of the need to combine law and	COMPONENT  1, interviews, 2. Debate 3. Self-analysis 4. role-playing games 5. game-trial 6. Mutual descriptions		
ASSESSMENT TOOL  Awareness of the high value of the child,	COMPONENT  1. interview, 2. self-analysis 3. analysis and evaluation of pedagogical situations 4. discussion 5. availability of conditions and opportunities for	ASSESSMENT TOOL  Awareness of the need to combine law and	COMPONENT  1, interviews, 2. Debate 3. Self-analysis 4. role-playing games 5. game-trial 6. Mutual descriptions		
ASSESSMENT TOOL  Awareness of the high value of the child,	COMPONENT  1. interview, 2. self-analysis 3. analysis and evaluation of pedagogical situations 4. discussion 5. availability of conditions and opportunities for preserving the	ASSESSMENT TOOL  Awareness of the need to combine law and	COMPONENT  1, interviews, 2. Debate 3. Self-analysis 4. role-playing games 5. game-trial 6. Mutual descriptions		

	childhood		
Critical thinking	1.listening to another	Critical thinking:	1. listening to
	teacher's lesson	generalizing,	another teacher's
	2. analysis of	finding differences,	lesson
	pedagogical	drawing	2.pedagogical cases
	situations and	conclusions,	3. Preparation of
	drawing conclusions	analyzing, clarifying	sermons
	3 debates, debate	any information,	4. Role play
	4. sermon contest	checking	5. Debate
		consistency	6. Text analysis,
			comparison u
			elaboration of
			conclusions
Humanism	1. listening to	Humanism	1. listening to
	another teacher's		another teacher's
	lesson		lesson
	2.monitoring the		2.pedagogical cases
	pedagogue-family		3.scenarios
	relationship		4. Debate
	3.pedagogical cases		
Tolerance	1. listening to	Tolerance	1. listening to
	another teacher's		another teacher's
	lesson		lesson
	2.monitoring the		2.pedagogical cases
	pedagogue- student		3. monitoring the
	relationship		pedagogue- student,
	3.pedagogical cases		student-student
	4. Debate		relationship
			4. Debate
			5. Role play
			6. Discussion of
			different opinions
			(even opposite ones)
			and evaluation

Love of the	1. listening to	Attitude towards	1.pedagogical cases
profession	another teacher's	education and	2.scenarios
	lesson	school	3.debates
	2.monitoring the		
	pedagogue- student		
	relationship		
	3.pedagogical cases		
Assessment of	1. listening to	Having one's own	1. listening to
student	another teacher's	opinion, making	another teacher's
achievement	lesson	decisions in	lesson
	2.monitoring the	different situations,	2.pedagogical cases
	pedagogue-student	making choices	3. debates, thematic
	relationship		discussions
	3.pedagogical cases		
Existence of	1. listening to	Existence of	1. listening to
national	another teacher's	national mentality	another teacher's
mentality and	lesson	and being a bearer	lesson
preservation of	2. study and analysis	of national values	2.pedagogical cases
national values	of extracurricular		3. debates, thematic
	activities		discussions
	3. pedagogical		4. Sermon contest
	situations		5. Round table
	4. debates		debates

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