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# Pedagogical Conditions for the Development of Diagnostic Competence of Future Special Education Teacher

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**Abstract.** The article deals with the problem of improvement of professional training of higher education applicants on the master's program «Special Education». The current problems of higher educational institutions with regard to teacher training are described. The essence of competent approach of the teacher's pedagogical work with children with special educational needs is disclosed. The design and implementation model of the educational program which aims at the formation and development of diagnostic competence is described. The aim of the research is to identify the pedagogical conditions for the development of the diagnostic competence of the master graduates.

## INTRODUCTION

Modernization of the preschool and school education are associated with the satisfaction of the educational needs, interests and potential development of the personality of each child in a progressive society, including persons with disabilities and special educational needs in an inclusive educational environment. The inclusiveness of education is its openness, accessibility, acceptability, efficiency [16]. In order for these educational features to become a reality it is necessary to have experts capable of implementing the project. That is, a special education teacher [1] is a key figure in the educational process organization in special and inclusive educational institutions.

Vocational training for special education teachers is provided in pedagogical higher educational institutions. The Bologna Declaration (1999) and the TUNING (Tuning educational structures in Europe) project provide a powerful tool for the development of pedagogical education. The main purpose of these programs is to develop basic approaches to the creation, improvement, introduction, evaluation of the quality of higher educational programs [3].

Competences have become important notions of the new learning paradigm, formed and developed in the process of mastering a specialty. The analysis of educational-professional programs of the second (master's) level of higher education of the leading HEIs of Ukraine and Slovakia made it possible to generalize the list of key professional competences at the graduates of the master's program «Special education»: theoretic-methodological, subject and methodical, subject and activity, correction and pedagogical, corrective and learning [1], each of them consists of several components. In particular, it provides a set of knowledge and practical skills for comprehensive assessment of child growth, that is, diagnostic activities.

Pedagogical diagnosis is an activity whose purpose is to identify and study the characteristics of the state and results of the learning process and, on that basis, to predict possible deviations and to determine ways of preventing them and adjust the learning process to improve the quality of its result [1]. The concept of «diagnosis» has a broader and deeper meaning than the concept of «testing of knowledge and skills» of students. The latter merely notes the results without explaining their origin. While diagnostics include monitoring, validation, evaluation, statistical data collection and analysis, they examine the results according to the means of achieving them, and identify trends and dynamics in the didactic process.

Diagnostic competence is particularly important for teachers of an inclusive educational environment cause they build and implement a growth trajectory for each child.

## **The Research Object**

Educational process of students of master's programs of specialty «Special education», in particular pedagogical conditions of development of diagnostic competence of future special education teachers.

## **The Research Aim**

To investigate the state of formation of professional knowledge and skills and personality traits of students of master's programs on acquisition of diagnostic competence in the process of learning and practical activities. Create favourable pedagogical conditions to improve their effectiveness.

## **The Objectives**

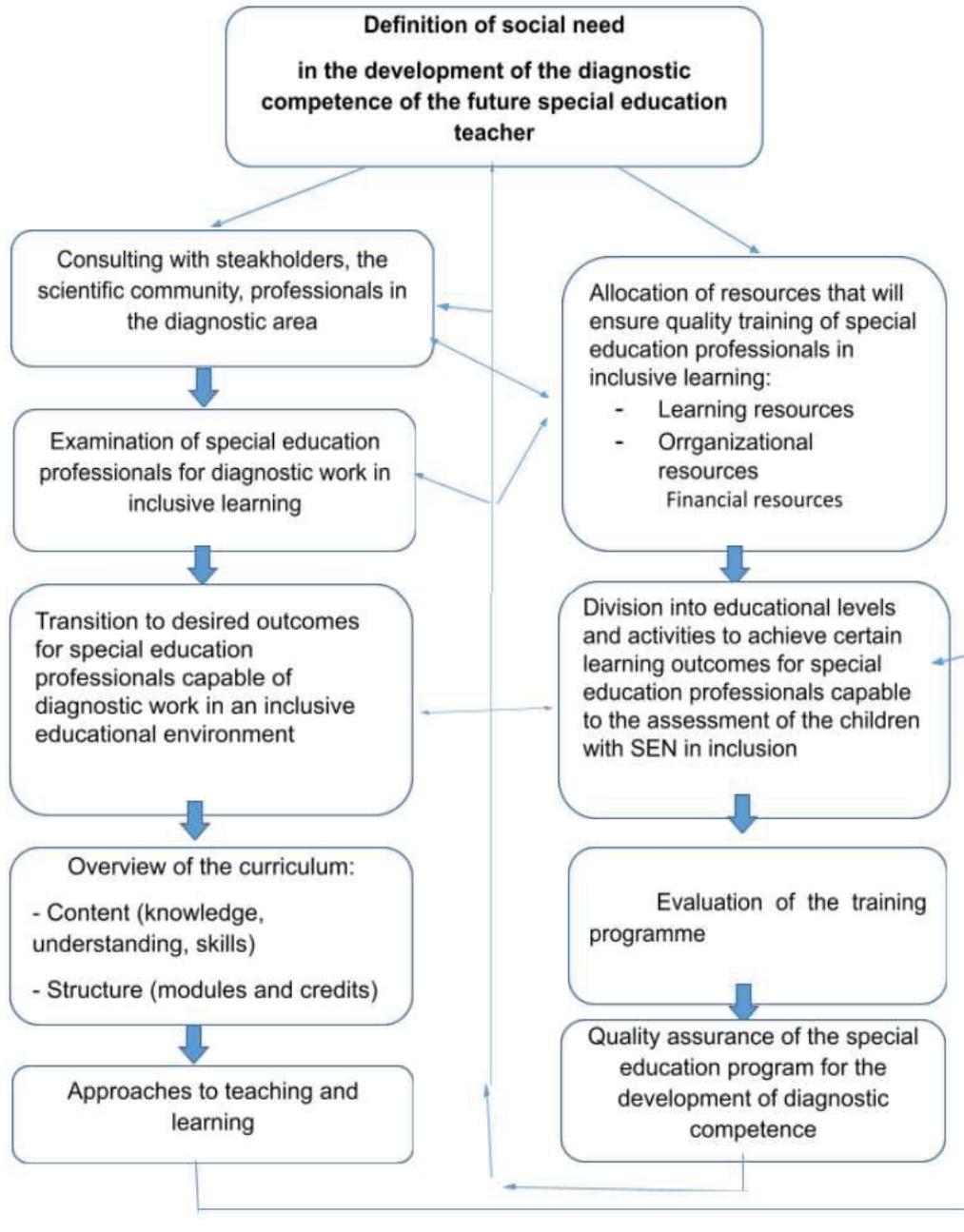
1. The methodology and content of the training of special education teachers were analysed, in particular the formation and development of the key competences of graduates necessary for the realization of acquired knowledge, skills in practical activities [3].
2. The essence, meaning and real level of diagnostic competence of students in the first course of study of a master's studio are considered. For the objective and comparative analysis of the results of the research was carried out with students of the specialty «Special Education» of two universities («University of Education Management» (UEM) (Ukraine) and Catholic University in Ružomberka (CU) (Slovak Republic).
3. On the basis of the empirical research results of the problem, at the end of the 1st year, the content of educational programs was changed. The aim is to increase theoretical knowledge and practical skills based on the needs of the practice that form the diagnostic competence of university graduates.

The content of the educational program of any speciality provides the final result namely a model for the formation of specific professional competence of higher educational applicants. This is the main paradigm of modern higher education and the demand of the labour market.

Consider a schematic design and implementation model of an educational program aimed at professional training in special education for professional activity. We would like to point out that in the process of creation of the program it is important to observe such methodological approaches: anthroposocial and humanistic, axiological, personal and activity, student-centric [5] Fig. 1.

Professional competencies are established in accordance with the above model and in the course of study of professional educational disciplines, and their level is assessed at different stages. Comparative analysis of the content of educational programs and the list of subjects of higher educational institutions of Ukraine and Slovakia [3] showed their identity. Almost all the components are the same, but today there are only minor differences in the wording of the titles of the academic subjects. The education programme includes a cycle of professional and selective subjects. Without such components, the education programme cannot be accredited by the State. Most of the subjects (98%) belong to the specialization of the future graduate. 70% of teaching time consists of special didactics (methodologies) for the teaching of all categories of students in special schools, while the remainder consists of theoretical and practical disciplines that expand and enrich the scientific and professional horizons of future professionals in special education. The only difference is that the CU has abandoned the European practice principle of a selective component. In their opinion it is pure formalism and spectacular which only creates unnecessary problems and damages the educational process of higher education. Also, the education program «Special Pedagogy» of Slovakia does not provide the training of teachers for higher education, therefore there are no teaching methods and practices in the HEI. Graduates are entitled to work only in preschool educational institutions, special schools, primary and general educational institutions with inclusive education, vocational educational institutions and diagnostic educational institutions.

Higher educational institutions in Slovakia and Ukraine have adopted almost identical measures for the internal system of quality assurance of educational services and higher education. All subjects are concluded by an examination in an arbitrary form chosen by the teacher (orally or in writing). The quality of the educational process is ensured by the graduating department, which is staffed by qualified specialists (PhD) and meets the special education criteria and requirements of the HEI.



**FIGURE 1.** Design and implementation model of an educational program aimed at creating and developing diagnostic competence.

Every year, students are screened on the HEI schedule before and after their studies. The HEI administrations assess the quality of students' education on an annual basis and conduct a survey of undergraduates and correspondence students. The purpose of the survey is to obtain the views of recent graduates on their employment, the benefits of their education and whether the educational process can be improved in terms of practical needs. Internal quality assurance systems are based on the effective implementation of stakeholders' requirements, using standardized guidelines and self-assessment tools. Scientific and pedagogical teams support the continuous improvement of the quality of the educational process with the participation of students and graduates. Both universities support the idea of regularly updating the list of academic disciplines based on the needs of pedagogical practice.

It is during mastering the master's program that students acquire diagnostic competence. Learning has become particularly important with the introduction of children with special educational needs into preschool and school education. Significant progress has now been made in providing inclusive education for children with special educational needs. This is clearly demonstrated by the dynamics of changes in the quantitative and qualitative indicators of the Ukrainian education system. In particular "... the number of students with inclusive education increased by 71.1% in 2018, by 65.2% in 2019, and the number of students in inclusive classes increased by 4.7% in 2019 and by 5.3% in 2019. In 2019 it was projected to increase the number of inclusive classes by 8212, but there were 8417 inclusive classes. Kyiv 92nd schools opened 331 inclusive classes with 160 assistants» [1]. In Slovakia the number of integrated students is also on the rise in the education system. Thus, in 2019 only 4% of primary school students were enrolled in special educational institutions. There has been a steady increase in the number of students with special educational needs in regular schools. Thus, there were 23 280 students in 2013 (5.12%) 28 515 (6.02%) in 2017, but there were 37 259 (8.00%) students in 2019 [9, 10].

In Ukraine an important step towards the development of inclusion has been the reform of the existing system for the children diagnosis. In order to replace the psychological, medical and pedagogical consultation, inclusive resource centres (IRCs) have been established to help children with special educational needs to receive a quality education. The IRC is created to provide a systematic and highly qualified support to the child during the course of his or her education.

Organizational and methodological principles of the activity of IRC [11] introduce a new term «Complex psychological and pedagogical assessment of child growth» (CPPACG). This is a new approach to learning about a child with special educational needs, which forms an information package for decision-making and individual trajectory of child growth. In order to carry out a holistic and integrated assessment system, it is recommended that a diagnostic bank be set up to study various areas of child growth from 2 to 18 years. The following diagnostic methods are offered: WISC-IV LEITER-3, CONNERS-3, PEP-3, CARD [11]. These methods will make it possible to identify objective factors in the child growth that affect his or her success in learning, in particular: to identify the child's weaknesses and to direct the educational process in this way, to enable each child to achieve his or her full potential; to ensure continuity in development when the various levels of education change; to build a strategy for preparing the child for higher education; to reach a common understanding between educational institutions, parents and children, etc.; the results of the assessment form the basis for the creation of an individual child growth program and the development of curriculum materials for children with SEN.

It should be noted that the innovative approaches proposed for carrying out diagnostic activities in educational institutions concern previously the employees of inclusive resource centres. National Education Development Program ([https://pidru4niki.com/81983/pedagogika/derzhavna\\_natsionalna\\_pr](https://pidru4niki.com/81983/pedagogika/derzhavna_natsionalna_pr)) notes that the strategic direction of its quality, updating the content and organization of the educational process is monitoring, the system of which has the potential to assess its effectiveness and envisage further steps to improve it. This raises the problem of diagnosing the achievements of educational applicants in an inclusive educational environment.

Thus, diagnostic activities are one of the leading factors in studying the effectiveness of inclusive learning. It includes the study of the development characteristics of each student with SEN and includes the assessment of physical development, health status, general abilities (cognitive, regulatory, communicative), etc. In other words, the essence of the diagnosis of individual achievements is the systematic collection and professional analysis of information about the advancement of a student with psychophysical disabilities in the educational process and the realization of his or her potential. Practice shows [14] that this should occur at all levels of the educational process of children.

In Slovakia diagnostic activities are carried out by special educational diagnostic centres (public and private). There are now more than 250 centres [6, 7] The main task of the centres is to study the psychophysical children growth of objectively and comprehensively and to place them in the preschool education system. During the last five years the grant program of the European Union financed a number of research projects. This is the national project «Inclusion in kindergartens» - PRIM. The strategic objective of the project is to provide quality educational services to children with special educational needs at all levels of education, starting with preschool education, increasing the number of children with special educational needs in preschool institutions by creating an inclusive environment and conducting educational and awareness-raising activities among families. The objectives of the project are (selectively):

- introduction of an inclusive education model in kindergartens through teachers (teachers, assistant teachers) and specialized professionals (special education teachers);
- formation of inclusive teams in kindergartens. The project created 235 jobs for teaching assistants and 145 jobs for special education teachers. For the first time in the history of education in the Slovak Republic, a special school teacher started working as a professional in a general kindergarten.

- development of diagnostic and stimulating programs for early childhood growth (focusing on 3- and 4-year-olds).

The National project «School is open to all (ŠOV)» occupies an important place. The main strategic objective of this project is to support inclusive education by enhancing the professional competencies of teaching staff, which will ensure equal access to quality education, improve the results and competencies of children and students». The implementation of the inclusive education model in kindergarten and support for non-formal education are aimed at fulfilling the strategic goal. Thus, in order to support the success of the inclusive school model in Slovakia, an inclusive environment is being introduced already at the preschool level. In order to provide a system in this work, the position of school special education teacher was introduced in the staff of kindergarten [13].

Currently the problem issues are studied within the framework of the scientific project VEGA 1/0522/19 «Creation of an inclusive environment in kindergarten and inclusive approaches in diagnosis and stimulation of growth of children with special needs».

Thus, the success of inclusive education in Ukraine, Slovakia and many other countries depends directly on the level of professional training of teachers and their professional competence. We believe that the diagnostic competence is key and it is formed by acquiring knowledge from various professional methods of educating and raising children with the SEN, and it is developed during the pedagogical practice.

The essence of diagnostic competence is to examine objectively and impartially the characteristics of the social growth of the child and the specificity of the national mentality, an assessment of his or her existing capacities and natural abilities with a view to forming and organizing a systematic approach to remedial and development work, and the organization of effective pedagogical support in a preschool educational institution, in a school from class to class, from school to vocational or higher education. There are no ready-made recipes in this work. It is the creative approach of specialists of general, social and special pedagogy. The authors of the research clearly support previous work on the importance of acquiring professional knowledge and skills during the course of study at the HEI, but also agree with the leading idea of the English psychologist John Ravenna on the recognition of the role of the value and motivational position of the student's personality.

## **Methodology**

A representative sample of 76 students at UEM and 112 students at CU were directly involved in the educational process from 2018 to 2020 by external study mode. The characteristics of the sample are:

UEM - 6 students under the age of 25, 37 between 25 and 35, 20 between 35 and 45, and 7 between 45 and 55; 74; 69; 43; 31 working in inclusive educational institutions;

CU - 31 students under 25, 43 between 25 and 35, 26 between 35 and 45, 12 between 45 and 55, 92, with experience of working with children with SEN – 79 students, working in the special education system – 52 students, working in inclusive educational institutions - 19.

The research used the following empirical methods: observation, questionnaires, document analysis, case study, statistical graphic processing of results.

In order to obtain objective results of the research in a dynamic manner, the monitoring was carried out three times, namely: at the beginning of the first year of study, at the end of the first year of study, at the end of the second year of study, namely before the final certificate.

The purpose of the monitoring was to obtain the necessary information on the formation and development of diagnostic competence of future special education teachers in the process of learning and practical training.

The indicators monitored were as follows (Table 1):

1. Level of theoretical knowledge on assessment of the growth of children with SEN;
2. Level of diagnostic practice;
3. Level of understanding of the assessment criteria of achievement of children with SEN;
4. Degree of familiarity with diagnostic tools;
5. Students' interest in assessment results;
6. Students' values related to the assessment of children with SEN in an inclusive educational environment;
7. Motivating of future special education teacher to acquire the diagnostic competence.
8. The attitude of students to the application of innovative forms of diagnostic activity.

The interviews were conducted through anonymous written questionnaires. Responses were provided on a 12-point system with a conditional grading of levels from 1 to 4 - low, from 5 to 8 - medium, from 9 to 12 - high.

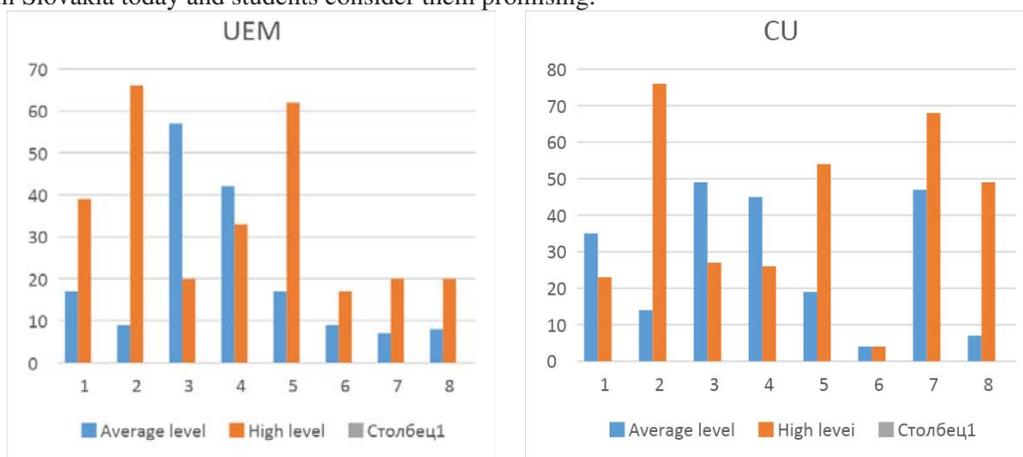
**TABLE 1.** Monitoring of the dynamics of students diagnostic competence indicators in UEM and CU.

Number	Univercity	Level				Decrease %	Average			Increase %	High			Increase %
		2018	2019	2020			2018	2019	2020		2018	2019	2020	
1	UEM	51	45	8	-68	19	23	32	+17	6	8	36	+39	
	CU	77	73	12	-58	27	29	66	+36	8	10	34	+23	
2	UEM	47	23	4	-57	17	21	10	-9	12	32	62	+66	
	CU	72	64	3	-62	27	30	11	-14	13	18	98	+76	
3	UEM	60	38	2	-76	12	30	55	+57	4	8	19	+20	
	CU	87	62	2	-76	16	39	71	+49	9	11	39	+27	
4	UEM	58	56	1	-75	14	16	46	+42	4	4	29	+33	
	CU	83	80	4	-71	20	22	70	+45	9	10	38	+26	
5	UEM	34	26	-	-48	17	18	4	-17	25	32	72	+62	
	CU	19	19	-	-17	61	49	20	-19	32	44	92	+54	
6	UEM	7	6	1	-8	40	41	33	-9	29	29	42	+17	
	CU	13	13	3	-9	58	56	63	+4	41	43	46	+4	
7	UEM	17	15	7	-13	47	49	42	-7	12	12	27	+20	
	CU	27	19	4	-30	72	62	19	-47	13	31	89	+68	
8	UEM	23	22	14	-12	49	50	43	-8	4	4	19	+20	
	CU	45	39	18	-33	58	53	50	-7	9	10	64	+49	

## RESULTS

The educational process of the master's program during the two years favorably influenced the development of key indicators of professional level and psychological features of future special education teachers. Thus, the level of theoretical knowledge on assessment the growth of children with SEN students of UEM «high» increased by 39%, CU - by 23%, but the average level increased by 35%. Significant changes have affected the level of diagnostic practice. High level of UEM students increased by 66% and by 76% of the CU students. The level of understanding of the assessment criteria for children with SEN and the level of familiarity with diagnostic tools has increased significantly at the medium level. It is important to note that significant quantitative changes in the group of professional indicators of diagnostic competence took place in the academic year 2020, that is, after studying the academic discipline «Inclusive diagnostics» and research and pedagogical practices.

The index «Presence of interest ...» also in both universities increased more than 50%. And the indicator «Presence of values ...» has not received a significant growth both on average and high level. The reasons should be studied by separate researches. Indicators «Presence of motivation ...» and «Attitude of students to application of innovative forms» were quite high in students at CU - 68% and 49% respectively. This clearly shows that these issues are very relevant in Slovakia today and students consider them promising.



**FIGURE 2.** Comparative characteristics of qualitative indicators of diagnostic competence, %.

## CONCLUSIONS

Successful acquisition of diagnostic competence depends on a number of important factors, namely:

- organization of diagnostic activities should be systematic and consistent, with the aim of shaping the behaviour of the subjects of the educational process on the basis of ethical standards and social values;
- diagnostic performance depends on formal and informal communication skills in an inclusive educational environment;
- management of educational institutions is responsible for ensuring the objectivity and impartiality of the results of the evaluation of the development of children in conditions of inclusion, since this is linked to the observance and preservation of the health of children with SEN;
- inclusive diagnosis results are interesting and important for all teachers involved in the educational inclusive process and for parents of inclusive children and representatives of social organizations who initiate the introduction of inclusive education;
- any results of the evaluation activities include determination of the development prospects of persons, diagnosis, building of further project activities for their improvement.

The pedagogical conditions for the development of diagnostic competence of future special education teachers include:

- basing of competence on the content of educational programs and educational disciplines that generate general knowledge of future professional activities and readiness for them;
- understanding and appreciation of the role and importance of diagnosis as an important and necessary component of the educational process;
- mastery of evaluation tools, diagnostic techniques and the use of information, including successes and failures in real life;
- taking into account the individual and typological characteristics of students with SEN;
- ability to find a tolerant dialogue in the course of joint educational activities;
- dependence on the teacher's personal values and belief in positive results;
- psychological and pedagogical readiness for the child growth assessment.

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