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DEVELOPING THE PROFESSIONAL COMPETENCIES IN PRESERVICE TEACHERS BY MEANS OF PEDAGOGICAL CASES

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Abstract

The article reveals some aspects of the scientific and methodological support of the application of case technology in the learning process of teacher education to develop professional (gnostic, communicative, design and constructive, managerial) teacher competencies. Based on the analysis of foreign and national scientific views, approaches to the classification of cases are considered; a typology of cases is presented from the stand point of case study as analytical strategy and of that as pedagogical technology. In reliance on the content analysis of authentic scientific and pedagogical sources, the authors propose an integrative typology of pedagogical cases to define the specific features of case designing and the areas of effective case application in the training of preservice teachers. It is evidenced in the article that at present in pedagogical science there is no single complete classification of pedagogical cases for several reasons which are herein qualified. That absence significantly narrows the scope of case effective application in learning pedagogical disciplines. To enable scientific based full-fledged case design and implementation in practices, example integration facet patterns of the general and pedagogical classifications of cases are provided in the aspect of pedagogical goal setting. The authors propose original case varieties, as projecting, diagnosis and planning cases to be studied in the teacher preparation course. The educational potential of the case technology is testifyed to in the context of presser vice teachers gaining experience in solving known, partially similar or unprecedented (non-typical) educational and professional problems in the course of multipurpose pedagogical case studies.

Keywords: Professional competencies of preservice teachers, case technology, approach estoclassification, integrative typology, case variety, facet type.

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1. Introduction

The competency-based model of the educational process in higher education determines the development of professional competencies as a priority value-target landmark for the system of preservice teacher preparation in the Republic of Belarus. The educational standards of pedagogical specialties put forward requirements for the professional competencies of teachers, whose content simply the development of the ability to design and implement the pedagogical process taking into account the educational needs of students, solve innovative practical problems, ensure constant personal and professional self-development, etc. The problem of developing a system-based scientific and methodological support is extremely acute to ensure the development of professional competencies in preservice teachers in the course of studying pedagogical disciplines. One of the effective technologies in this aspect is the case technology, which creates the conditions for adjusting the practical focus of the training of future teachers and improving its quality.

2. Problem Statement

The effectiveness of the implementation of case technology in the process of mastering the contents of pedagogical disciplines by presser vice teachers depends on the quality and completeness of the developed appropriate scientific and methodological support. Of great value for educational practice is the analysis of existing classifications of cases, especially pedagogical ones, and approaches to choosing the most suitable types and kinds of cases to developand diagnose professional competencies of future teachersthat wehaveidentified based on the components of pedagogical activities according to Kuzmina (2002): gnostic, design andconstructive, communicative (social interaction) and managerial (organizational). The choice of types and kinds of cases in accordance with the pedagogical goals each time will determine the specific structure of the lesson and the particularities of the teaching methodology, which willin turn make it possible to design and schedule the process of developing definite professional competencies that are specific to the selected cases, and therefore pedagogically soundly design the entire educational process, set and achieve goals efficiently (Severin, 2018).

3. Research Questions

3.1. What are the main approaches to the classification of cases from the standpoint of analytical strategy and that of pedagogical technology?

3.2. What are the essential characteristics of pedagogical cases that define the specific features of case designing and the areas of effective case application in the training of preservice teachers?

3.3. How can general and pedagogical classifications of cases be integrated in the aspect of pedagogical goal-setting?

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4. Purpose of the Study

The purpose of the study has been to develop scientific and methodological support for the use of case technology as a means of developing and diagnosing professional competencies in the process of studying pedagogy by preservice teachers.

5. Research Methods

In the course of the research the following methods were used: content analysis of authentic scientific and pedagogical sources, systematization and generalization of educational practices in higher education in the field of use of case technology, purpose-basedtypology of pedagogical cases, modeling, experiment, observation of students' educational activities, as well asinterrogation methods, methods of retrospective reflection, student self-esteem of held classes, expert assessment.

6. Findings

The content analysis of the scientific and pedagogical literature testifies to the wide representation in the works of various approaches to the classification of cases in general – regardless of the area of knowledge containing the object of analysis of the case. At the same time, the issue of classifying pedagogical cases has not sufficiently been developed in pedagogical science so far, which, however, is extremely important in order to determine the specific features of case designing and the areas of effective case application in the training of preservice teachers. In this regard, are view of general approaches to the classification of cases is necessary, since it indicates possible grounds for the classification of pedagogical cases, which allows solving this problem by supplementing the content of general approaches with the specifics of the purpose matrix of the pedagogical cases.

6.1. General approaches to case classification

The generally accepted fundamental classification of cases is the classification by Yin (1984), first formulated for the case study as an analytical strategy (Bromley, 1986; Creswell, 1998; Duff, 2008; Gall, Gall, & Borg, 2003) and then widely introduced into educational practices as a learning/teaching technology or a case-based pedagogy (Abell, Cennamo, Bryan, Campbell, & Hug, 1996; Doyle, 1990; Gall, 1977; Harrington, 1995). It proceeds from the goals of the case analysis: what is it used for – to explain, describe or investigate a situation (case, event, their complex)? What aspect is dominant in the interpretation and processing of data? How will the researcher use the results? Accordingly, three types of cases are identified: *exploratory*, *descriptive* and *explanatory*. Duff (2008) refers to the supplement of this case classification with the following types: *relational*, *evaluative* and *confirmatory*.

As generalized by Davidenko and Fedyanin (2000), by the number of source data and the nature of the work with information they distinguish: *highly structured* (containing a minimum amount of additional information); *short vignettes*, *scenarios* or *case lets* (illustrating basic information or key concepts on the topic); *long unstructured* cases (from several tens to hundreds of pages; including detailed, as well as unnecessary information); *ground breaking* cases (enabling students to actas researchers).

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By the nature of the impact on social reality (and, in our opinion, educational practices, too), alongside the reaction of the professional community to analyzed pedagogical facts M. Morgan (2019) distinguishes between two types of cases: *catalysts* and *crystallizers*. The task of the first group is to arouse the interest of the scientific and (in our case) pedagogical community in the problem, to sharpen and justify its relevance, attracting the attention of society and institutions to the problem and entitling an'evidence forintervention'(!)into a pedagogical event-situation and active influence on it with the purpose of positive change (Morgan, 2019). Intensifying the activities of finding solutions to the problem, designing (projecting) the spectrum of options for its development, they serve as the basis for constructing models for the development of phenomena in new conditions. The study of case-crystallizers is aimed at 'crystallizing' the problem – its finding, formulation and detailed analysis of the reasons underlying the case's events and the influence of factors on them. Working with this type of cases has great heuristic potential and may result to the receipt of new data significant for science.

We believe that the types of cases can be distinguished between depending on the type of analytical activity. Panfilova (2012) differentiates between the below listed types of analysis and, accordingly, we have ranged out next types of cases: *problematic* (identification or qualification of problems); *systemic* (studying the object from the perspective of a systematic approach, determining its structure, functions of its constituent components); *praxeological*(study of processes from the position of their optimization); *causal-consecutive* (search for causes and forecast of consequences of the event); *axiological* (building a system of assessments of the situation and all its components from the position of the adopted value orientations and attitudes). Such types of cases are much important in the aspect of the formation of analytical and critical pedagogical thinking of students.

6.2. Approaches to the classification of pedagogical cases

As for pedagogical cases, Doyle (1990) proposed three frameworks for using cases in teacher education on the assumption of the goals of case studies in teaching practice: *precept and practice*; *problem-solving and decision-making*; *knowledge and understanding*. The task of the first Doyle's framework cases is to illustrate the theoretical material with the help of a 'living' practical example – these are convenient for use in lectures. Referring cases of the second framework is similar to that of Yin's (1984) exploratory, Harrington's (1995) *dilemma*, or Panfilova's (2012) problematic (axiological et al.) one saimed at scrupulous and versatile analysis of the situation, 'crystallization' of the problem (Morgan, 2019), search and evaluation of solutions.The third framework by Doyle (1990) matters much for using cases properly in teacher education. Calling it 'knowledge and understanding', the author sees its task in providing a network of "... the cognitive channels through which information acquired in teacher education about teaching, learning, and development is brought to bear on practice"(p. 11). Here, Doyle (1990) implies working with cases which urges the formation of diagnostic, prognostic, reflective experience and skills of design and implementation of the educational process.

A separate type of pedagogical case is the study, whose subject is the analysis of really held lessons (subtype–*lesson review video case* studies) and the reconstruction of educational, methodological, pedagogical and other lesson scenarios based on a given situation (Abell et al., 1996). So, following Doyle (1990), Harrington (1995), Abell et al. (1996) recognize the significant value of such cases for the

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development of professional competencies of preservice teachers, calling them '*real world teaching cases'*. A significant contribution to the study of the educational potential of the technology of pedagogical situations and tasks, and later the case-based teaching method, was, too, made by Soviet, Belarusian and Russian scientists.

However, it should be noted that in the works of the above mentioned authors, the problem of classifying cases is not the very subject of consideration, and thus, at present, in pedagogical science there is no single complete classification of pedagogical cases for several reasons. Either the authors proceed from the specifics of certain pedagogical disciplines (areas of knowledge, objects of research, etc.), e.g. upbringing (Potashnik & Vulfov, 1983) or self-development of a person (Torkhova & Tsarik, 2016), or an analysis of situations of communication in the classroom (Doyle, 1990), pedagogical situations in the family (Chechet, 1987), etc.; or they more likely evidence the axiological and practice-focused potential of cases for teacher training (Panfilova, 2012). It can be claimed that the absence of a developed typology of pedagogical cases significantly narrows the scope of case effective application (in learning pedagogical disciplines included), which let us outline an example integration pattern for case classifications.

6.3. Example integration facet patterns of the general and pedagogical classifications of cases in the aspect of pedagogical goal setting

In the presence of different approaches to the classification of cases, in general, and pedagogical cases, in particular, there is a need for a systematic approach to this problem and the developing of an integrative classification of pedagogical cases. We believe that the integration of classifications into a multifaceted matrix similarly to the method by Polonsky (2016) makes it possible to most correctly and fully implement pedagogical design, to ensure the creation of optimal conditions for the development of professional competencies of future teachers. The integrative types of pedagogical cases offered by us are expedient combinations of types and varieties of cases recognized in the scientific literature (names of the authors/followers of the terms (concepts) used are included in Table 01); several of them are pioneers to be introduced by us in the pedagogical science. As can be seen from Table 01, the three fundamental types of cases: exploratory, descriptive and explanatory – are taken from the general classification by Yin (1984). They proceed from the fundamental goals of analysis and act as methodological universals. Principal types, they are corresponded to by other varieties of cases selected according to different criteria (indicated in the paragraphs above), which, being particular units, are then integrated into a general case typological matrixen do wing it with own specifics. These case varieties can be combined with a particular (single) type of Yin's case or be suitable for different types, depending on the target set and contents of a precise case.

Table 01. Examples of integrative facettypes of pedagogical casesby classification authors

Name, principal type / **Name, variety**	**Yin (1984) Exploratory**	**Yin (1984) Descriptive**	**Yin (1984) Explanatory**
Davidenko & Fedyanin (2000)	ground breaking; long unstructured	short vignette; caselet	scenario; highly structured
Morgan (2019)	Crystallizer	catalyst	catalyst; crystallizer

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Doyle (1990)	problem-solving and decision-making	precept and practice	knowledge and understanding
Harrington (1995); Abell et al. (1996)	problem case; dilemma case	lesson review video case	real world teaching case
Panfilova (2012)	problematic; systemic	systemic;praxeological; axiological	causal-consecutive; praxeological; axiological
Vishniakov & Kovalchuk	projecting case	diagnosis case; real (example) case	planning case; (ideal) modelcase

The last line of the table shows the case varieties proposed by us to be used in teaching educational sciences to preservice teachers. Being in many aspects identical to the fellow varieties of the same columns as for their purposes and methodology of their content designs, they possess contextual specifics of application of their own, therefore are differently implemented.

Of course, we do not intend to present the proposed types of integrative cases as rigid and once and forever fixed combinations, but the seare examples of structuring cases taking into account the possibilities of variable pedagogical goal-setting, analysis features and the nature of the case data, as well as other factors that will determine the design features and the field of application of the cases. Given the complexity of socio-pedagogical practice, various teaching and educational target sets, we consider it reasonable also to come up with *complex* cases who separts may be of a different nature: one part – presenting a description of a particular situation, another – containing an explanation, and the third one–suggesting a study or research.

7. Conclusion

The types of pedagogical cases we have summarized allow us to scientifically substantiate the contents of the training of future teachers on the basis of case technology, to more accurately see and address this educational technologypotential in order to develop and diagnose professional pedagogical competencies.Based on the specifics of the proposed intergrative pedagogical case type and variety multifaceted combinations, it comes possible to diversify the main resource of case technology, at fullest enabling students to immerse in the context of their future profession (Verbitsky, 1991), which is aimed at solving one of the most important strategic tasks of higher education today – strengthening the practice-aimed professional education.

Thus, it is claimed that pedagogical cases whose contents are designed correspondingly to the relevant integrative classification type methodology create the conditions for students to gain experience in solving known or familiar real situations, as well as unprecedented (non-typical) educational and professional tasks; contribute to the developing of pedagogical thinking (Demchuk & Kovalchuk, 2018; Kovalchuk & Vishniakov, 2019); act as a component of the pedagogical support for developing and diagnosing professional competencies in presser vice teachers decomposed asgnostic, communicative, design and constructive, and managerial sub-competencies.

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