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## Didactic terminology operated by Russian future and practicing teachers: comparative analysis

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### Abstract

This article contains results of studies and comparisons of conceptual competence in didactics demonstrated by 115 students – future and currently practicing teachers. The article gives an insight into conceptual competence in didactics in terms of strength of mastering the didactic knowledge, structuring this knowledge when solving didactic problems and the ability to freely operate didactic concepts when stating new problems associated with learning process organization and assessment of its results. The article describes the study procedure based on analysis of definitions of didactic concepts (a total of 3487 definitions were processed), 353 concept maps, as well as statements of problems in the educational field (a total of 400 statements were analyzed). The level of conceptual competence in didactics possessed by Russian students and teachers with different educational specialization (primary school, humanitarian sciences, natural sciences, supplementary education) is identified and assessed based on the developed assessment criteria, and the nature of relationship between the level of demonstration of such competence and sources and means of renewing and acquiring didactic information when encountering difficulties.

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### 1. Introduction

The problem of studying and developing didactic competence during training of teachers for independent professional activity has even more important in Russian educational practice, mainly due to the world-wide trend of competency-based approach to education and evaluation of teachers as professionals (Zimnyaya I.A., 2004; Borko H., Whitcomb A., 2008; Sharonova S.A., 2008; Hutorskoy A.V., 2013).

However, it should be noted that Russian scientists and practicing educators are still focused on issues associated with theoretical preparedness of a teacher to organize the learning process, due to introduction of a professional standard for teachers ("Pedagog"). This standard formulates requirements for proficiency with didactic terminology to be applied when designing an educational program and conducting educational activities.

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Didactic terms are used in professional communication of teachers as a means of maintaining and replenishing didactic knowledge that is updated with the progress of theory and practice (Leychik V.M., 2007). Meanwhile a teacher often experiences problems of proficiency with didactic concepts in learning situations, when formulating new problems, explaining complicated cases or analyzing unexpected results of education, presenting arguments for an educational innovation or developing new conditions for their classes. This is why development of conceptual competence in didactics can be considered one of the indicators of teacher's readiness not only to analyze didactic situations and to search for new efficient ways of resolving them, but rather to state new problems and to model new experiences. Didactic terminology operation depends on many external and internal factors, predominantly on the quality of pedagogical training (Bordovskaia N.V., 2002) and underlying psychological mechanisms, teacher's mental experience (Holodnaya M.A., 2002).

In their search for efficient methods of improving the quality of education and its results, teachers not only become familiar with new scientific achievements, but also strive to actively use these achievements in their practice. In order to increase the level of mastering and adequate use of achievements in the field of didactics, one should be able to identify and consider particular characteristics of already-formed conceptual and terminological structure, and factors that affect its renewal both at the training stage and during independent practice of teachers. A question follows: Are conceptual and terminological structures of future teachers different from those of practicing teachers when it comes to solving didactic problems, and which factors affect the process of operating the didactic terms?

*Purpose of the Study.* The purpose of this study is to characterize conceptual and terminological structures of future and practicing teachers based on the following parameters:

- identification of positions when interpreting the scope and contents of didactic terms being applied;
- identification of the structure of principal conceptual and terminological fields when solving didactic problems;
- operation of didactic concepts when formulating problems associated with educational process organization and assessments of results, and when searching for methods of resolving such problems.

*The Concept.* Conceptual competence in didactics of a teacher is the ability to explain specifics of a learning practice or model, to describe teaching innovations, or to model a new teaching practice based on efficient use and application of didactic terms. In order to promote objectivity in assessment of the dynamics of development of conceptual competence in didactics of future and practicing teachers, this integral framework is viewed as a comprehensive structure in three aspects that correspond to the three principal components:

- strength of retention of didactic knowledge;
- structuring of this knowledge when solving didactic problems;
- fluent operation of didactic concepts when formulating new problems associated with organization of learning process and assessment of results.

## 2. Design and Research Methods

*Participants.* The study involved 115 students of the Lomonosov Northern (Arctic) Federal University (Arkhangelsk, Russia), 18 to 30 years of age, with 17 male students and 98 female students (15% and 85% respectively), and 115 practicing teachers of general education schools in Arkhangelsk region, 20 to 65 years of age, among them 5 male teachers and 110 female teachers (4% and 96% respectively). A total of 230 subjects took part in the study.

*Research Methods and Instruments.* The following methods were used in this study:

- questionnaire surveys used to identify and describe new social and professional characteristics of participants (students and teachers);
- contextual analysis used to interpret definitions of didactic terms with maximum accuracy;
- method of concept maps that implies identification of existing relationships between didactic concepts being used;
- adapted version of "Problem Formulation" procedure (Holodnaya M.A., 1983) used to determine comprehensiveness of individual conceptual and terminological structures;
- "Thinking Style" questionnaire (adapted from A.A. Alexeyev, L.A. Gromova, 1993) used for identification of preferred thinking styles;

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