

German Professional Language of Pedagogy: Semantic and Functional Aspects¹

This study provides a comprehensive analysis of the German Specialised Language of Pedagogy (GSLP), as well as it examines its structural and semantic features through thesaurus modeling. The research comprises 6.452 terms, including 4.852 single terms and 1.600 term combinations, which were selected from pedagogical dictionaries and text corpora. The findings reveal that nouns dominate the GSLP (95%), with verbs (2,3%), adjectives (1,9%), and adverbs (0,4%) representing smaller portions. The thesaurus model divides pedagogy into two main term fields: *General Pedagogy* (comprising systematic, historical, and comparative pedagogy) and *Special Pedagogy* (including school, vocational, social, inclusive pedagogy, and adult education). The research established 9.372 semantic relationships among the terms, with paradigmatic relations (genus-species, synonymy, part-whole) being most significant. The interpretation of pedagogical terms is influenced by context, spatial-temporal factors, social stereotypes, and authorship. Terms undergo cyclical functioning: inception, fixation in language, possible redefinition, extinction, and potential replacement. The example of *Narkomanie* ('drug dependence') illustrates how terms evolve over time, eventually being replaced by more ethically appropriate alternatives like *Abhängigkeit* ('addiction'). The study concludes that thesaurus modeling effectively formalizes the semantics of pedagogical terminology, providing a valuable tool for systematization and unification. This approach ensures clearer comparison of terms and understanding of their specific meanings, enhancing their practical application in educational processes, and serving as a linguodidactic tool for developing teachers' professional competence.

Keywords: German language, pedagogy, terminology, thesaurus modeling

Deutsche Fachsprache der Pädagogik: Semantische und funktionale Aspekte

Die vorliegende Studie bietet eine umfassende Analyse der Deutschen Fachsprache für Pädagogik (GSLP) und untersucht ihre strukturellen und semantischen Merkmale mittels Thesaurusmodellierung. Die Autoren analysierten 6.452 Begriffe, darunter 4.852 Einzelbegriffe und 1.600 Begriffskombinationen, die aus pädagogischen Wörterbüchern und Textkorpora ausgewählt wurden. Die Ergebnisse zeigen, dass im GSLP dominieren Substantive (95%), während Verben (2,3%), Adjektive (1,9%) und Adverbien (0,4%) kleinere Anteile ausmachen. Das Thesaurusmodell unterteilt die Pädagogik in zwei Hauptbegriffsfelder: *Allgemeine Pädagogik* (mit systematischer, historischer und vergleichender Pädagogik) und *Sonderpädagogik* (mit Schul-, Berufs-, Sozial-, Integrationspädagogik und Erwachsenenbildung). Die Untersuchung ergab 9.372 semantische Beziehungen zwischen den Begriffen, wobei paradigmatische Beziehungen (Gattung-Arten, Synonymie, Teil-Ganzes) die größte Bedeutung haben. Die Interpretation

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von pädagogischen Begriffen wird durch den Kontext, räumlich-zeitliche Faktoren, soziale Stereotypen und die Autorenschaft beeinflusst. Begriffe unterliegen einer zyklischen Funktionsweise: Entstehung, Verankerung in der Sprache, mögliche Neudefinition, Aussterben und mögliche Ersetzung. Das Beispiel *Narkomanie* („Drogenabhängigkeit“) veranschaulicht, wie sich Begriffe im Laufe der Zeit entwickeln und schließlich durch ethisch angemessenere Alternativen wie *Abhängigkeit* („Sucht“) ersetzt werden. Die Studie kommt zu dem Schluss, dass die Thesaurus-Modellierung die Semantik der pädagogischen Terminologie effektiv formalisiert und ein wertvolles Instrument zur Systematisierung und Vereinheitlichung darstellt. Dieser Ansatz ermöglicht einen klareren Vergleich von Begriffen und ein besseres Verständnis ihrer spezifischen Bedeutungen, wodurch ihre praktische Anwendung in Bildungsprozessen verbessert wird und sie als sprachdidaktisches Instrument für die Entwicklung der beruflichen Kompetenz von Lehrern dient.

Schlüsselwörter: Deutsch, Pädagogik, Terminologie, Thesaurusmodellierung

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1. Introduction

The desire to create conditions for personal development in society, the purposeful humanisation of interpersonal relations, and the harmonisation of spiritual and material structures in society led to the rapid and dynamic development of pedagogical science in the 20th and 21st centuries. The progressive development of pedagogy as a science is reflected, first, in its professional language, which is designed to ensure effective, high-quality and accurate communication between fields of specialization. Today, the German professional language of pedagogy is in an active stage of development, with one of the most dynamic terminology systems, which is constantly evolving and enriched with new terms (Kiyko/Kolodrivska 2020: 70–71, Ludwig/Roth-Kuppler 2021: 189–190).

As a theoretical form of mastering reality, pedagogical science summarises certain aspects of social and historical experience in its concepts and conveys these generalisations through its terminology. Since pedagogy is a branch of scientific knowledge, its conceptual and terminological apparatus has a set of features characteristic of the terminological systems of each science. The specificity of the conceptual and terminological system of pedagogy is determined by the peculiarities of the object of pedagogical science, sources of formation, and replenishment of pedagogical concepts and terms. The structure of pedagogical terminology reflects the main directions of development of pedagogical knowledge. According to Bevz (1996: 1–2) and Bondar (2001: 7–8), pedagogical terminology is a set of lexical means that serve the theory and practice of teaching and parenting. The pedagogical terms consolidate the basic concepts of pedagogical science.

The formation and development of the conceptual and terminological system of pedagogy is stipulated by both the laws of development of pedagogical knowledge and the development of the whole society. The specificity of the terminology of the field of education lies in the fact that it is used not only by narrow circles of professional teachers, but also by a wide range of speakers of the general literary language. This results in a blurred line separating the terminology from the commonly used vocabulary.

A small number of publications in modern linguistics cover certain aspects of studying the terminology of the professional language of pedagogy (Bevz 1996, Bondar 2001, Dulepa 2018, Dyachenko 2016, Kiyko/Kolodrivska 2020, Lenzen 2004, Tenorth/Tippelt 2007, etc.). The studies referenced above have addressed various aspects of pedagogical terminology within limited scopes. For example, Bevz (1996) and Bondar (2001) focused on the classification and lexical features of pedagogical terms in Ukrainian and Russian. Dulepa (2018) and Dyachenko (2016) explored the development and semantic evolution of professional language in educational contexts. Kiyko and Kolodrivska (2020) analyzed the comparative use of pedagogical terminology in multilingual environments. Lenzen (2004), Tenorth and Tippelt (2007) contributed to the general understanding of educational discourse and theoretical foundations of pedagogy. However, the terminology of pedagogy in general has not yet been the object of special analysis in German linguistics and remains insufficiently systematized and underexplored as a distinct field of study. This gap highlights the need for comprehensive research aimed at identifying, categorizing, and interpreting pedagogical terms within the framework of German-language professional discourse.

The relevance of our study consists in the fact that so far, there has been virtually no in-depth comprehensive analysis of the terms and phrases of the German Specialised Language of Pedagogy (hereinafter – GSLP). Taking into account the historical development of society, there are no fundamental studies of the structural and semantic features of the GSLP terminology system. In addition, thesaurus modelling of the subject area of pedagogy has not been carried out, which would allow establishing equivalent, hierarchical and associative relations between terminological units within the GLSP terminology. To crown it all, a static model of logical and conceptual relations between the terms of the pedagogical metalanguage has not been created as well. The development of these areas can have a significant impact on the professional development of specialists involved in this field, as well as minimise the time, financial and intellectual costs of processing and implementing new information in the pedagogical process. In addition, the availability of a clearly defined terminology in the field contributes to the more active participation of its specialists in international projects, grants, and programs aimed at promoting the principles of education and humane parenting of the younger generation in society.

It is well known that the development of pedagogical theory and practice is inevitably accompanied by a change in the language of pedagogy and its conceptual and categorical system. As the main linguistic tool for expressing scientific thought,

terminology is subject to special requirements based on the synthesis of an interdisciplinary approach and linguistic norms for creating terminological units. The terminological system of pedagogy is being infiltrated by terms from related sciences, such as *Synergetik* 'synergetics', *Prognosemodell* 'prognostic model', *Paradigma* 'paradigm', *Weltbild* 'world view', *Einsicht* 'insight', *Selbstkonzept* 'self-concept', etc., which indicates the integral nature of the development of pedagogical knowledge. The pedagogical terminology needs to be described, and therefore the analysis of pedagogical terminology is relevant.

The purpose of our study is to provide a comprehensive description of the structural and semantic features of GSLP terminology. The successful achievement of this goal involves solving a number of basic theoretical and practical tasks: (1) to determine the optimal theoretical basis and methodological principles of studying GSLP terminology; (2) to select and systematise GSLP terms; (3) to establish semantic features of GSLP terminology; (4) to carry out thesaurus modelling of the GSLP terminology field on the basis of a continuous sample from pedagogical dictionaries, reference books and thesauri; (5) to identify the specifics of lexical and semantic processes in the specified terminology field, in particular, the replenishment of lexical composition in the GSLP terminological corpus.

The object of the study is the GSLP terminology that represents the basic concepts of pedagogy. The subject of the study is the structural and semantic features of the terms of modern GSLP.

The material of the study was German-language pedagogical terms selected by the method of continuous sampling from pedagogical dictionaries, reference books and thesauri (Lenzen 2004, Tenorth/Tippelt 2007, Andresen/Casale/Gabriel/Horlacher/Larcher Klee/Oelkers 2009), as well as a continuous sample of terms from the corpus of pedagogical texts compiled using the computer text processing program BootCat (<https://bootcat.dipintra.it>). Initially, about 300 basic terms of the German professional language of pedagogy were selected on the basis of the subject indexes of pedagogical reference books (Lenzen 2004, Andresen/Casale/Gabriel/Horlacher/Larcher Klee/Oelkers 2009). These terms were used to generate a corpus of about 15 million word occurrences based on the Sharoff methodology (Sharoff 2006a, Sharoff 2006b). This methodology suggests searching for texts based on new randomly combined four basic terms, which ensures the organization of a sample of thematically related texts from the Internet (scientific articles, newspaper reports, instructions, etc.). The number of queries, according to Sharoff (2006b), should be at least 1.000, which will provide a complete sample of professional texts in a particular field. The obtained texts were processed using the Morphy paradigm synthesis program (Lezius 2000) based on the grammatical system created at the Institute of Language Processing at the University of Stuttgart, which has a register of about 50.600 lexemes. This program automatically assigns all possible grammatical categories to each word in a sentence and, after syntactic analysis, determines unambiguous grammatical categories of words for a particular sentence. For each of the word

forms in the list, the corresponding grammatical codes are assigned, i.e., the designation of word-variable temporal and linguistic patterns of words.

We consider the list of word forms obtained by the Morphy paradigm synthesis program as a source text with morphological markings of its units. From this list, we removed duplicates, colloquially marked vocabulary, archaisms and historicisms, and proper names. After selecting the terms, we compiled a register of lexical units (words, phrases, abbreviations, symbols). The terms we selected were both of simple and complex nature, as well as included term combinations. All the selected terms are directly related to the field of pedagogy and denote the content, forms, and methods of parenting, education, training, etc. The ultimate list contained about 5.000 terms.

After receiving the first list of terms, we checked its completeness on the basis of the “Lexikon Pädagogik” (Tenorth/Tippelt 2007), which contains about 6.000 terms and phrases. Both lists were compared to include the missing terms in the main list. The main list thus completed contains a total of 6.452 items.

In describing the structural-semantic and lexico-grammatical features of GSLP terms, the structural method was used, which is implemented in such methods of linguistic analysis as analysis by direct components. It allows to identify the word-formation principles of the terms under study, component analysis, which made it possible to identify the main semantic components of the terms, and distributional analysis, which served to distinguish between different meanings of a word. The thesaurus modelling of GSLP terminology was carried out in three stages: (1) modelling of specialised knowledge in the form of an ontology as a model of the subject area, (2) modelling of terminology in the form of a terminological field as a unified multi-level classification structure on a systematic basis, which combines the terms of the field of homogeneous professional activity, (3) modelling of the thesaurus, which is both a model of the meta-language of science and a model of the structure of the relevant field of knowledge. In general, thesaurus modelling gives an idea of the semantic space of the language and the systemic relations in it.

2. The composition of pedagogical terminology system in German

Since the 1970s, under the influence of significant changes in science and technology, the number and importance of various fields of knowledge, as well as their differentiation, have reached an entirely new, unprecedented scale. The intensive emergence and development of new fields of specialization, technological and scientific disciplines has necessitated the provision of adequate linguistic means. This meant that, along with the development of new subject areas and the intensification of information processes, there was an urgent need to distinguish professional communication tools as an independent linguistic phenomenon in the systems of developed national languages.

The basis of any professional language, of course, is special, terminological vocabulary. Scientific texts in any subject area are characterised by the following types of

terms: (1) general scientific terms that are intended to express categories and concepts fundamentally and productively applied to all areas of scientific knowledge; nominations that combine logical and philosophical categories having epistemological universality, as well as categories and concepts of a new type that have emerged as a result of mathematisation, cybernetisation, digitalization, and informatisation of science; (2) terms of related fields, for example, GSLP has cross-references with such sciences as philosophy, psychology, biology, anthropology, history, etc. (3) highly specialised terms that denote realities, concepts and categories specific to each field of knowledge and are the semantic core of professional languages. The terms are codified in a particular language, i.e. reflected in state standards, dictionaries and reference books.

The total number of the studied pedagogical terms is 6.452 items, including 4.852 terms and 1.600 term combinations. Most terms in this field are nouns, e.g. *Berufsausweis*, *Arbeitshilfe*, *Portfolio*, which cover 95% of the terms (not including term combinations). Verbs account for 2,3% of all terms, while adjectives make up about 1,9%. Adverbs are represented sporadically (0,4%). Term combinations are quite frequent in the GSLP, accounting for 24,8% of the total terminological composition of the German professional language of pedagogy (see Table 1).

Part of speech	Number	Examples
Noun	4632	<i>Berufsausweis, Arbeitshilfe, Führungsmodell, Ability</i>
Verb	110	<i>scheiden, demütigen, provozieren,</i>
Adjective	93	<i>geistig, kognitiv, manisch</i>
Adverb	17	<i>abrupt, ersatzweise, zufällig</i>
Term compounds	1600	<i>innere Mission, Pädagogische Hochschule, immanente Wiederholung</i>
Total	6452	

Tab. 1. Morphological features of terms of GSLP

The terminology of pedagogy is frequently marked with synonymy or duplication, as constant changes in social and political life bring to the fore new requirements for improving the model of teacher education and training. Therefore, it seems quite natural to have several designations for the same concept, such as: *Humanitäre Dienste* / *humanitarian services*, *Soziale Dienste* / *social services*, *Humanitäre Ressourcen* / *humanitarian resources*, etc. The terminology of pedagogy also contains a scientific metaphor, for example, *Generation von Sandwiches* / *sandwich generation*, which undoubtedly conveys national peculiarities of its functioning in the discourse in addition to semantic characteristics.

3. Thesaurus modelling of German pedagogy terminology

In academic texts on terminology, a necessary condition for the emergence and functioning of a term is its correlation with a scientific concept or structured knowledge of

a certain subject area, which implies that the term has a definition. The development of a comprehensive methodology for thesaurus modelling includes three stages: 1) modelling of specialised knowledge in the form of an ontology as a model of the subject area; 2) modelling of terminology in the form of a terminological field as a unified multi-level classification structure on a systematic basis, which combines the terms of the field of homogeneous professional activity; 3) modelling of a thesaurus, which is both a model of the meta-language of science and a model of the structure of the relevant field of knowledge.

The semantic field of the term *Pädagogik* 'pedagogy' is modelled due to the semantic features that form its intensional. The component analysis of the term *Pädagogik* in lexicographic sources and lexicons allows us to distinguish its two main meanings:

- a scientific discipline that deals with the theory and practice of education and parenting, that is, pedagogy as a theoretical discipline in the texts of Weber (1995), Winkler (2006), Roth (2001) and others;
- scientific support of educational and parenting processes within a certain community, i.e. pedagogy as a practical activity in the studies of Birgmeier (2022), Prengel (2020), Pfaffenberger (2001), etc.

The ideas of the German pedagogical school are reflected in the second meaning of the term. Pedagogy as a practical field of science is a direct activity of teachers and educators. It makes its demands on both the subjects and objects of pedagogy and on the quality of the educational process. It is pedagogical practice that dictates the main directions and forms of development of pedagogy as a science.

In the process of selecting the definitions of pedagogy as a science and practical activity to be included in the thesaurus, we were guided by the criterion of maximum information content, which implies the presence of most integral semes in the intensifier. We analysed of more than 20 existing definitions of the term *Pädagogik*, such as: "Pedagogy is the art and science of teaching, as a professional practice and as a field of academic study" (van Manen 1982: 285); "Pedagogy is any conscious activity by one person designed to enhance the learning of another" (Watkins/Mortimore 1999: 3); "Pedagogy is the art and science of teaching, as a professional practice and as a field of academic study" (TVETipedia Glossary 2025), etc.

The most general definition was chosen as a working definition, which covers both theoretical and practical pedagogy: "wissenschaftliche Arbeitsgebiet, auf dem man sich mit Fragen der Entwicklung und Begründung von Zielen sowie mit der Erziehung und Ausbildung verschiedenster Personengruppen befasst" (Stangl 2018). This means that the modern German-language system of pedagogical knowledge includes a wide range of sciences. It is represented by general pedagogy, preschool and school pedagogy, sign language pedagogy, typhlopedagogy and oligo-pedagogy; it also includes industrial pedagogy, military pedagogy, pedagogy of higher education, youth movement, club work and family education, and ethnopedagogy. In addition to the theory of education, pedagogy includes didactics, school studies and other scientific disciplines. Such a wide

range of disciplines requires their theoretical understanding and representation in the thesaurus of German pedagogical terminology we have modelled.

The analysis of the terminological system of German pedagogy based on background dictionaries and lexicons allows us to distinguish the following branches: general pedagogy (*Allgemeine Pädagogik / Systematische Erziehungswissenschaft*), history of pedagogical doctrines (*Geschichte der Pädagogik / Historische Bildungsforschung*), comparative pedagogy (*Vergleichende Pädagogik*), school pedagogy (*Schulpädagogik/ Unterrichtswissenschaft/ Unterrichtsforschung*), preschool pedagogy (*Grundschul-/ Vorschulpädagogik*), pedagogy of secondary education (*Pädagogik des Sekundarbereichs*), special pedagogy represented by disability studies, corrective education, speech therapy and inclusive pedagogy (*Sonderpädagogik/ Förderpädagogik/ Behindertenpädagogik*), social pedagogy, which includes social work (*Sozialpädagogik/ Sozialarbeit*), adult education, which includes self-education, postgraduate education and educational and information activities (*Erwachsenenbildung/ Erwachsenenpädagogik/ Weiterbildung*), intercultural pedagogy, which includes intercultural communication (*Interkulturelle Pädagogik / Interkulturelle Kommunikation*), vocational pedagogy and vocational training (*Berufspädagogik/ Wirtschaftspädagogik*), school studies as management of education and educational institutions (*Theorie der Schule, Theorie des Unterrichts, Theorie des Lehrplans*), related disciplines (*Psychologie, Soziologie, Biologie, Anatomie, Physiologie, Ethik, Ästhetik, Fachdidaktiken*). Within these fields, pedagogical directions can be distinguished, e.g. *Ausländerpädagogik, Freizeit-, Medien-, Friedens-, Sexual-, Umwelt-, Betriebspädagogik*, etc. However, the analysis of dictionary definitions, equivalent, meronymic and hyper-hyponymic relations between certain terms allows us to distinguish the groups of the pedagogical field in more detail:

- by type of educational institution: *Vorschul-, Schul-, Berufs-, Museums-, Theater-, Kultur-, Gemeinde-, Betriebspädagogik, Hochschuldidaktik*;
- by academic subject: *Kunst-, Musik-, Religions-, Sport-, Sexual- und Wirtschaftspädagogik, Natur- und Umweltpädagogik, Sachunterrichtsdidaktik*;
- by forms of education: *Medienpädagogik, Mediendidaktik, Erlebnispädagogik, Wildnispädagogik, Budopädagogik*;
- by target group: *Geschlechterpädagogik, Sonder-, Heil- und Förderpädagogik, Berufspädagogik, Erwachsenenbildung, Geragogik*;
- by social or political orientation: *Sozialpädagogik, Interkulturelle Pädagogik*.

Thus, based on the analysis of definitions, equivalents, meronymic and hyper-hyponymic relations, the thesaurus model of German-language pedagogical vocabulary can be presented in the form of a diagram with the top *Pedagogy*, which is divided into two main term fields: *General Pedagogy* and *Special Pedagogy*. The term field *General Pedagogy* includes three subfields: *Systematic pedagogy, Historical pedagogy* and *Comparative pedagogy*, and the *Special pedagogies* term field includes five subfields: school, vocational, social, inclusive pedagogy and adult education. These terms are hyponyms in relation to the hyperonym *Special pedagogy*. Within each term field, several directions

can be distinguished, which are areas of activity. Thus, the terminology under study has a complex hierarchical structure that reflects the system of pedagogical concepts and the relations between them.

At the second stage, we compile a list of possible logical and semantic relations between the concepts expressed in pedagogical terms. Darchuk based on fundamental work of Miller about the WordNet (Miller 1995) and Vossen about EuroWordNet (Vossen 2004) identifies several types of relations, with the main ones being hyponymy (genus – species), subordination (part – whole), synonymy, correlation, association, object localization, purpose, function, and ways of expressing the function, among others (Darchuk 2017: 25–26). The author treats the name of a relation as a two-place predicate $R(A, B)$, which connects the title word of the article with the term introduced by this predicate. To categorize and identify these relations, Darchuk employs a methodological framework that examines the logical and semantic connections between linguistic terms in the Ukrainian language (Darchuk/Aleksienko/Sorokin 2009). This framework analyzes how words are linked through their meanings and contextual applications.

Methodologically, this approach involves a systematic classification of these relations into predefined categories, following both linguistic and pedagogical frameworks. The relations are analyzed not only in terms of their lexical properties but also with respect to their semantic roles within the context of pedagogical terminology. The identification and categorization process is carried out through a detailed examination of the terms in use, focusing on their interconnections and the way they reflect pedagogical concepts. Moreover, each relation is validated through contextual analysis, ensuring that the theoretical constructs align with the functional use of terms in educational settings.

The thesaurus of German pedagogical terms developed on this principle contains 6,452 terms and term combinations covered by a semantic network of 9,372 semantic relations (see Table 2).

Type of semantic relations	Term A (example)	Term B (example)	Total
Genus – Species (<i>A is related to B</i>)	<i>Testverfahren</i>	<i>Parallelttest</i>	1578
Discipline (<i>A is considered in the discipline of B</i>)	<i>klinische Psychologie</i>	<i>Psychologie</i>	1324
Synonyms (<i>A is synonymous with B</i>)	<i>Diskalkulie</i>	<i>Rechenstörung</i>	1185
Part – whole (<i>B consists of A</i>)	<i>Broca-Zentrum</i>	<i>Frontalcortex</i>	645
Correlate (<i>A is opposite to B</i>)	<i>positive Phase</i>	<i>negative Phase</i>	633
See ... (<i>for A, see B</i>)	<i>Schulphobie</i>	<i>Schulangst</i>	612
Association (<i>A is associated with B</i>)	<i>Paradigma</i>	<i>Lehrsatz</i>	443
Aspect (<i>A is considered in the context of B</i>)	<i>Eigensinn</i>	<i>Persönlichkeitsmerkmal</i>	377
Parameter (<i>A is characterised by B</i>)	<i>Sprachentwicklung</i>	<i>Ein-Wort-Stadium</i>	328

Type of semantic relations	Term A (example)	Term B (example)	Total
Initial object (<i>A is carried out over B</i>)	<i>Reflexion</i>	<i>Innenwelt</i>	301
Operation / procedure (<i>for A, the process / operation is B</i>)	<i>Datenerhebung</i>	<i>Beobachtung</i>	288
Carrier of the parameter (<i>the carrier of the parameter A is B</i>)	<i>Dorian-Gray-Syndrom</i>	<i>unreife Persönlichkeit</i>	267
Refers to (<i>A refers to B</i>)	<i>Ähnlichkeit</i>	<i>Assoziationsgesetz</i>	242
Implication (<i>if A, then B</i>)	<i>Devianz</i>	<i>Delinquenz</i>	203
Method (<i>A using B</i>)	<i>Intelligenzforschung</i>	<i>Tiefenlernen</i>	184
Final object (<i>A performed on B</i>)	<i>Entwicklungstest</i>	<i>Vorschulkind</i>	165
Instrument (<i>A applied by B</i>)	<i>Messung</i>	<i>Likert-Skala</i>	133
Method of expression (<i>A expressed by B</i>)	<i>didaktische Reduktion</i>	<i>Elementarisierung</i>	112
Basic function (<i>A expresses B</i>)	<i>Bulimie</i>	<i>Essstörung</i>	97
Relationship (<i>B connects A</i>)	<i>Chunking</i>	<i>Reize</i>	75
A way of representing an object (<i>A is represented by B</i>)	<i>Barnum-Effekt</i>	<i>Neigung</i>	72
Unit of level (<i>the unit of A is B</i>)	<i>Ignoranz</i>	<i>Jerkitude</i>	47
Object of science (<i>A is an object of B</i>)	<i>Historische Pädagogik</i>	<i>Allgemeine Pädagogik</i>	33
Class (<i>A is part of class B</i>)	<i>Empirismus</i>	<i>Erkenntnistheorien</i>	25

Tab. 2. Quantitative characteristics of semantic relations

The created thesaurus is a static model of logical and conceptual relations between the terms of the pedagogical metalanguage. The most significant part of the terms is covered by paradigmatic semantic relations such as genus-species, synonymy, part-whole, and correlates. Such a network representation of data is not only of purely applied value, but also allows us to penetrate deeper into the logical relations of pedagogy, to model the analysed terminology system more accurately.

In systematising pedagogical terms, we proceed from the subject and thematic proximity of concepts. Terms are grouped around a section (problem) of pedagogical science and form a thematic series. For example, general pedagogical terms include the designation of the basic concepts of pedagogy, its principles and laws, the names of directions and trends in pedagogical science, and the designation of scientific research methods, e.g. *Erziehung, Bildung, Selbsterziehung, Regeln, Methoden, Umerziehung*, etc. Among them the following subgroups can be distinguished:

- terms of pedagogical typology: *Entwicklungspädagogik, Berufs- und Wirtschaftspädagogik, Sonderpädagogik, Erwachsenenbildung, Kultur- und Freizeitpädagogik*;
- names of areas and trends in pedagogy: *hermeneutische/empirische/evolutionäre/phänomenologische/psychoanalytische Pädagogik*;

- names of scientific research methods: *multiperspektivische Fallarbeit, Gesprächsführung, Mehrebenenanalyse*;
- terms of methodological foundations of pedagogy: *schichtenspezifische Sozialisation, nachhaltiges Lernen, individueller Zugang zur Persönlichkeit*, etc.

The terms of the theory of education combine the terms of the typology of education, the content and process of education, its principles, methods and techniques. This includes the terms for:

- typology of education: *technokratische, emanzipatorische, ästhetische Erziehung*;
- content of education: *Humanismus, Kollektivismus, Disziplin, Zielstrebigkeit*;
- the process of education, its principles, means, methods and techniques: *Mündigkeit, Eltern-Kind-Therapie, Beratung, Generationenkonflikt, Integration, Evidenz*;
- activities of the educator's: *pädagogisches Handeln, Unterrichten, Informieren, Animieren, Beraten, Arrangieren, professionelle Kompetenz, Lernhilfe, Therapie*, etc.

We divide the terms of the theory of general and polytechnic education and training into the following groups:

- initial concepts and principles of didactics: *integrierter Unterrichtsbereich, intentionale Lernhilfe, Curricula, Differenzierung, Störfaktoren*;
- terms of polytechnic education and training: *Berufsausbildung, Berufsbild, berufliche Autonomie, Weiterbildung, Lehrwerkstatt, duales Ausbildungssystem, Berufsoberschule*;
- terms of teaching methods and tools: *Kompetenzentwicklung, Evaluation, Qualitätssicherung*;
- terms of organisational forms of education: *Unterricht, Seminar, Exkursion, Kolloquium, Praktikum*;
- terms of individual methods: *Lesekompetenz, Lese-Rechtschreib-Test, Schriffterwerb, didaktische Spiele, Zeichensetzungsdiktat, Rechtschreibdiktat*;
- nomenclature of individual methods: *Umrisskarte, Handatlas, physikalische Geräte, Schreibtexte*.

The terms for the organisation of public education include the history of schooling, the management of public education, the organisation of educational work at school, etc. The largest group of terms is that relating to the internal regulations of school life: *Schulautonomie, Schuldirektor, Schülermitbestimmung, Schülervertretung, Schulklima* etc. The terms of the history of pedagogy have a purely historical meaning, such as *Rhetorikschule, Mädchenschulwesen, Volksschule*.

The study allows us to conclude that the method of thesaurus modelling of German pedagogical terminology is effective in solving the problems of formalising the semantics of vaguely defined terminological objects, their systematisation and unification. This is especially important when developing educational information thesauri which serve as a linguodidactic tool for the formation of the professional competence

of a future teacher. The systematisation of pedagogical terms by thematic series united by a common focus allows comparing these terms, seeing the specifics of each of them, which opens additional opportunities for the practical use of the meaning of each term in the educational process.

4. Semantic and functional features of pedagogical terms

Pedagogical actions and decisions directly depend on the nature of decoding and analysing the relevant information, i.e. are directly related to the conceptual and categorical system of the language that serves this branch of science. It has been established that the interpretation of pedagogical terms is influenced by (1) the context of their use, (2) the spatial and temporal period of their functioning, (3) the presence of social stereotypes in society, and (4) the possible authorship of the term.

The first two points can be illustrated by the example of the term *Droge* 'drug', the nature of which is primarily determined by the scope of use of the drug itself and the legal consequences of this action. Thus, in pharmacology, a drug is any substance not consumed as food, the chemical and physical properties of which can affect the structure and functions of a living being. Meanwhile, in the context of solving social and pedagogical problems, the term *Droge* has a narrower definition, which focuses on the psychoactive properties of this substance and the desire of the person using it to relax in an unconventional way, which is the main purpose of non-medical drug use.

Moreover, the definition of the term depends on the customs of society and legal norms that change over time. The current definitions of the term *Droge* vary considerably from country to country based on the classification of specific substances that make up the drug. Actually, society, trying to predict its future development patterns, seeks to analyse the following questions: will alcohol and tobacco be considered drugs and will they be banned from use? Will marijuana be legalised? Will heroin be considered a psychoactive substance, which is currently banned in most countries, or will it still be used as a painkiller? Thus, contextual and spatio-temporal criteria are integral components of the interpretation of the terminological units of the work.

Social stereotypes in society can also influence the way pedagogical terminology is used, in particular, the terms of social pedagogy. Let's consider this on the example of the term *Minderheit* 'minority', which is currently very relevant for German pedagogy. An analysis of the specialised literature has shown that there is virtually no clear distinction between the terms *Minderheit* 'minority', *Rassenminderheit* 'racial minority' and *nationale Minderheit* 'national minority', so they are often used synonymously. Many years of interethnic conflicts, which resulted in mass migration, have led to the fact that people associate them with minorities. As a result, one of the priorities of German state policy has been to provide these groups with special access to education and economic support structures to improve their unfavourable socio-economic situation. However, this does not always consider the fact that minority definitions based

on proportional numbers alone are not entirely logical in terms of functionality. The study showed that in such cases, it is necessary to consider whether this is really the population group that requires social protection, or whether it is only a matter of size, and not of unsatisfactory socio-economic situation.

In the context of the use of pedagogical terms, it is also possible to indicate their authorship in order to emphasise the special meaning attached to them by their creators (although the problem of authorship of terms is practically not covered in modern terminology). This can be seen in the example of the term *Zeitbudget* 'time budget', which, according to some sources, is attributed to Sorokin (Sorokin/Berger 1939), and according to others – to Giddings (1896). Sorokin considered it both as a method of obtaining quantitative information about time spent on certain types of activities, people's occupations, and as a form of presenting actual data on the use of time for the main occupation. Giddings used this term to describe the methodology of special observation in order to study different forms of life and behaviour of the observed subjects depending on their belonging to a certain social stratum. The above characteristics of the term allow us to see that Sorokin does not stipulate the social affiliation of the subject participating in the experiment in determining the time budget, while Giddings considers this criterion to be fundamental to this concept.

Pedagogical terms, like any other objects, are characterised by cyclical functioning. As is well known, cyclicity as a set of phenomena and processes that complete a circle of development over a certain period is a direct reflection of the dynamics of the functioning of objects in a particular socially determined environment. Considering the terms of pedagogy as such objects, we have come to the conclusion that their cyclic parameterisation allows us to clearly present and assess the depth of development of scientific knowledge, as well as the results of their application in each specific historical period and their impact on the life of society. Moreover, such an analysis of a complex, heterogeneous terminological vocabulary of pedagogy can significantly affect the forecasting of the main trends in the development of society and the identification of various problems that may arise in the short and long term, as well as the identification of possible ways to solve them.

It has been established that the life cycles of a term are closely related to its creation, consolidation in the language, possible change of definition (although the term may pass this stage) and, finally, its complete extinction or replacement with another term while maintaining the same definition. Let's consider this on the example of the term *Narkomanie* 'drug dependence' in social pedagogy, which is interpreted as a group of chronic diseases caused by the abuse of medicinal or non-medicinal drugs. In the early 20th century, it referred only to the illegal use of drugs, with little or no consideration given to the composition of these substances or the consequences of their use. Later, the interpretation of this term narrowed considerably, as the emphasis shifted to the abuse of any psychotropic substance that causes inadequate behaviour. In 1957, according to the WHO, drug addiction began to be understood as two conditions in

which people who use psychotropic substances can be – physical and psychological. As a result, the concept of *Narkomanie* began to focus on such characteristics as addiction and habit. But already in 1965, in WHO documents, this term was defined as a mental and sometimes physical condition that occurs as a result of the interaction between a living organism and a drug, as a result of which drug addiction began to be considered a serious disease caused by the abuse of certain psychotropic substances. Today, experts studying this problem and searching for ways to solve it prefer to use the term *Abhängigkeit* ‘addiction’ instead of *Narkomanie*. Obviously, this is due to the ethical side of working with children and adolescents suffering from this disease. Such a cyclical functioning of pedagogical terms is typical for the German language, because for more than a century of existence of pedagogy its lexical layer has become quite systematic and unified.

The process of terminology cycling we have described can be represented as follows:

- Cycle I: Inception. The reason is the need to designate a new concept;
- Cycle II: Fixation in the language. The reason is an active use of the concept in the field to which it belongs, resulting in an increase in its frequency of use in speech;
- Cycle III: Possible correction of the content of the concept, expressed in a change in the definition of the term that denotes it. The reason is further development of the science and the acquisition of new knowledge;
- Cycle IV: Extinction. The reason is that the concept loses its relevance due to its obsolescence, which results in the term for this concept ceasing to be used;
- Cycle V: Replacing the term with another one while maintaining the same definition. The reason is the improvement of research methods, introduction of new technologies that allow for the most accurate specification of this concept.

In view of the above, we have come to the conclusion that the terminology of pedagogy contains terms and phrases that condense information (like a fractal see Kiyko 2020: 56) about the concepts of theory and practice of this multifunctional field, focused on optimising the social development of society, harmonising relations between different social groups (children, adolescents, adults; students and teachers; nations and minorities) and creating decent conditions for meeting the vital needs of their representatives.

5. Conclusions

The analysis of the terminological system of German pedagogy based on background dictionaries and lexicons allows us to distinguish the following branches: general pedagogy (*Allgemeine Pädagogik* / *Systematische Erziehungswissenschaft*), history of pedagogical doctrines (*Geschichte der Pädagogik* / *Historische Bildungsforschung*), comparative pedagogy (*Vergleichende Pädagogik*), school pedagogy (*Schulpädagogik*/*Unterrichtswissenschaft*/*Unterrichtsforschung*), preschool pedagogy (*Grundschul-/Vorschulpädagogik*), pedagogy of secondary education (*Pädagogik des*

Sekundarbereichs), special pedagogy represented by defectology, corrective education, speech therapy and inclusive pedagogy (*Sonderpädagogik/Förderpädagogik/Behinder-tenpädagogik*), social pedagogy, which includes social work (*Sozialpädagogik/Sozial-arbeit*), adult education, which includes self-education, postgraduate education and educational and information activities (*Erwachsenenbildung/Erwachsenenpädagogik/Weiterbildung*), intercultural pedagogy, which includes intercultural communication (*Interkulturelle Pädagogik / Interkulturelle Kommunikation*), vocational pedagogy and vocational training (*Berufspädagogik/ Wirtschaftspädagogik*), school studies as man-agement of education and educational institutions (*Theorie der Schule, Theorie des Unterrichts, Theorie des Lehrplans*), related disciplines (*Psychology, Sociology, Biology, Anatomy, Physiology, Ethics, Ästhetics, Fachdidaktiken*). Within these fields, pedagogi-cal directions can be distinguished: *Ausländerpädagogik, Freizeit-, Medien-, Friedens-, Sexual-, Umwelt-, Betriebspädagogik*, etc. The analysis of dictionary definitions, equiva-lent, meronymic and hyper-hyponymic relations between certain terms allows us to distinguish in more detail the groups of pedagogical sciences by type of educational institution, subject, education forms, target group, social or political orientation.

The thesaurus model of German pedagogical vocabulary can be represented as a domain name *Pedagogy*, which is divided into two main term fields: *General Pedagogy* and *Special Pedagogy*. The term field *General Pedagogy* includes three subfields: *System-atic pedagogy, Historical pedagogy* and *Comparative pedagogy*, and the *Special pedago-gies* term field includes five subfields: school, vocational, social, inclusive pedagogy, and adult education. These terms are hyponyms in relation to the hyperonym *Special Pedagogy*. Within each terminology field, a number of specialties can be distinguished, which are areas of activity. Thus, the studied terminology has a complex hierarchical structure that reflects the system of pedagogical concepts and relations between them. The created thesaurus is a static model of logical and conceptual relations between the terms of the pedagogical meta-language. The most significant part of the terms is covered by paradigmatic semantic relations such as genus – species, synonymy, part – whole, correlates. Such a network representation of data is not only of purely applied value, but also allows us to penetrate deeper into the logical relations of pedagogy, to model the analysed terminology system more accurately.

In systematising pedagogical terms, we proceed from the subject and thematic proximity of concepts. *General pedagogical terms* include the designation of the ba-sic concepts of pedagogy, its principles and laws, the names of directions and trends in pedagogical science, and the designation of scientific research methods. Among them, we distinguish the following subgroups: terms of pedagogical typology, names of directions and trends in pedagogy, names of scientific research methods, terms of methodological foundations of pedagogy, etc. *The terms of the theory of education* combine the terms of the typology of education, the content and process of education, its principles, methods and techniques. These include terms for the typology of educa-tion, the content of education, the process of education, its principles, means, methods

and techniques, and the activities of the educator. *The terms of the theory of general and polytechnic education and training* are divided into the following groups: initial concepts and principles of didactics, terms of polytechnic education and training, polytechnic nomenclature, terms of methods and means of teaching, terms of organisational forms of teaching, terms and nomenclature of individual methods, etc. *The terms organisation of public education* include the history of schooling, the management of public education, the organisation of educational work at school, etc. *The terms of the history of pedagogy* have a purely historical meaning.

The terminological space of German pedagogy is made up of social, humanitarian, and natural science knowledge, as well as the exact sciences. The social approach includes sociology, political science (geopolitics, conflict studies), linguistics (sociolinguistics, semiotics), philosophy (anthropology, ethics), psychology (family, gender, pedagogical), socioeconomics, law (penology, juvenile justice, family law), pedagogy and andrology, state and municipal administration, and religious studies. The humanitarian approach includes medicine (medical geography, gerontology, paediatrics, neuroscience, oncology, epidemiology) and ecology (biotechnology). The natural approach includes computer science and statistics. Each term of pedagogy contains information not only of a highly specialised nature but also has a certain socio-cultural content.

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