IMPLEMENTATION OF PEDAGOGICAL MEANS OF DIFFERENTIATION AND INDIVIDUALIZATION AS A BASIC CONDITION FOR AN INCLUSIVE APPROACH IN TEACHING HETEROGENEOUS COLLECTIVES IN PRIMARY EDUCATION

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Abstract
The research focuses on the current trend of increasing the quality of education, which brings with it increased demands on teacher competences in the implementation of differentiated instruction for primary students from the very beginning of schooling. The key subject of the research investigation is the inclusive concept of differentiated instruction, which represents a complex modification of the educational content, process, product and evaluation of the educational process. According to the Strategies of Educational Policy of the Czech Republic until 2030+, ensuring comparable and high-quality teaching in primary schools by introducing internal differentiation and individualization is a key strategy for improving the quality of teaching of heterogeneous collectives. However, teachers are not sufficiently prepared for this reality and there is very little relevant literature. Using a qualitative research design that includes participant observation and semi-structured interviews with seven teachers from three regions of the Czech Republic, this paper seeks to systematically map the implementation of these pedagogical strategies in the years 2021-2023 with first and second year primary students in the subjects of Czech language and mathematics. A multi-case study of seven teachers presents a longitudinal study of the implementation of differentiated teaching strategies with a focus on its inclusive concept, which is reflected in all components of the educational process. This dissertation highlights the urgent need for further research in this critically important area, especially in light of the lack of exploration of pedagogical means of differentiation and individualization in the Czech research field.

Key words
internal differentiation, inclusive education, pedagogical means of differentiated teaching, individualization, qualitative research design

Introduction

In education, there has been a significant shift towards an inclusive approach in recent decades, which has been reflected in many countries and at different levels of education systems. Societal and educational structures have undergone a transformation that has moved from segregating pupils with different kinds of disabilities into isolated institutions, special schools or even excluding them from mainstream education altogether, to integrating them in order to provide them with a basic education. The current situation allows pupils with disabilities to be educated together in standard classes. An

essential element of this transformation is a new understanding of children's individuality and needs, reflecting a paradigm shift in the education system's perception of the individual. This shift conceptualises the pupil as a unique individual with his or her own specific and differentiated needs, as well as a unique inner world. According to Helus (2012), it is crucial to place the learner at the centre of the pedagogical process, which requires adapting teaching to his or her specific needs, based on a combination of humanistic, pedagogical, special education and didactic principles. Hattie (2009) extends this perspective by emphasizing the need to modify the educational content with respect to the needs of the learners. According to the Strategies for Education Policy 2030+, ensuring comparable and high quality teaching in primary schools is by introducing internal differentiation and individualization, which will enable better quality education for heterogeneous collectives of pupils.

In the foreign discourse, differentiation is viewed inclusively as a complex adjustment of all components of the educational process according to the individual aptitudes and abilities of students (Melles & Bellay, 2022; Lauria, 2017; Tomlinson, 2022). The authors emphasize that it is crucial to consider students' readiness, interest in the topic and a learning profile that reflects each student's individual abilities when planning, implementing and evaluating instruction (Melles & Bellay, 2022; Lauria, 2010; Tomlinson, 2022). Inclusive differentiation promotes the creation of a supportive learning environment and recognizes the classroom as a heterogeneous collective with diverse student needs (Tomlinson, 1999; Deunk et al, 2018). High-quality differentiation contributes to effective teaching and increased student engagement regardless of ability and social background (Spratt & Florian, 2015). Systematic teacher support, professional development, and collaboration between school, family, and community are key, and differentiation should be integrated into all components of the educational process (Melesse & Belay, 2022; Gaitas, 2017; Tomlinson, 2022, 2023; McGillicuddy, 2021).

In Czech scientific discourse, internal differentiation is often interpreted as a process of dividing pupils into groups according to their actual abilities. This approach allows the adaptation of teaching content, but lacks an inclusive concept of differentiated teaching. Veselý and Matějů (2010) investigate the implementation of internal differentiation in Czech schools and identify flexible grouping and adaptation of teaching methods as key elements that influence the educational process, highlighting the risk of widening educational inequalities. Navrátilová (2020) analyses the implementation of group work and its impact on learning and pupils' performance. The inclusive concept of differentiated instruction, which would comprehensively include all components of the educational process, has not yet been systematically developed in the Czech Republic.

The aim of the research investigation is to fill this research gap and to contribute to a better understanding of the inclusive potential of internal differentiation in the Czech education system. The object of the research investigation is pedagogical means of differentiated instruction, including methods, procedures and strategies that adapt the educational process to the

individual needs of students, aimed at differentiating content, process, product and assessment with respect to the specific abilities of students (Doubet & Hockett, 2017; Tomlinson, 2018, 2022). The case of teachers and their approaches to differentiation in diverse classrooms is examined, with an emphasis on the main research question: *What pedagogical resources for differentiated instruction do teachers use in planning, implementing, and evaluating instruction in diverse classrooms?* This question focuses on adapting content, goals, process, tasks, and assessment to individual student needs.

The research methodology includes key educational concepts such as Bloom's revised taxonomy (Krathwohl, 2001), Vygotsky's zone of proximal development (ZPD), and Bruner's concept of scaffolding (Bruner, 1984). The research study contributes to inclusive education by developing the Inclusive Differentiation Model, which incorporates a comprehensive approach to differentiating all components of the educational process and allows for dynamic adaptation of instructional strategies based on ongoing evaluation of student development, thus effectively enhancing inclusivity in heterogeneous school populations.

1.Theoretical background of the research

The theoretical part will present pedagogical means of differentiated teaching, which include methods, procedures and strategies used to adapt the educational process to the individual needs of students. These means are implemented in the differentiation of the content, process, product and evaluation of the educational process, taking into account the specific aptitudes and abilities of each student (Doubet & Hockett, 2017; Tomlinson, 2018, 2022). Finally, the author's Inclusive Differentiation Model will be presented, which integrates these resources into a comprehensive framework.

In the context of means of differentiation, it is crucial to first define the concept of intrinsic differentiation. Instructional differentiation is defined as the use of proactive, flexible planning and inclusive methods to create adequate learning experiences that meet the needs of all students in heterogeneous classrooms (Melles & Bellay, 2022; Lauria, 2010; Tomlinson, 2022). Differentiation of instruction at the whole class level focuses on modifying content, process, product, and assessment to address individual learners' assumptions and preferences.

The authors (Melles & Bellay, 2022; Lauria, 2010; Tomlinson, 2022) are in agreement that in planning, implementing and evaluating differentiated instruction, it is essential to consider the readiness of students, i.e. their abilities and skills in a particular subject, their interest in the subject or topic, and their learning profile, which includes the individual abilities and aptitudes of each student. This approach ensures that the pedagogical resources of differentiated teaching systematically reflect the diversity of pupils and promote inclusive education.

1.1 Differentiation of educational content

Differentiated instruction emphasises the key role of structuring content to best suit the diverse needs and abilities of learners. In this context,

it is important that content is tailored to reflect learners' individual goals and needs, allowing for targeted support for their personal learning journeys. Adaptation of content within a differentiated approach is essential to enable each pupil to work at their own level. According to Tomlinson (2017), content is the input to teaching and learning (Doubet & Hockett, 2017; Mellesse & Bellaye, 2022; Tomlinson, 2017). Content differentiation involves two key strategies. The first strategy involves tailoring the content to the individual needs of students, which maximizes the effectiveness of instruction by ensuring that each student is working with material appropriate to his or her abilities. The second strategy focuses on modifying methods and making content accessible, allowing students to process the same material in different ways and achieve higher quality and more meaningful understanding (Tomlinson, 2017; Doubet & Hockett, 2017, 2022; Mellesse & Bellaye, 2022).

The content of the curriculum is defined in the Framework Curriculum for Primary Education and further specified in individual school curricula. The expected outcomes, which are binding, serve as a benchmark for the classification of pupils. The minimum level of mastery of the outcomes is set in accordance with the School Curriculum. On the recommendation of the pedagogical-psychological counselling centre, the outcomes may be modified for pupils with special educational needs, including reduction of the objectives to the minimum level according to the Framework Educational Programme. It is necessary to analyse how these modifications affect the processes of individualisation and differentiation in teaching, with differentiation of objectives playing a crucial role. This aspect will be discussed in detail in the following section.

1.2 Differentiation of lesson objectives

The differentiation of lesson objectives focuses on the formulation of clearly defined objectives that are based on a core curriculum representing the minimum range of knowledge necessary for instructional time, with the potential to support further student development. The extended curriculum includes elements focused on the development of social skills, emotional intelligence, self-reflection, critical thinking and creativity, accessible to all pupils (Tomlinson, 2007). This flexible approach allows the teaching to be tailored to the specific needs of pupils and to support their individual development.

Learning tasks are an essential tool for achieving learning objectives, as they allow the content, difficulty and progression of learning to be adapted to the individual needs of students. They include three main aspects: content, operational and motivational (Helus, 2005). The content aspect is based on socio-historical experiences and structures the learning, thus ensuring relevance and continuity. The operational aspect involves learners' activities, reflecting different levels of difficulty, volume and time demands, which are adapted to individual needs. The motivational aspect focuses on learners' interests and needs, increasing their engagement in the learning process. This approach is supported by research by Doubet and Hockett (2017) and

Tomlinson (2017), which highlights the importance of differentiation for effective teaching and the achievement of learning goals.
These principles provide a conceptual framework for the differentiation of objectives, which is further illustrated in Table 1.

Table 1 *Theoretical conceptual framework of target differentiation categories*

Approaches to differentiation of objectives based on the RVP	Detailed description and practical application
Differentiation by interests	Setting learning objectives that reflect the specific interests of the learners is key to enhancing their motivation and engagement. This approach involves creating tasks and projects focused on different areas of interest in the classroom, leading to the individualisation of the learning process.
Differentiation by readiness and ability level of students KUDs Tomlinson (2017)	Adapting learning objectives to the different ability levels of pupils enables different needs within the classroom to be effectively addressed. This approach promotes the development of students' individual skills through differentiated tasks that respect their unique abilities and prior knowledge.
Differentiation by time	Adapting learning objectives to the time needs of students is essential to achieve a deeper understanding of the material. This approach allows students who need more time to practice and master the material at their own pace, leading to more effective and comprehensive learning.
Differentiation according to the specific needs of pupils	Creating learning objectives that reflect the individual needs of all pupils. Objectives are adapted to meet specific needs; for pupils with special needs, content is narrowed and adapted, while for gifted pupils, content is expanded to include extra-curricular material.

Author's own work

The theoretical framework of goal differentiation is a key tool for teachers who want to effectively differentiate instruction and provide students with optimal conditions for their personal and academic development. It allows teachers to purposefully modify the content of instruction to match students' interests, abilities, time needs and specific requirements, leading to higher motivation and better results.

1.3 Differentiation of the teaching process in a heterogeneous group of students

Another key component of differentiation is the learning process, which, as Tomlinson (2001) states, involves activities through which students acquire the content presented. This process includes differentiation of teaching methods, tasks, selection of materials and aids, as well as flexible pace of learning and the level of support provided (Coubergs et al., 2013). Tomlinson (2017) states that quality teaching is based on thoughtful planning of

strategies tailored to the needs of individual learners. An effective plan includes modifying content, methods, and developing four main components: knowledge, understanding, dispositions, and skills (KUDs) (Doubet & Hockett, 2017). Knowledge is the body of information and facts necessary to solve tasks, while understanding helps to connect new knowledge to previous experiences, thus ensuring more sustained learning. Skills are practical abilities that enable students to use knowledge effectively, including critical thinking, problem solving, and communication, which are essential for mastering complex tasks. Readiness reflects pupils' overall personal development in the cognitive, emotional and social domains. Research also points to the need for differentiated instruction in heterogeneous classroom teams. (Deunk, 2017; Doubet & Hockett, 2017; Tomlinson, 2017, 2022).

1.4 The learning task in the context of differentiated instruction

In didactic literature, it is often understood as a tool for practical and theoretical activities that lead to the acquisition of knowledge and skills (Janiš & Ondřejková, 2006). Slavik (2017) refers to the learning task as "the practice of all practices", which forms the basis of all educational activities. Nightingale considers the learning task to be the *"central prototype"* that is characteristic of all variants of educational practices and determines their specific educational character, the "practice of all practices" or the "queen" of all practices. The teaching task is "an intentional phenomenon, an implicit or explicit command, at the same time a stimulus to improve, correct or eliminate a deficiency. In the most general sense, learning tasks are a natural and necessary part of life, in which each individual is constantly confronted with the need to solve problem situations that simultaneously bring lessons to him or her (Slavik et al., 2017, p. 149).

Tomlinson (2005) and Doubet and Hockett (2017) highlight the importance of differentiated tasks that are designed with the individual needs of pupils in mind in order to support their cognitive development. Semradova (2022, 2023) argues that these tasks not only stimulate critical thinking and promote independence, but also develop pupils' ability to apply their acquired knowledge in new contexts. Stech (2021) also emphasizes the key role of implementing supportive concepts such as the zone of proximal development (Vygotsky, 1978) in solving differentiated tasks.

1.4.1 The zone of proximal development and its importance in solving the learning problem

The concept of the zone of proximal development (Vygotsky, 1978) is a key element in the analysis of educational processes, revealing the difference between an individual's actual abilities and those that can be achieved with the support of a teacher. This concept offers a sophisticated understanding of learners' potential and reveals new dimensions in the educational process, linking developmental psychology, learning psychology and educational psychology (Vygotsky, 1978).

Vygotsky (1978) points out that every psychological function first emerges at the social level and is then internalized at the individual level, contrasting this with Piaget (1966) who considers speech to be initially egocentric, gradually

changing to social. The child develops psychological functions through communication and cooperation with the environment (Vygotsky, 1978). Vygotsky further emphasizes that functions that emerge in interaction with others are gradually transferred to the level of individual thinking, allowing learners to apply new concepts and solve problems independently, with a decreasing need for external support. This approach fosters the development of autonomous thinking and independent application of acquired skills (Vygotsky, 1978). Bruner (1976) builds on Vygotsky's theory with the concept of scaffolding, which provides a support structure that enables learners to progress to higher levels of understanding. This approach involves motivating, guiding and controlling the learning process, thereby promoting independent thinking and autonomy for learners. Dynamic Assessment (DA), associated with the zone of proximal development, assesses the potential of learners through an interactive process that involves not only measuring current abilities but also their development with adequate support (Poehner, 2008; Lantolf & Poehner, 2014).

1.4.2 The concept of Bloom's revised taxonomy of educational objectives (Krathwohl et al., 2001) and its implementation in a learning task

The revised Bloom's Taxonomy of Educational Objectives (Krathwohl et al., 2001) is an important theoretical framework for systematizing educational objectives and linking them to levels of cognitive processes, which is crucial for differentiating instruction. The original version by Bloom (1956) included six cognitive levels: knowledge, understanding, application, analysis, synthesis, and evaluation. The revised model (Krathwohl et al., 2001) extends this concept to a two-dimensional structure that includes types of knowledge in addition to cognitive processes. This model focuses on the cognitive domain, as opposed to the original version, which also included affective and psychomotor domains. Nevertheless, it acknowledges that cognitive goals may include affective elements, such as the development of attitudes towards learning tasks, but explicitly focuses on cognitive processes.

The metacognitive knowledge integrated in this taxonomy is central to learners' ability to plan, monitor and evaluate their own learning progress**,** including setting goals, choosing strategies, monitoring progress, identifying errors and making adjustments based on feedback (Krathwohl et al, 2001). The revised version of Bloom's Taxonomy of Educational Objectives (Krathwohl et al., 2001) makes major changes in the concept of cognitive processes, such as changing the concept of understanding to comprehension, which represents active processing of information and promotes critical thinking and application of knowledge in a variety of contexts. Another significant change is the replacement of synthesis with the dimension of create, which emphasizes creative thinking and problem solving, reflecting the incorporation of creativity into educational goals (Krathwohl et al., 2001). The dimensions of cognitive processes are expressed through verbs that identify thinking activities such as remembering, understanding, applying, analyzing, evaluating, and creating, supporting the development of metacognitive skills and effective instructional management (Krathwohl et al., 2001).

Czech and international research studies have repeatedly confirmed the importance of the revised Bloom's taxonomy (Krathwohl et al., 2001). Rule and Lord (2003) integrated the levels of the revised Bloom's taxonomy of learning objectives (Krathwohl et al., 2001) into curriculum units, which led to increased student engagement and improved learning outcomes. In the Czech context, Semrádová (2022, 2023) further extended these findings and demonstrated that differentiation of learning tasks increases students' motivation and engagement in the educational process. Table 2 presents a conceptual framework for the application of taxonomy in differentiating tasks by difficulty. This framework illustrates how scaffolding (Bruner, 1984) facilitates students' transition from easier to more difficult tasks. The approach allows tasks to be tailored to the individual needs of learners while promoting their cognitive development and autonomy in the learning process. Autonomy, according to Ryan and Deci (2000), is a key psychological need that motivates pupils to develop independent thinking and decision making.

Table 2 Conceptual framework for the implementation of the revised Bloom's taxonomy and scaffolding support in differentiating learning tasks by difficulty

Categories according to Bloom's revised taxonomy (Anderson & Krathwohl, 2001)	Tasks by difficulty	Use of support (Scaffolding)
Remembering	Problems aimed at mastering facts, definitions and background information use concept maps and repetition to reinforce key knowledge	The use of visual aids such as pictures and diagrams, along with simple instructions to review key information.
Understanding	Tasks aimed at explaining concepts and reformulating information develop students' ability to analyse and reproduce knowledge in their own words. Their complexity gradually increases from basic interpretations to detailed analyses.	Leading discussions with questions and linking new information to already known facts. The teacher gradually reduces the number of questions so that students can formulate answers independently.
Application	Tasks aimed at applying the knowledge learnt, e.g. calculating practical examples or carrying out simple experiments.	Modeling problem solving and then gradually removing support (hints and demonstrations) so that students can independently apply what they have learned.
Analysis	Tasks where pupils recognise relationships and analyse information, such as sorting pictures, analysing text with an emphasis on key points or interpreting graphs and diagrams.	Providing analytical tools, such as graphs or Venn diagrams, to facilitate analysis and understanding of relationships between information.
Rating	Critical evaluation tasks, e.g. comparing two solutions, choosing the best option or defending your own opinion.	Sample assessments and feedback from the teacher that gradually leads students to reflect independently and defend their conclusions.
Creating	Tasks that encourage creative work, such as creating your own projects, stories or designs. Pupils	Creative prompts and support strategies help students structure their work, with progressively

	are asked to invent new products or solutions.	less guidance, to achieve independent creativity.

2. Methodological part

2.1 Methodological design

The research problem of the study is the analysis of differentiated teaching at the primary level of primary schools, the aim of which is to map, through a multi-case study, how differentiated teaching is implemented and how it contributes to inclusive education in heterogeneous groups of pupils. This research is conditioned by the need to respond to the diversity of learning needs and abilities of pupils in different classes, which is crucial in the current context of inclusive education. Current practice shows the lack of preparation of many teachers to effectively implement differentiated instruction, as well as the lack of relevant literature and empirical studies in this area. This fact underlines the need to develop teachers' professional competences and to broaden their knowledge of pedagogical practices that enable them to respond effectively to the diversity of pupils. The research objective is divided into three specific goals: professional, practical and individual (Maxwell, 2013). The professional goal consists of expanding knowledge about differentiated instruction methods and identifying effective practices in heterogeneous classrooms, which fills gaps in Czech research and provides a basis for formulating research questions. The practical goal focuses on the identification and analysis of key dimensions necessary for the implementation of differentiation in education, in line with the Strategic Plan of the Czech Education Policy 2030+ (Fryč et al., 2020). The researcher's individual goals focus on the application of the findings in his/her own pedagogical practice and the improvement of didactic approaches when working with heterogeneous groups of students, including the enrichment of the preparation of future teachers.

The research investigation focused on the analysis of pedagogical means of differentiation of content, process, product and evaluation in the context of planning, implementation and evaluation of the educational process in diversified classrooms. The research draws on theoretical frameworks that emphasize the importance of a differentiated approach in education (Doubet & Hockett, 2017; Tomlinson, 2017, 2022) and is grounded in the main research question: *What pedagogical resources of differentiated instruction do teachers use in planning, implementing, and evaluating instruction in a diverse classroom?* This question explores how educators adapt their instructional strategies, content, and assessment methods to reflect the diverse needs and abilities of students in heterogeneous classrooms. To complement the main research question, specific questions were formulated to enable a deeper analysis of pedagogical approaches and their impact on teaching effectiveness. These questions contributed to a more in-depth understanding of differentiation and provided a framework for data collection and analysis, thereby supporting the validity of the research and facilitating a structured evaluation of different pedagogical approaches

2.2 Selection of the research sample and overview of respondents

For the selection of respondents in the research study, an analysis of the School Education Programmes (SEPs) of individual schools was carried out with a focus on differentiated instruction and the individual needs of pupils. The selected female teachers were included based on their active approach to differentiated instruction and their significant role in implementing inclusion in the school environment. The selection of the teachers was carefully consulted with school leaders, providing insight into their teaching methods and experiences, which are key to analysing differentiated approaches in real teaching situations. To ensure the reliability of the selection, individual interviews were conducted with school principals and the seven selected respondents, which provided a more detailed perspective into their professional backgrounds. The research sample was drawn with regard to the length of teaching experience, varied experiences with differentiated instruction, and other aspects of the respondents' professional development. This sample includes teachers with teaching experience ranging from 2 to 30 years, ensuring a representative range of approaches and methods in teaching. Ensuring variability in years of experience and teaching approaches allowed for detailed comparison and analysis of differences in differentiated teaching strategies across different school settings. The research focused on analysing the use of pedagogical resources and strategies for differentiated instruction during the planning, implementation and evaluation of the educational process and identifying key factors that contribute to the effectiveness of differentiated instruction.

Table 3. *Analysis of the respondents of the survey*

Teacher's name	School	Practice	Focus of respondents
Veronica	Elementary school Polabí	8 years	Focus on adaptation of methods in a heterogeneous team, development of skills in inclusive education, regular training on inclusive education and differentiation of teaching methods.
Ivana	Elementary school Polabí	15 years	Planning learning situations with an emphasis on the content and objectives of teaching, adapting learning objectives to the specific needs of students.
Simona	Elementary school Hradečanka	5 years	Specializing in differentiated instruction, collaborating with a team of experts to support students with specific needs, using diagnostic methods and tools to identify reading needs.
Šárka	Elementary school Hradečanka	20 years	The use of differentiated learning methods, adaptation of learning content, processes, products and assessment according to the individual needs of students, focus on differentiation of learning tasks in mathematics.

Clara	Primary School of Žižkov	12 years	Implementation of individualized pedagogical approaches for pupils with special educational needs, focus on reading skills, differentiation of content and teaching methods.
Lenka	Primary school Ostřeší	30 years	Application of differentiated teaching methods, participation in training for the development of pedagogical competences, adaptation of teaching to heterogeneous class composition.
Vlaďka	Peškova Primary School	11 years	Focus on creating a learning environment that respects the individual needs of pupils, effective planning, implementation and evaluation of differentiated instruction.

2.3 Data collection methods

The research design of this study was based on a qualitative approach involving participant observation and semi-structured interviews, which allowed for a detailed analysis of the implementation of differentiated instruction in a real school setting. The participant observation was conducted directly in the classrooms where differentiated instructional methods were applied, thus capturing the dynamics of the instructional process in its natural environment. This approach allowed the researcher to interact with teachers and students and to obtain data not only on the verbal but also on the non-verbal elements of the learning environment. The observation was conducted in three phases according to Spradley's (1980) model: a descriptive phase to gain an orientation to the environment, a detailed phase focusing on specific pedagogical practices and differentiated teaching strategies. This structured procedure allowed for the capture of different dimensions of the teaching process, including how teachers adapted instruction to the individual needs of students. Semi-structured interviews were used as a complementary method to observation, aiming to gain information about teachers' pedagogical decisions and strategies. These interviews were conducted with teachers and school administrators and were designed around the main and specific research questions related to the use of differentiated instruction and its methods. The semi-structured interviews provided valuable insights into the subjective experiences of the respondents, which were subsequently analysed using the coding system in MAXQDA 2022.

Analysis of school documents such as school curricula, assessment records and pupil portfolios provided further context for interpreting the findings from the observations and interviews. This documentation was key to understanding the ways in which differentiated instructional strategies are implemented in the learning process and how they are anchored in curriculum documents. The combination of participant observation, semi-structured interviews and document analysis enabled the development of comprehensive case studies that detail the implementation of pedagogical means of differentiation. This integrated methodological approach has contributed to a more effective understanding of the processes of teaching

differentiation, thus contributing significantly to the achievement of the research objectives.

2.3.1 Comparison and cross case analysis

For data analysis, case reports were created for each case studied, which included data obtained from observations and interviews. The case reports provided a holistic view of the issue and allowed for the linking of different sources of information. The interviews with teachers conducted in Stages 1 and 2 of the research were recorded on a dictaphone, transcribed into electronic form and subsequently analysed. At the same time, the texts were annotated and provided with comments with interpretative potential, which facilitated further code development. This approach ensured that all key aspects of pedagogical practices and methods used in the implementation of pedagogical means of differentiation in Czech language and mathematics were captured. The semi-structured interviews were coded in MAXQDA 2022 using a colour coding system. Codes were clustered by similarities into categories that revealed analytic structures and patterns in the data (Strauss & Corbin, 1999). For accuracy and systematicity of analysis, a code book was created for each case, containing a summary of all categories and corresponding codes. This procedure allowed for efficient comparison of key categories across cases. The individual codebooks were then printed, cut out and physically clustered into final categories at the highest level of abstraction. This process led to the integration of the coded categories and the creation of descriptions of the phenomena under study based on data comparisons between cases. The comparative approach revealed key patterns and differences in pedagogical practices between teachers, which allowed for the identification of both common and specific characteristics of each case. The key categories derived from the comparison were graphically represented using Drawio, which provided a clear and understandable graphical output for effective presentation and interpretation of the results. The results of the analytical coding enabled the development of specific categories for comparative analysis across the seven cases studied, leading to the formulation of a theory to characterise the use of pedagogical resources for differentiated instruction in planning, implementation and evaluation.

3. Results of the research investigation

3.1 An empirical analysis of the categories of educational content planning and differentiated learning objectives

Based on a comparative analysis conducted using MAXQDA 2022 software and the application of cross-curricular and constant comparative methods, I identified three key categories of educational content differentiation that were consistently applied across the seven cases studied in planning the educational process. The analysis is based on the second specification question, "*Do you plan learning situations with specific pupils in mind, both in terms of the content of the learning and the stated learning objectives? "*The first category is the Core Curriculum as set out in the RTP, which forms a common foundation that meets the minimum standards and outcomes for all pupils as defined in the Framework for Education. The second category,

the Narrowed Curriculum for pupils with special needs, focuses on the development of individual learning plans based on the recommendations of the counselling facilities. Significantly, in three cases (teachers Lenka, Ivana and Šárka) it was found that teachers differentiate the curriculum in the planning area and create pedagogical support plans based on the needs and expectations of the pupils. These plans serve as a preventive measure for pupils before visiting the pedagogical-psychological counselling centre (PPP) and before a possible psychological examination. The last category, Enriched curriculum for above-average and gifted pupils, was applied by all but two teachers, demonstrating the desire to develop the potential of above-average and gifted pupils through an enriched curriculum.

The analysis confirms that respondents effectively implement differentiation methods that support a wide range of students' learning needs and aspirations, which improves the focus and effectiveness of instruction. Table 4 presents the application of the key categories of differentiation of learning objectives by the seven female teachers in their teaching practice.

Table **4** *Categories of goal differentiation in the educational process*

Category / Teacher	Differentiation of objectives according to the specific needs of pupils and pupils with SPU	Differentiation of objectives with regard to the time possibilities of the pupils	Differentiation of goals according to the needs and abilities of pupils based on pedagogical diagnostics	Differentiation of objectives according to interests and linking objectives in interdisciplinary contexts	Extension of targets for gifted pupils
Veronika (Elementary school Polabí)	Support plans as prevention before support measures, then creation of ind. education plans according to PPP recommendations.	Flexible time frame, adapting the pace of teaching according to individual needs and pace of learning.	Diagnostic methods (observation, testing, analysis) to determine needs, cooperation with PPP.	Projects and tasks based on students' interests (e.g. animals) to motivate, connect to the real world.	Adaptation of activities to support the gifted in areas such as science, mathematics.
Ivana (Elementary school Polabí)	Individual plans based on diagnosis and recommendations, cooperation with PPP.	Adapting the pace of teaching to time needs, ensuring sufficient time for learning	Application of individual approaches according to needs and interests, integration of KUDs.	Planning objectives linking different disciplines, reflecting pupils' interests.	Extended curriculum and projects for the gifted

Šárka (Elementary school Hradečanka)	Individual plans for pupils with reading difficulties, use of expert recommendations, cooperation with a psychologist.	Adapting the pace and organisation of teaching to needs, providing space for learning.	Use of specific diagnostic methods (e.g. iSophi), targeted strategies.	Integration of content across disciplines, projects that match students' interests.	Expanding the curriculum and activities, promoting the development of critical thinking.
Simona (Elementary school Hradečanka)	Individual education plans for pupils with learning disabilities, specific methods and materials for reading, cooperation with counselling centres.	Adapting the organisation and pace of the lessons to individual time needs.	Diagnostic methods for determining needs, focusing on reading skills.	Projects and activities linking different disciplines, taking into account students' interests.	Expanding the curriculum for gifted pupils, supporting talent development.
Klára (Zizkova Elementary School)	Individual goals for pupils with special needs, pedagogical support plans.	Adjusting timetabling, reducing the number of targets for pupils with limited time.	Setting targets according to diagnosis, focusing on maths for pupils with difficulties.	Planning objectives reflecting pupils' interests and linking to other areas.	Expanding targets for gifted pupils, supporting their development.
Lenka (Elementary school Ostřeší)	Individualized goals, pedagogical support for students with needs, flexible timing.	Adapting learning objectives to individual needs and time constraints.	Use of diagnostics for goal setting, application of KUDs for learning support, iSophi (Pekarkova& Svandova, 2022)	Integration of students' interests into educational goals, interdisciplinary approach.	Setting extended goals for gifted students, using the revised Bloom's Taxonomy.
Vlaďka (Peškova Elementary School)	Developing individualized plans for students with needs, flexible scheduling.	Adaptation of learning objectives to individual needs and time availability.	Use of diagnostics for goal setting, application of KUDs to support learning.	Integration of students' interests into educational goals, interdisciplinary approach.	Setting extended goals for gifted students, using the revised Bloom's Taxonomy.

3.2 Empirical analysis of the effectiveness of scaffolding in education

In the context of differentiated instruction, which emphasizes individual differences between students, scaffolding is a key element (Van de Pol, Volman & Beishuizen, 2010; Dube, Bessette & Dorval, 2011). This approach allows teachers to adjust the difficulty of tasks and gradually reduce the level of scaffolding as pupils achieve greater independence and develop their skills, optimising their learning outcomes and helping to realise each pupil's potential. Veronica's teacher effectively implements scaffolding (Bruner, 1984) by using differentiated tasks structured according to difficulty, gradually moving from basic operations to more challenging tasks. This approach promotes the development of cognitive skills in the zone of proximal development (Vygotsky, 1984) and reflects the principles of

Bloom's revised taxonomy (Krathwohl & Anderson, 2001). By reducing the level of assistance, Veronika encourages the development of independence, critical thinking, and evaluation in students. Ivana applies scaffolding in graded tasks, which she differentiates according to difficulty and volume, thus promoting individual student pacing.

Simona implements scaffolding to develop visual and cognitive skills through tasks of gradually increasing difficulty, which increases students' analytical and interpretive skills (Sindelarova, 2016). Sharka uses a revised Bloom's taxonomy (Krathwohl & Anderson, 2001) to structure tasks according to cognitive difficulty, while Klara applies scaffolding to gifted learners, enhancing their higher cognitive processes and gradually increasing their autonomy (Doubet & Hockett, 2017). Teacher Lenka uses scaffolding (Bruner, 1984) to adapt instructional materials for students with reading difficulties, incorporating text modifications and visual aids such as graphic organizers and mind maps to **structure** information and facilitate comprehension. The teacher differentiates tasks by time parameters, which allows students to work at their own pace, reducing stress and providing ample time to master the tasks (Snowling & Hulme, 2012; Novak & Canas, 2008).

Table 5 presents the comparison of categories (scaffolding) for the respondents.

Table 5 *Scaffolding categories, comparisons of respondents*

Teacher	Support scaffolding
Veronica	Spelling support (adapted dictations, shortening texts, highlighting errors), visual support in spelling teaching (help words on the desk), extension and adaptation of the curriculum (more complex tasks, logic puzzles), support for independent creation and creativity (own projects, tasks), application of the curriculum in practical projects (deepening understanding)
Ivana	Collaboration with a psychologist, ongoing diagnostic checks, differentiated self-assessment sheets, use of smileys, contract for absent pupils.
Šárka	Modification of dictations and teaching exercises (simplification of dictations, adaptation of exercises), differentiation of teaching materials and texts (highlighting of key words, use of differently difficult texts), use of compensatory aids (reading rulers, special software programs), time consideration in assigning tasks, implementation of digital technologies, support for scaffolding in reading.
Simona	Pupils with visual differentiation problems: presentation of texts with larger fonts, choice of colour schemes, adapted materials; pupils with learning difficulties: adapted text typography, paired reading, guided reading method, compensatory aids; pupils with difficulties in mathematics: simpler tasks, highlighting key words; gifted pupils in mathematics: more complex problem tasks
Clara	Cooperation with a special educator, the use of compensatory aids and diagnostic tests, half-days of Czech lessons focused on intensive work, individual approach to pupils. The promotion of structural cognitive modifiability by the Feuerstein method of FIE (Feuerstein, rand, & Rynders, 1988) enables pupils to actively reorganise their thought processes and achieve a higher level of cognitive flexibility.
Lenka	Differentiation of teaching materials and texts, use of compensatory aids, modification of dictations and teaching exercises, time consideration in assigning tasks, highlighting key words in the text, implementation of digital technologies
Vlaďka	The use of Bloom's revised taxonomy includes categorizing learning objectives according to levels of cognitive processes (memorization, comprehension, application, analysis, synthesis, evaluation) and promoting critical thinking. The materials are adapted to the different abilities of the students.

In summary, scaffolding Bruner (1984) is a key element of differentiated instruction that includes various forms of visual and auditory support, task structuring, differentiation of instructional materials, and ongoing diagnosis.

Conclusion

Current research confirms that inclusive differentiation is a key tool for adapting the educational process to the individual needs of pupils, involving application in all components of teaching, such as content, methods, assessment and pedagogical support. This approach enhances the quality of education, motivation and supports the academic and personal development of pupils. However, analyses show that inclusive differentiation is not always fully used and is often limited to group work or task differentiation, while other aspects remain poorly integrated (Gaitas, 2022; Deunk, 2018; Finklstein, 2019). Effective implementation requires targeted professional development for teachers, support from school leadership and collaboration with experts. Successful implementation of this approach requires systematic planning, quality support and continuous teacher development, which is essential for improving inclusive education systems.

4. Model of inclusive differentiation

Within the research investigation, I have developed comprehensive and structured theoretical frameworks that contribute substantially to the understanding and implementation of differentiation in the educational process. These frameworks provide teachers with applicable strategies for adapting instruction to the individual needs of students, including those with special educational needs, and are analysed and presented in detail in my dissertation, using clear tables for practical application. The content differentiation framework provides a structured approach to tailoring the learning material according to the different knowledge and abilities of the pupils, ensuring that it is accessible and relevant to all pupils. This approach allows each pupil to work with materials that meet their individual learning needs, contributing to an effective inclusive learning process. The goal differentiation framework focuses on adapting learning goals based on the individual potential of pupils. It enables teachers to set objectives that are realistic and achievable, respecting different levels of ability and knowledge. This approach promotes the development of personal and academic skills in all pupils, including those with lower educational achievement. The Differentiation of Instructional Strategies and Methods Framework provides teachers with guidance on the selection and application of methods and strategies adapted to the specific needs of individual students. The framework for differentiating learning tasks offers an approach to creating and adapting tasks that match pupils' abilities, increasing their intrinsic motivation and interest in learning. The framework for differentiating feedback and assessment enables teachers to tailor assessment and feedback to be motivating and reflective of individual pupils' development. The inclusive differentiation model in Table 6 represents an innovative approach that integrates the key components of the educational process, i.e. content, process, product and assessment, into a coherent system. This model enables teachers to effectively adapt instruction to the diverse needs of learners, including those with specific learning needs, which increases the effectiveness of instruction and promotes inclusion. The model of inclusive

differentiation that I have developed, which has not yet been systematically elaborated in the literature, represents an innovative approach with significant potential for inclusive education, while its effectiveness and practical application require further theoretical and empirical research investigation.

Model of Internal Differentiation in Inclusive Concept - Semrádová (2024)

An approach to teaching and learning in which teachers proactively plan, implement and evaluate adjustments to instruction based on assessments of students' learning needs in order to maximize student learning in a supportive and stimulating environment.

Creating appropriate conditions for learning, including quality instruction, adapted content, a stimulating environment and ongoing assessment, is a key factor in effective differentiation and meeting the learning needs of students.

Pre-teaching baseline and goal planning	**Differentiated teaching - implementation of the teaching process**		
Selection of curriculum, teaching according to the needs of the students. Diagnostic assessment: determination of the baseline level of knowledge and skills of pupils (cooperation with experts)	**Adaptation of content, process and product and learning environment based on the readiness, ability, aptitude - learning profile of the students. Tomlinson (2017, 2022)**		
Planning the content and organisation of an adaptive learning unit	**Differentiation of goals, e .g.**, by ability, by specific needs of students, differentiation of goals by time, by student interests, goal planning based on the revised Bloom's taxonomy (Anderson & Krathwohl, 2001)		
Planning strategies and methods for differentiated instruction	**Strategies and methods and their implementation in differentiated instruction:** RWCT (Reading and Writing for Critical Thinking), Quintuplet, INSERT, Diamond; digital mind maps; Mastery Learning; differentiated instruction; centers for students with SPU (specific disabilities); reading and math groups; open-ended questions; error-free learning; structured reading workshops (differentiation of instruction and materials according to the needs and abilities of students in heterogeneous groups).		
Individual planning - the same learning objectives for the whole class or for groups. Decisions to adapt based on assessment or pupil interests	**The individual approach** takes into account the different needs and abilities of pupils in heterogeneous classes. Each pupil progresses at their own pace, either through standard tasks or specific support from the teacher. For pupils with SPU, such as dyslexia or dysgraphia, adaptations such as enlarged fonts, visual aids and technological tools (e.g. text-to-speech) are implemented to facilitate working with text. Gifted students solve more complex tasks and are involved in projects that develop their critical thinking skills. Collaboration, and feedback support individual progress and critical thinking development.		
Planning and modelling of homogeneous, heterogeneous and flexible groups	**Homogeneous groups**	**Heterogeneous groups**	**Flexible groups**
Objectives of the groups	Same learning objectives for the whole class or for groups in the class	Same learning objectives for the whole class or for groups	CLearning objectives are tailored to each group's needs and interests
Formation of groups	Teachers base decisions about appropriate accommodations on some form of assessment (or on the interests of the student). Groups of pupils with the same or similar abilities.	Teachers base decisions about appropriate accommodations on some form of assessment (or on student interests).	Teachers regularly rotate groups based on ongoing assessment and student needs.
Work in groups	Pupils (depending on their performance or interest) are offered different teaching methods, tasks are prepared in advance and differentiated according to their abilities.	In these groups, differentiation of tasks according to difficulty and forms of scaffolding is crucial so that each student can work on tasks appropriate to their abilities and needs (Bruner, 1984).	**Flexible groups** in the form of learning centres - centres focusing on specific skills allow the transition between activities according to the needs and interests of the students.
Planning the differentiation of the learning task according to difficulty	**Planning the differentiation of the learning task** according to difficulty: adapting learning tasks to students' abilities and aptitudes includes differentiation according to their readiness, reflecting differences in their knowledge and skills. Layered learning tasks provide different levels of complexity that aim at the same learning goal. Bloom's revised taxonomy (Krathwohl et al., 2001) differentiates learning tasks by cognitive level, allowing each student to work at his or her current level.		
Planning the differentiation of the learning task according to the volume	Differentiation of the amount of learning task: adjusting the amount of learning tasks of the same assignment based on individual abilities and specific needs of students. For students with learning difficulties, differentiation involves shortening the text and reducing the amount of homework, while for advanced students it involves expanding the material to include additional homework.		
Planning the differentiation of the learning task according to time	**Differentiating the time frame of a learning task:** Setting individually tailored time limits for learning tasks based on students' ability and rate of learning. Flexible timeframes allow for continuous monitoring of pupils' progress and adaptation of time limits to their individual needs.		
Planning the differentiation of the learning task in terms of scope	**The depth-basedadjustment of the task** range includes three levels: abbreviated, basic and extended. The basic level focuses on the acquisition of factual knowledge and basic understanding of the topic. The advanced level covers a wider range of material and encourages analytical thinking. Additional tasks enrich the context and motivate students. Creativity tasks encourage innovation and expressive skills, and tasks for pupils with SPU are adapted with interactive methods to ensure pupils are supported.		
Task support planning (scaffolding - Bruner, 1984)	**Scaffolding for pupils with specific learning difficulties** includes shortening texts, visual highlighting of key concepts and bolding of important terms. Differentiated texts with wider line spacing are used to improve reading readiness. Interactive learning is supported by visual and tactile elements such as simulations and educational games. Extended critical thinking and creativity tasks are implemented for gifted students.		

Formative assessment: ongoing feedback on pupils' progress. Self-evaluation: pupils' reflection on their own learning and progress. Feedback: Providing feedback to improve learning strategies and outcomes.

After teaching - systematic evaluation of learning objectives

A systematic evaluation of targets is carried out after the end of the session, leading to new planning and identification of pupils requiring more intensive support or challenge. Reflection on the results allows for the implementation of adjustments in strategies and content with a view to developing the long-term effectiveness of pedagogical approaches. Self-evaluation supports pupils in their ability to reflect on their progress and provides feedback for the next stages of learning (Slavík, 1999; Průcha & Kolář, 2009). Peer assessment enhances social interactions and constructive feedback work (Tomlinson, 1999).

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