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Title:

**INDIVIDUALIZATION AND DIFFERENTIATION
OF THE PEDAGOGICAL INTERACTION
IN KINDERGARTENS**

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The Abstract follows the structure of the dissertation and preserves the original numbering of tables and figures included therein.

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INTRODUCTION

Our century's dynamically-changing world and its democratic spirit allow for more pronounced individual differences, increasingly accepted mostly as advantages and as potential that needs to be utilized effectively. In the context of contemporary inclusive education, it is very important to ensure a field of expression for each child and, on a wider scale, for each subject in the pedagogical interaction, while observing and effectively utilizing the subject's specifics, abilities, interests, etc.

This dissertation places at its core the child and his/her diverse mental, physical, and behavioral specifics, experiences, needs, interests, qualities, knowledge, skills, attitudes, achievements, abilities, talents, difficulties, etc. while focusing on ensuring the child's emotional well-being and stimulating meaningful and naturally desirable activity based on the valuable, positive and constructive *teacher-child* relationship. A key moment for effective individualization and differentiation as per this work is learning from experience and children's personally-significant experience while ensuring the child's well-being and active involvement in the pedagogical interaction.

In the context of this work, **individualization** means a conceptually-conditioned variable-dynamic system of methods, processes, means, and forms of group pedagogical interaction whose targeted application in a unified comprehensive personalized approach guarantees optimal expression of each child's potential and ensures his/her emotional well-being and active involvement in the pedagogical interaction while considering and respecting all other children in the group. In the same spirit, **differentiation** can be viewed as a scaled version of individualization, in which children are dynamically divided and rearranged into subgroups (meaning both actual separate groups as well as teachers' internally-conceptualized categories aimed at supporting the effectiveness of pedagogical interaction) on the basis of their specifics with a focus on the optimal development of each child's potential; for this task, the teacher uses a variable-dynamic system of methods, processes, means and forms of pedagogical interaction that consider and respect the dignity of all children in the overall group. In this respect, the **goal** of this work is **to uncover, from a scientific-theoretical and practical aspect, the significant role of individualization and differentiation of the pedagogical interaction in kindergartens, as well as to develop and justify a conceptual-technological variable-dynamic educational model for individualization and differentiation, focused on expanding the potential for educational progress of each child.**

CHAPTER ONE

INDIVIDUALIZATION AND DIFFERENTIATION IN EDUCATION: PSYCHOLOGICAL, HISTORICAL AND REGULATORY ASPECTS

1.1. The concept of *individuality* in psychology.

This part reviews the concept of *individuality* in its interconnection with the concept of *personality* in the context of the understanding of Schmidt (1997), Radev (2013a), Minchev (2009), Encyclopedia of Psychology (1998), Dictionary of Psychology (1989), Ivanov (2007), Koleva (2013), Dimitrov (2003), Wieseltier (1994), Chavdarova-Kostova et al. (2018), Hofstede (2001) and others. There is also regard for the related views of Gordon Allport, S.L. Rubinstein, William Stern, Volf Merlin, Dan McAddams, Judith Harris, P. Boev, H. Murray, Ya. Kovalchuk, and others.

1.2. The uniqueness of the child and his/her personal potential.

This part underlines the richness of the personal potential of each child as expressed by the individual differences based on hereditary factors, development of mental processes and features, temperament, family environment, interests, abilities, acquired knowledge, skills and attitudes distilled into competences, subjective experience in its entirety, etc. as presented through the views of Stamatov (2003), Petrova (2001), Koleva (2013), Mintchev (2009), weaving in the viewpoints of Howard Gardner, R. Sternberg, and others.

1.3. The significance of individual differences in the context of contemporary inclusive education.

Attention is focused on the significance of the differences between people as viewed through the lens of contemporary inclusive education in the works of Baeva (2019; 2009); Chavdarova-Kostova (2019); Sutherland (2008); Nutbrown, Clough, & Atherton (2013); Nutbrown & Clough (2013); Clough & Clough (2013), and others.

1.4. Historical projections of the idea for individualization and differentiation in pedagogy.

The idea of differentiation and individualization in pedagogy is briefly followed through time, from educational interaction in primitive society, through ancient times toward the viewpoint of public figures, philosophers and pedagogues such as Erasmus Roterodamus, Michel de Montaigne, Jean-Jacques Rousseau, Johann Heinrich Pestalozzi, Friedrich Fröbel, Lev Nikolayevich Tolstoy, Ellen Key, Maria Montessori, Rudolf Steiner, Anton Semyonovich Makarenko. Special attention is given to the views of the founder of pedagogy as a science, John Amos Comenius, as well as those of Lev Semyonovich Vygotsky and his “zone of proximal development”.

1.5. The essence and role of individualization and differentiation in the educational process.

A review of key moments related to respect and consideration for the personality of the learner in the educational process as a fundamental prerequisite for effective individualization and differentiation of pedagogical interaction (Chavdarova-Kostova, 2018; Boyadzhieva, 2011; Vassileva, 2004; Roussinova, 2009; Minchev, 2009; Engels-Kritidis, 2015; Baeva, 2016), as well as the essence and meaning of individualization and differentiation in education (Tomlinson, 2014; Kuznetsova & Régnier, 2014; Căprioară & Frunză, 2013; Kratochvílová & Havel, 2013; Engel & Randall, 2009; Mircheva, 2013; Radev, 2005; Petty, 2015; Petrov, 2016; Radev, 2013a; Boat, Dinnebeil & Bae; Pretti-Frontczak & Bricker, 2004; Koleva, 2013; Dimitrov, 2010; and others).

1.6. Individualization and differentiation in the scope of current regulatory requirements for preschool and school education in Bulgaria.

Individualization and differentiation are sought through a constructive-critical view of the context of the Law for Preschool and School Education (2016), the Directive for Inclusive Education (2018), and Directive 5 for Preschool Education (2016).

1.7. The necessity for targeted application of individualization and differentiation in pedagogical interaction in Bulgarian kindergartens.

The specifics of applying individualization and differentiation in the context of kindergartens are outlined, highlighting the significantly-greater potential in comparison to the classic educational process in schools mostly due to the flexibility of interaction in kindergartens and the pedagogical situation as a form. The key role of the kindergarten teacher is examined with regard to transforming life experiences significant for the child into pedagogical situations, provoking the child's interest (Engels-Kritidis, 2012). A case is presented for the necessity for expanding application of individualization and differentiation in Bulgarian kindergartens, based on lengthy pedagogical observations in kindergartens where innovative methods and media are actively used. There is a review of the opinions of Doncheva (2015; 2016), Galcheva (2016), Koleva (2013), and others. The views expressed by Sofronieva (2012; 2016); Shopov and Sofronieva (2014); Baeva-Garcia, (2016); Engels-Kritidis (2015), are used as a basis to bring forward the significant role of the *teacher-child* relationship in the context of the necessity for expanding application of individualization and differentiation in Bulgarian kindergartens.

CHAPTER TWO

EDUCATIONAL PROSPECTS OF LEARNING FROM EMOTIONAL EXPERIENCE AND CHILDREN'S PERSONALLY-SIGNIFICANT PRACTICAL EXPERIENCE IN THE CONTEXT OF INDIVIDUALIZATION AND DIFFERENTIATION OF PEDAGOGICAL INTERACTION

2.1. *Learning from emotional experience and children's personally-significant practical experience.*

The importance of life experiences in the process of planned and spontaneous learning are highlighted (Vygotsky, 1982; Roussinova, 2006; Carpenter, 2014; Stamatov, 2003, and others). The views of John Dewey, Maria Montessori, David Kolb, Maria Baeva (2019) and several other authors on the essence of *learning by doing* are used as a starting point to argue for the significance of learning from experience and learning by doing, viewed as a whole. A series of publications by the author are cited, some of which were developed in collaboration with experienced and innovative kindergarten teachers (Engels-Kritidis, 2012; Engels-Kritidis & Cholakova-Mladenova, 2016; 2016a; Engels-Kritidis & Yotova, 2017, and others) and which highlight different fundamental positions and/or specific educational technologies in the process of stimulating learning from experience and the personally-significant experience in kindergarten, during which the pedagogue considers the individual specifics and needs of each child.

Once again a highlight is placed on the role of the relationship of children with their teacher (Comer, 2006; Tomlinson, 2014; Sofronieva, 2012; 2016; Baeva-Garsiya, 2016), on the importance of the *teacher-child* partnership (Stephen, 2010; Alexander, 2004; Walkins and Motrimer, 1999; Chavdarova-Kostova et al, 2018, and others).

2.2. The goals of stimulating emotional experiences and the goals of transforming practical experience in the contemporary conceptual and regulatory environment for preschool education in Bulgaria.

Together with the traditionally-accepted as main cognitive goals in education, in unison with the concept of Roussinova et al. (1993), the goals of stimulating experiences and of transforming the activity acquire a prospective role that has inspired the creativity of a large number of kindergarten teachers and scientific publications in the field of preschool pedagogy in Bulgaria during the past 25 years.

2.3. The pedagogical situation, as viewed through the lens of learning from emotional experience and children's personally-significant practical experience.

In the spirit of Roussinova et al. (1993), this dissertation views the pedagogical situation as the main form of interaction that facilitates subject-subject forms of communication, the discreteness of the pedagogical strategy, the active formation of mechanisms for self-regulation, differentiation and individualization of the interaction, variety of the educational content, the unification of pedagogical and everyday situations. In the same context, pedagogical situations gauge the children's need for organized and systematic development via adequately-motivated processes of planned and spontaneous learning, practical activities and game-cognitive abilities, but at the same time they ensure a current level of individual development, viewed as the use in practice of knowledge, skills, emotional involvement, and independence in the ways of combining the known with the unknown as specifically realized by each separate child. In a given situation, apart from goals for the group as a whole, implementing individualized goals of the pedagogical interaction should be done even in the planning stage of the situation (see Engels-Kritidis, 2015).

The situational nature of experience is viewed as per the understanding of philosophers like Jean-Paul Sartre, Maurice Merleau-Ponty, and Hubert Dreyfus, as well as psychologists like Kurt Lewin, Fritz Heider, Franz Fromm, and the importance of the situational structure of children's experience and its fundamental role in the process of spontaneous learning are underlined (Engels-Kritidis, 2012). Adopting the viewpoint of Minchev (1991) for the situation as the fundamental unit of experience, the dissertation upholds his idea for the unbreakable link between situations and acquired skills.

2.4. The role of children-initiated activities in the process of individualization of the interaction: the spontaneous pedagogical situations, children's games and play, and other independent activities of the children.

A highlight is placed on the role of children's free games and play as activities that provide the largest field for independent creative expression for the children. In the spirit of Vygotsky (1982), Roussinova et al. (1993) and Roussinova (2006; 2009), the game-playing situation is viewed as a fundamental unit for psychological analysis of the child's integral experience. The significance of the development of children's personal initiative is outlined (Siraj-Blatchford & Sylva, 2004; Stephen, 2010), especially in the context of the strategy for independent learning (Ljublinska, 1978; Chavdarova-Kostova et al, 2018; Radev, 2005; Baeva, 2019), in which individual needs are brought to the forefront.

2.5. The significance of emotional well-being and the level of active involvement of each child in the pedagogical interaction in the context of individual educational progress.

An accent is placed on the fact that most studies on the subject are focused mainly on the development of the so-called "academic skills"; the significance of non-academic indicators, such as children's attitude toward the educational institution, their participation or involvement in the educational environment, is argued as an alternative (Parisou, 2019; Birch & Ladd, 1997; Shields et al, 2001, and others). In this respect, in parallel with following children's educational progress, two main research levels are defined, borrowed from Laevers et al (2005): children's well-being, and their level of active involvement in kindergarten activities. The so-called Leuven Scale is built around those two concepts; the scale has been modified and used for the purposes of this research.

2.6. The role of the teacher in the personally-significant pedagogical interaction.

Focus is placed on the logical uncovering of new expectations for pedagogues, connected with the contemporary paradigms of personality-oriented education (Rasheva-Merdzhanova, 2012; Osad'an & Burrage, 2013; Osad'an & Hanna; 2015; Engels-Kritidis, 2017).

The viewpoints of Pianta (1997); Sherman, Rasmussen & Baydala (2008); Pianta, Steinberg, & Rollins (2009); Boat, Dinnebeil & Bae (2010); La Paro et al. (2012); Колева (2013); Singh & Jane (2014); Comer (2017), and others are presented, confirming the importance of the relationships between children and teachers with the aim of developing skills in the fields of partnerships, emotional development and self-regulation, as well as a multitude of competences related to school, such as attention, motivation, problem-solving, and self-confidence.

The role of quality teaching is brought forward, viewed as a direct function of the personal and professional preparation of the teacher for the achievements of the learners (Wang et al., 2011; Stronge, Ward and Grant, 2011; Hollins, 2011, and others).

2.7. Dynamic monitoring of the development of each child's individual potential as a key prerequisite for effective individualization and differentiation in respect to learning-thought-emotional-experiencing and children's personally-significant practical experience.

Commenting on the viewpoints of Boat, Dinnebeil & Bae (2010), Bruce et al. (2015), Koleva (2013), Pretti-Frontczak & Bricker (2004); Luze & Peterson (2004), and others, this section argues for the awareness and dynamic observation of the development of each child's individual potential as a key prerequisite for effective individualization and differentiation in the course of learning from experience and children's personally-significant experience. The role of psychological-pedagogical observation is justified as the leading method in this connection.

CHAPTER THREE

PSYCHOLOGICAL-PEDAGOGICAL RESEARCH ON THE EFFECT OF INCREASED INDIVIDUALIZATION AND DIFFERENTIATION OF PEDAGOGICAL INTERACTION IN KINDERGARTENS

3.1. Goal, subject, object and tasks of the psychological-pedagogical research.

The goal of the psychological-pedagogical research is to prove the significance of individualization and differentiation of pedagogical interaction, as well as to explore and develop research and educational technologies for their practical application in kindergartens by building a conceptual-technological variable-dynamic educational model for individualization and differentiation that focuses on expanding each child's potential for educational progress.

The subject of the research is the pedagogical interaction between *teacher-child/children* in kindergartens in the Bulgarian educational environment, in terms of group pedagogical situations as well as activities initiated by the children.

The object of this research is the individualization and differentiation of the pedagogical interaction in kindergartens, aimed at expanding each child's potential for educational progress.

With regard to the established goal, completion of the following **main tasks** was defined as prerequisite:

1. Examine the essence of individualization and differentiation in psychological, historical, regulatory and pedagogical terms.
2. Define the theoretical and practical-application fundamentals for the necessity for targeted individualization and differentiation of the pedagogical interaction in terms of the Bulgarian kindergartens.
3. Outline the educational prospects of the goals of stimulating experiences and the goals of transforming experience in the context of individualization and differentiation of the pedagogical interaction in kindergartens.
4. Look for age- or gender-related specifics in the effect of increased individualization and differentiation on children's educational progress.
5. Modify, develop and apply an appropriate diagnostic toolset for measuring the effect of increased individualization and differentiation of the pedagogical interaction, as well as the level of educational progress of each child.
6. Outline the leading conceptual positions that provide appropriate individualization and differentiation in kindergartens.
7. Study, summarize and systematize methods, techniques and tools for individualized and differentiated pedagogical interaction in kindergartens.
8. Develop and partially test in practice the author's educational technologies for individualization and differentiation of the pedagogical interaction with pre-school children, based on learning by doing and the children's personally-significant experience.
9. To build and justify a conceptual-technological variable-dynamic model of pedagogical interaction for individualization and differentiation of the pedagogical interaction in kindergartens.

3.2. Hypotheses of the psychological-pedagogical research.

Based on the purposive interpretation of the scientific literature and the experience from pedagogical practice, the following *leading research hypothesis* was formulated: **the level of children's educational progress toward mastering the educational content is higher in kindergarten groups where there is active, targeted, and multidirectional application of**

individualization and differentiation on the basis of learning from experience and the children’s personally-significant experience, in comparison with groups where individualization and differentiation is applied through inadequate number and variety of forms, methods, techniques and means.

The leading research hypothesis was specified according to age and gender, as well as according to supposed correlations between educational progress, well-being and level of involvement of each child in kindergarten activities. This led to the formation of the following **five sub-hypotheses**:

First sub-hypothesis: Bearing in mind the specifics of mental processes and properties, as well as the significantly smaller burden on the youngest kindergarten children with regard to the routine of planned pedagogical interactions, we posit that **3-4 year-old children** for whom there is targeted and multidirectional application of individualization and differentiation **will display a higher level of educational progress**, compared to the progress of 6-7 year-olds for which the same kind of interaction is actively applied.

Second sub-hypothesis: Taking into account some behavioral peculiarities stemming from gender specifics, we posit that, after active, multidirectional and targeted application of individualization and differentiation in the kindergarten, **the level of educational progress of boys will be higher** in comparison to the level of progress of girls.

Third sub-hypothesis: Highlighting the significance of the goals of stimulating experiences in the process of pedagogical interaction (especially individualized and/or differentiated interaction), we posit that active, multidirectional and targeted application of individualization and differentiation in the kindergarten will result in a **positive-proportional relationship between the level of well-being of each child and his/her individual educational progress**.

Fourth sub-hypothesis: Noting the role of the goals of transforming the children’s personally-significant experiences for effectiveness of the pedagogical interaction, we posit that active, multidirectional and targeted application of individualization and differentiation in the kindergarten will result in a **positive-proportional relationship between the level of involvement of each child in the pedagogical interaction and his/her individual educational progress**.

Fifth sub-hypothesis: We posit that there is a general **mostly-positive attitude of kindergarten directors, assistant-directors, and head teachers** toward more active application in practice of individualization and differentiation in pedagogical interaction.

Having accepted the hypothesis and its five specific sub-hypotheses, we will connect them to *the criteria and the indicators*, as well as *the methods and the organization* of the present psychological-pedagogical research.

3.3. Criteria and indicators of the psychological-pedagogical research.

Referring to the scientific literature and using the methodology of Laevers et al (2005) as modified and supplemented by the author, a system of criteria and indicators was defined, as visually presented in Table 3.

Table 3. Criteria and indicators of the psychological-pedagogical research.

A. CHILD-oriented criteria group

Criterion A1. Well-being of the child when interacting with surrounding people (peers, teachers, other children and adults).	
Indicators	Levels
A1.1: Level of child’s well-being in group activities organized by the teacher (pedagogical situations and other forms of interaction).	1. Extremely low level of well-being – the child clearly shows signals of discomfort (looks dejected, sad or frightened; cries, screams; throws objects, hurts others ; etc.).
	2. Low level of well-being – the posture, facial expression and actions indicate that the child does not feel at ease, but the signals are less explicit than under level 1 or the sense of discomfort is not expressed the whole time

	<p>3. Moderate level of well-being – the child’s posture, facial expression, and actions show little or no emotion; there are no signals indicating sadness or pleasure, comfort or discomfort.</p> <p>4. High level of well-being – the child shows obvious signs of satisfaction, similar to those listed under level 5, but these signals are not constantly present with the same intensity.</p> <p>5. Extremely high level of well-being – the child looks happy, smiles; is relaxed, does not show any signs of stress or tension; is open and accessible to the environment; is spontaneous, expressive and is really him/herself; is lively, full of energy, radiates; expresses self-confidence and self-assurance.</p>
A1.2: Level of child’s well-being in game play and other activities freely selected by the children.	
Criterion A2. Involvement of the child in interactions with surrounding people.	
<i>Indicators</i>	<i>Levels</i>
A2.1: Level of child’s involvement in group activities organized by the teacher (pedagogical situations and other forms of interaction).	1. Extremely low level of involvement – the child hardly shows any activity; shows absent, passive attitude; shows no concentration; is staring, daydreaming; no goal-oriented activity, aimless actions, producing minimal results or not producing anything; no signs of exploration and interest; low level of mental activity.
	2. Low level of involvement – the child shows some degree of activity but which is often interrupted; limited concentration; action only leads to limited results; the child is easily distracted.
	3. Moderate level of involvement – the child is busy during most of time, but without real concentration; routine actions, attention is superficial; the child is not absorbed in the activity; limited motivation, no real dedication to the activity; the child does not feel positively challenged by the activity; does not gain deep-level experiences; does not use his/her capabilities to full extent; the activity does not engage the child’s imagination.
A2.2: Level of child’s involvement in game play and other activities freely selected by the children.	4. High level of involvement – there are clear signs of involvement, but these are not always present to their full extent; the child is engaged in the activity mostly without interruption; most of the time there is real concentration, but during some brief moments attention is more superficial; the child feels positively challenged, there is a certain degree of motivation; the child’s capabilities and his/her imagination are expressed in the activity to a large extent.
	5. Extremely high level of involvement – the child is almost continuously engaged in the activity and almost completely absorbed in it; the child is focused on the activity; is highly motivated, feels strongly attracted to the activity; perseveres; even strong stimuli cannot distract him/her; the child shows care, precision, and observation (has attention for details); the child demonstrates intense mental activity and experience; the child almost constantly expresses all his/her capabilities; the child’s imagination and mental capacity are in top gear; the child obviously enjoys being engrossed in the activity.
Criterion A3. Child’s progress toward mastering the educational content required by the National Standard for Preschool Education and detailed in the educational program-system used (as a mean average assessment by the teachers of each child’s performance in all educational areas).	

B. TEACHER-oriented criteria group

Criterion B1. Application of individualization and differentiation in pedagogical interaction.
Indicator B1.1: Application of individualization and differentiation in planned/regulated pedagogical situations .
Indicator B1.2: Application of individualization and differentiation in unplanned/spontaneous pedagogical interaction .

C. Criteria group oriented toward KINDERGARTEN DIRECTOR, ASSISTANT-DIRECTOR, and HEAD TEACHER

Criterion C1. Attitude toward the necessity for application of individualization and differentiation in pedagogical interaction.
Criterion C2. Attitude toward the potential for application of individualization and differentiation in pedagogical interaction.
Indicator C2.1: Attitude toward the potential for application of individualization in pedagogical interaction.

Indicator C2.2: Attitude toward the potential for application of differentiation in pedagogical interaction.
Criterion C3. Observed (by management personnel) relationship between children's emotional well-being and their educational progress.
Criterion C4. Observed (by management personnel) relationship between more active, motivated, and personally-significant involvement of children in pedagogical interactions and their educational progress.

3.4. Stages, methods, and participants in the psychological-pedagogical research.

3.4.1. Overview of the stages, methods, and participants in the research.

The psychological-pedagogical research was conducted in the period from 01 Jan 2010 to 31 Mar 2019. The research went through three phases with a total of five stages (see Fig. 1).

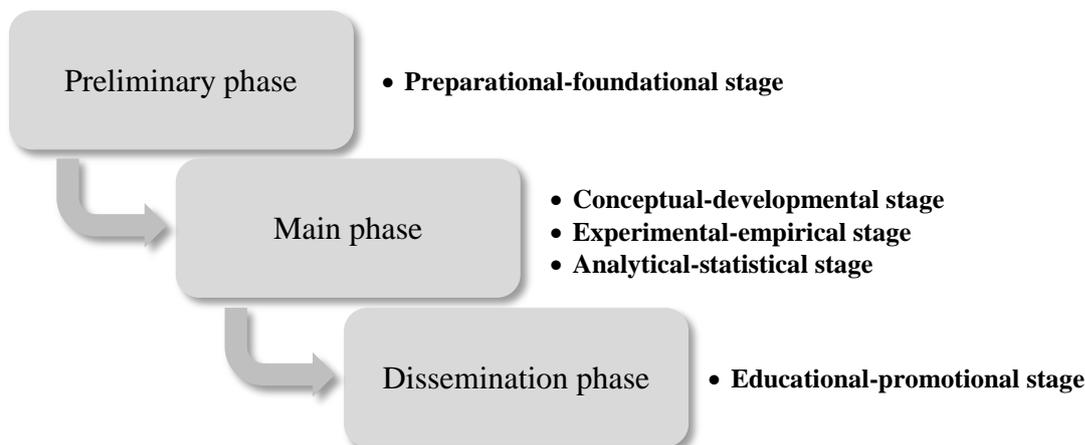


Fig. 1: Phases and stages of the psychological-pedagogical research.

The preliminary phase of the psychological-pedagogical research was conducted with the participation of **21 kindergarten teachers** in Sofia city (9 teachers in Kindergarten №99 “Brezichka”, 9 in Kindergarten №65 “Slunchevo detstvo”, and 3 in Private Kindergarten “Weda”).

The main phase of the psychological-pedagogical research was conducted with the participation of:

- **256 children aged 3-7 years-old** (124 children in Kindergarten №99 “Brezichka” and 132 in Kindergarten №65 “Slunchevo detstvo”), divided into 4 experimental groups and 4 control groups;
- **62 kindergarten teachers** (10 teachers in Etropole city, 2 in Dragoman city, 1 in Montana city, 2 in Trudovetz village, and the rest in Sofia city);
- **70 kindergarten directors, assistant-directors, and head teachers** in Sofia city;
- **84 Master degree students** from the “Preschool Pedagogy” specialty (with teacher certifications) of the Faculty of Educational Studies and the Arts of the Sofia University “St. Kliment Ohridski”.

In the dissemination phase taking place during the period 2015-2019, the author’s concept, as well as various aspects of the educational model for individualization and differentiation, were shared in complete or partial form with:

- **46 kindergarten teachers** from Sofia city and from the country;
- **733 preschool pedagogy students** – in Bachelor and Master degree courses in the Faculty of Educational Studies and the Arts (previously the Faculty of Primary and Preschool Pedagogy) of the Sofia University “St. Kliment Ohridski”;
- **160 kindergarten directors, assistant-directors, head teachers, and other pedagogy specialists** from Sofia city.

The research stages, along with the methods used and the participants (as well as some other significant parameters) are detailed in Table 4.

Table 4. Main stages, methods, participants, and other significant parameters of the psychological-pedagogical research.

PRELIMINARY PHASE

Preparational-foundational stage:				
Outlining the necessity for targeted application of individualization and differentiation in pedagogical interaction in kindergartens and selection of appropriate diagnostic toolset				
<i>No</i>	<i>Method/Activity</i>	<i>Location</i>	<i>Application period</i>	<i>Parameters</i>
1	Pedagogical observation by external expert of the application of individualizing and differentiating approach during 100 pedagogical situations in kindergartens where teacher training is conducted.	Daycare Kindergarten №99 “Brezichka”	01 Oct 2010 – 20 Dec 2014	50 observed pedagogical situations in different main educational directions, with 9 kindergarten teachers-trainers.
		Unified Kindergarten №65 “Slunchevo detstvo”		40 observed pedagogical situations in different main educational directions, with 9 kindergarten teachers-trainers.
		Private Kindergarten “Weda”		10 observed pedagogical situations in different main educational directions, with 3 kindergarten teachers-trainers.
2	Examination of the classic and contemporary scientific literature on the topic.	n.a.	01 Oct 2010 – 31 Mar 2019	Over 300 bibliographical sources related to the topic were examined, in both Bulgarian and English languages.
3	Selection, modification and/or development of diagnostic toolset for the research.	n.a.	01 Mar 2011 – 01 Mar 2015	Selected, modified or author-developed diagnostic toolset was established for use in the experimental-empirical stage, as well as the rest of the methods used in the main phase of the research.

MAIN PHASE

Conceptual-technological stage:			
Development of the conceptual and technological aspects of an educational model for individualization and differentiation of pedagogical interaction in kindergartens			
<i>No</i>	<i>Method</i>	<i>Application period</i>	<i>Parameters</i>
1	Development and partial testing in practice of author’s educational technologies for individualization and differentiation of the pedagogical interaction.	01 Oct 2010 – 01 Mar 2015	Specific educational technologies , aimed at individualization and differentiation of pedagogical interaction, were developed and tested in practice; part of them were published in joint authorship with kindergarten teachers.
2	Conceptual-technological pedagogical modeling: development of conceptual and technological aspects based on a variable-dynamic educational model for individualization and differentiation of pedagogical interaction in kindergartens.	Foundational stage: 01 Mar 2011 – 01 Mar 2015 Refinement stage: 01 Mar 2015 – 01 Mar 2019	The foundation was laid for a variable-dynamic educational model for individualization and differentiation of pedagogical interaction in kindergartens.

3	Expert opinions of kindergarten teachers and subsequent analysis: refinement of the model for individualization and differentiation of pedagogical interaction in kindergartens on the basis of expert feedback by kindergarten teachers in writing.	01 Sep 2014 – 30 Jun 2018	The model was enriched on the basis of individual expert feedback in writing by 62 kindergarten teachers , personally invited to participate in the research by the author, on topic “How I individualize and differentiate the pedagogical interactions in the kindergarten”.
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Experimental-empirical stage:

Assessment of the effect of increased individualization and differentiation of pedagogical interaction in kindergartens

<i>No</i>	<i>Method</i>	<i>Application period</i>	<i>Number and description of research participants</i>
1	Psychological-pedagogical experiment:		
	- Initial assessment experiment	1 Mar 2015	256 children aged 3-7 years-old – 127 children in 4 experimental groups and 129 children in 4 control groups , divided as follows: <ul style="list-style-type: none"> - 31 children aged 3-4 years-old in experimental group and 31 children in control group (Daycare Kindergarten №99 “Brezichka”); - 33 children aged 4-5 years-old in experimental group and 35 children in control group (Unified Kindergarten №65 “Slunchevo detstvo”); - 33 children aged 5-6 years-old in experimental group and 31 children in control group (Unified Kindergarten №65 “Slunchevo detstvo”); - 30 children aged 6-7 years-old in experimental group and 32 children in control group (Daycare Kindergarten №99 “Brezichka”).
	- Development experiment	1 Mar 2015 – 22 May 2015	
	- Final assessment experiment	22 May 2015	
2	Observation:		
	2.1. Daily unstructured observation by teachers on children in the experimental groups, focused on assessing the individual differences and planning the individualized and/or differentiated pedagogical interaction.	1 Mar 2015 – 22 May 2015	Assessment of 127 children in 4 experimental groups: <ul style="list-style-type: none"> - 31 children aged 3-4 years-old in experimental group (Daycare Kindergarten №99 “Brezichka”); - 33 children aged 4-5 years-old in experimental group (Unified Kindergarten №65 “Slunchevo detstvo”); - 33 children aged 5-6 years-old in experimental group (Unified Kindergarten №65 “Slunchevo detstvo”); - 30 children aged 6-7 years-old in experimental group (Daycare Kindergarten №99 “Brezichka”).

	2.2. Targeted observation by teachers on the experimental and control groups aimed at dynamic sub-grouping and regrouping of children according to their educational progress toward mastering the educational content as per the National Educational Standard (at the time – a requirement), assessing in parallel each child's emotional well-being and level of involvement in the pedagogical interaction.	First stage: 1 Mar 2015 (initial assessment experiment) Second stage: 22 May 2015 (final assessment experiment)	256 children aged 3-7 years-old
3	Rating scales:		
	3.1. Modification of the Leuven diagnostic scale for the child's level of emotional well-being in the pedagogical interaction process. 3.2. Modification of the Leuven diagnostic scale for the child's level of involvement in the pedagogical interaction process. 3.3. Rating scale for assessment of the child's educational progress toward mastering the content required by the National Educational Standard.	First stage: 1 Mar 2015 (initial assessment experiment) Second stage: 22 May 2015 (final assessment experiment)	256 children aged 3-7 years-old
4	Diagnostic test of children's readiness for school (Bizhkov & Stoyanova, 1997).	22 May 2015 (final assessment experiment)	Assessment of 62 children aged 6-7 years-old – experimental group and control group (Daycare Kindergarten №99 "Brezichka"): - 30 in experimental group; - 32 in control group.
5	Researching opinions of Master degree students from the "Preschool Pedagogy" specialty (with teacher certifications) via free-text student feedback form on topic "How can I individualize and/or differentiate the educational goals and/or the educational content within the bounds on the pedagogical situation in kindergarten" .	01 Dec 2018 – 31 Mar 2019	Assessment of 84 written feedback forms by Master degree students from the "Preschool Pedagogy" specialty (with teacher certifications) of the Faculty of Educational Studies and the Arts of the Sofia University "St. Kliment Ohridski".
6	Questionnaire for kindergarten directors, assistant-directors, and head teachers , aiming to research the attitudes of management personnel toward the necessity for application of individualization and differentiation in pedagogical interaction.	8-9 Nov 2018	The questionnaire was completed by 70 members of kindergarten management personnel (directors, assistant-directors, and head teachers) immediately before a educational seminar on topic "Children's schooling, education and socialization in kindergarten while accounting for ethic-cultural, psycho-social, and emotional needs of their development".

Analytical-statistical stage:

Analysis of the preliminary and actual results of the psychological-pedagogical experiment

<i>No</i>	<i>Method</i>	<i>Application period</i>
1	Ongoing analysis of the application of individualization and differentiation during 100 pedagogical situations in kindergarten.	01 Oct 2010 – 31 Jan 2015
2	Analysis of the classic and contemporary scientific literature on the topic.	01 Oct 2010 – 31 Jan 2015

3	Analysis of the expert opinions of teachers-innovators aimed at refining the model for individualization and differentiation of pedagogical interaction in kindergartens.	01 Sep 2014 – 30 Jun 2018
4	Analysis of the individual dynamic in the development of the potential of 10 children from the four experimental groups.	01 Mar 2015 – 31 Dec 2015
5	Statistical processing and analysis of the results from the specifically-modified Leuven diagnostic scale for the child's level of emotional well-being in the pedagogical interaction process.	01 Jun 2015 – 31 Oct 2015
6	Statistical processing and analysis of the results from the specifically-modified Leuven diagnostic scale for the child's level of involvement in the pedagogical interaction process.	01 Jun 2015 – 31 Oct 2015
7	Statistical processing and analysis of the results from the specifically-developed by the author Rating scale for assessment of the child's educational progress toward mastering the content required by the National Educational Standard.	01 Jun 2010 – 31 Oct 2015
8	Analysis of the results of the Diagnostic test of children's readiness for school (Bizhkov & Stoyanova, 1997).	01 Jun 2015 – 31 Oct 2015
9	Correlational analysis of the results from the psychological-pedagogical experiment.	01 Jun 2015 – 31 Oct 2015
10	Qualitative analysis of the written feedback from Master degree students.	01 Dec 2018 – 31 Mar 2019
11	Statistical processing and analysis of the results from the questionnaire for kindergarten directors, assistant-directors, and head teachers.	10 Nov 2018 – 31 Dec 2018
12	Summary of the results in conclusions, recommendations for the practice, and scientific and practical-applicable contributions.	01 Jan 2019 - 31 Mar 2019

DISSEMINATION PHASE

Educational-promotional stage:

Educational training, lectures, and seminars conducted by the author with kindergarten teachers, directors or students, aimed in part at popularizing the innovative model introduced in the psychological-pedagogical research and ther educational technologies developed

<i>No</i>	<i>Educational form</i>	<i>Location</i>	<i>Attendees</i>	<i>Period</i>
1	Preparatory tuition training of kindergarten teachers-trainers in the four experimental groups testing the innovative educational model.		Total of 8 teachers-trainers:	10-25 Feb 2015
		Daycare Kindergarten №99 "Brezichka"	4 teachers-trainers	
		Unified Kindergarten №65 "Slunchevo detstvo"	4 teachers-trainers	
2	Annual lectures on the issue and the diagnostic toolset used in this psychological-pedagogical research as part of the academic course "Research technologies in preschool education" of the following specializations:	Faculty of Educational Studies and the Arts, Sofia University "St. Kliment Ohridski" (previously Faculty of Primary and Preschool Pedagogy)	Total of 733 students:	01 Oct 2015 – 31 Mar 2019
	- "Preschool Pedagogy with Foreign Language" – full-time tuition, Bachelor degree;		116 students	
	- "Preschool Pedagogy for Graduates of Other Specializations – with Teaching Certificate" – Master degree;		271 Master degree students	
	- "Preschool Pedagogy (for Graduates of Other Specializations)" – Master degree;		331 Master degree students	
	- "Educational Management in Preschool Settings" – Master degree.		15 Master degree students	

3	Lectures as part of the course “Research Technologies in Education” of the postgraduate degree “Innovations in Education”.	Faculty of Educational Studies and the Arts, Sofia University “St. Kliment Ohridski” (previously Faculty of Primary and Preschool Pedagogy)	30 teachers	07 Apr 2016
4	Seminar with teachers in the Private Kindergarten “Weda” on topic “Individualization and differentiation in the pedagogical interaction”.	Private Kindergarten “Weda”	8 teachers	28 Jun 2017
5	Lectures with kindergarten directors, assistant-directors, head teachers, and other pedagogical specialists on topic “The significance of individualization and differentiation of pedagogical interaction for the educational progress of each child”, as part of a seminar titled “Children’s schooling, education and socialization in kindergarten while accounting for ethnic-cultural, psycho-social, and emotional needs of their development”, part of the Annual Plan for the 2018/2019 academic year of the Sofia City Regional Department of Education in collaboration with Sofia Municipality – “Nadezhda” district, and the Bulgarian National Committee for Preschool Education.	“Nadezhda” Cultural House, Sofia city	160 directors, assistant-directors, head teachers, and other pedagogical specialists	08-09 Nov 2018

3.4.2. PREPARATIONAL-FOUNDATIONAL STAGE: ascertaining the necessity for targeted application of individualization and differentiation in kindergartens and developing the research toolset.

3.4.3. CONCEPTUAL-DEVELOPMENTAL STAGE: developing the conceptual and technological aspects of an educational model for individualization and differentiation of pedagogical interaction in kindergartens.

3.4.4. EXPERIMENTAL-EMPIRICAL STAGE: researching the effect of increased individualization and differentiation of pedagogical interaction in kindergartens.

3.4.4.1. Psychological-pedagogical experiment

3.4.4.2. Observation as a key research method

3.4.4.3. Rating scales

3.4.4.3.1. Modification of the Leuven diagnostic scale for the child’s level of emotional well-being in the pedagogical interaction process

3.4.4.3.2. Modification of the Leuven diagnostic scale for the child’s level of involvement in the pedagogical interaction process

3.4.4.3.3. Rating scale for dynamic grouping of children according to their educational progress toward mastering the content required by the National Educational Standard

3.4.4.4. Diagnostic test of children’s readiness for school (Bizhkov & Stoyanova, 1997)

3.4.4.5. Researching the opinion of Master degree students in Preschool Pedagogy regarding their notion of the technological possibilities of individualization and differentiation in pedagogical interaction

3.4.4.6. Questionnaire for kindergarten directors, assistant-directors, and head teachers, aiming to research the attitudes of management personnel toward the necessity for application of individualization and differentiation in pedagogical interaction

3.4.5. ANALYTICAL-STATISTICAL STAGE: analyzing the preliminary and actual results of the psychological-pedagogical experiment

3.4.6. EDUCATIONAL-PROMOTIONAL STAGE: educational training, lectures, and seminars conducted by the author with kindergarten teachers, management personnel and students in order to popularize the importance of individualization and differentiation and the educational technologies developed

CHAPTER FOUR

ANALYSIS OF THE RESULTS OF THE PSYCHOLOGICAL-PEDAGOGICAL RESEARCH

4.1. General setting of the statistical-analytical data processing of the research.

The outcomes of the psychological-pedagogical research, summarized in numerical format, were subjected to a series of statistical processing operations with the SPSS 22 and Microsoft Excel 2016 software programs.

For each research hypothesis a null hypothesis was defined, i.e. a zero-effect hypothesis, namely that there is no difference in the distributions or averages being compared. The null hypotheses examined were:

- *The first null statistical hypothesis examined*, corresponding to the main research hypothesis, was as follows: the level of children's educational progress toward mastering the educational content is **not** higher in kindergarten groups where there is active, targeted, and multidirectional application of individualization and differentiation on the basis of learning from experience and the children's personally-significant experience, in comparison with groups where individualization and differentiation is applied through inadequate number and variety of forms, methods, techniques and means.
- *The second null statistical hypothesis examined* corresponded to the first research sub-hypothesis and was as follows: 3-4 year-old children for whom there is targeted and multidirectional application of individualization and differentiation will **not** display a higher level of educational progress, compared to the progress of 6-7 year-olds for which the same kind of interaction is actively applied.
- *The third null statistical hypothesis examined* corresponded to the second research sub-hypothesis and was as follows: after active, multidirectional and targeted application of individualization and differentiation in the kindergarten, the level of educational progress of boys will **not** be higher in comparison to the level of progress of girls.
- *The fourth null statistical hypothesis examined* corresponded to the third research sub-hypothesis and was as follows: active, multidirectional and targeted application of individualization and differentiation in the kindergarten will **not** result in a positive-proportional relationship between the level of well-being of each child and his/her individual educational progress.
- *The fifth null statistical hypothesis examined* corresponded to the fourth research sub-hypothesis and was as follows: active, multidirectional and targeted application of individualization and differentiation in the kindergarten will **not** result in a positive-proportional relationship between the level of involvement of each child in the pedagogical interaction and his/her individual educational progress.
- *The sixth null statistical hypothesis examined* corresponded to the fifth research sub-hypothesis and was as follows: there is **not** any positive attitude of kindergarten directors, assistant-directors, and head teachers toward more active application in practice of individualization and differentiation in pedagogical interaction.

To check these hypotheses, the following statistical methods were used:

1. *Correlational analysis* method for researching the relationship between the level between each child's level of well-being and level of involvement in the pedagogical interaction, on one side, and the child's individual educational progress, on the other.

2. *Student's t-test* method for checking statistical hypotheses for differences between two values in dependent samples (to establish statistical significance of the difference separately for the experimental group and for the control group) and in independent samples (to compare the average values of the experimental group and the control group separately in the initial stage and the control stage).
3. *Chi-squared test* method for establishing interconnections between the attitudes of persons providing feedback and their age and position.

4.2. Effect of increased individualization and differentiation on children's educational progress.

As stated, *the first null statistical hypothesis examined*, corresponding to the main research hypothesis, was as follows: the level of children's educational progress toward mastering the educational content is **not** higher in kindergarten groups where there is active, targeted, and multidirectional application of individualization and differentiation on the basis of learning from experience and the children's personally-significant experience, compared to groups where individualization and differentiation is applied through inadequate number and variety of forms, methods, techniques and means.

To check this hypothesis, we used the information from the assessments, in both the initial and the final stage, of all 256 children participating in the experiment, without grouping them by age (see Fig. 2).

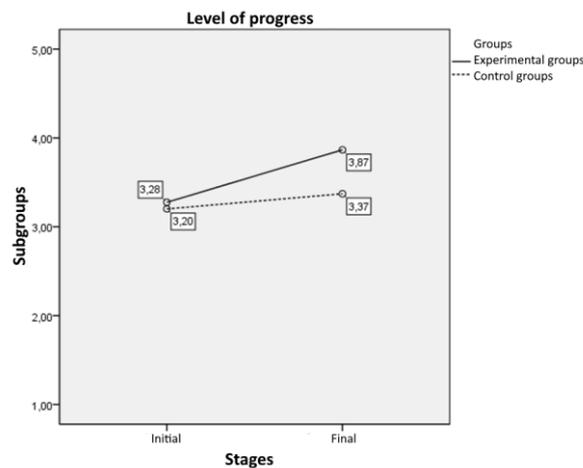


Fig. 2. Differences in the level of progress between the experimental and the control groups in the initial assessment and the final control stage

In the initial assessment there is no significant difference between the experimental and control groups ($t = 0,47$, $p = 0,639$). The statistical analysis results show that there is a statistically significant change in the experimental groups ($t = 10,93$, $p = 0,000$) which is evident in Fig. 2. In the final stage there is a statistically significant difference between the experimental and the control groups ($t = 3,35$, $p = 0,001$), which disproves the null hypothesis and confirms the research hypothesis.

4.3. Relationship between increased individualization and differentiation and the children's age group.

The second null statistical hypothesis examined corresponded to the first research sub-hypothesis and was as follows: *3-4 year-old children* for whom there is targeted and multidirectional application of individualization and differentiation will **not** display a higher level of educational progress, compared to the progress of *6-7 year-olds* for which the same kind of interaction is actively applied. For checking the second null hypothesis, the same statistical methods are applied as for the first null hypothesis.

It would be comparatively easy to calculate the average progress of each of the two experimental groups and check if the difference is statistically significant: the average progress in the *3-4 year-old children* experimental group is 0.68, which is the difference between 3.26 and 2.58 (see Fig. 3). The average progress in the *6-7 year-old children* experimental group is 0.30, which is the difference between 3.83 and 3.53 (see Fig. 4). We can therefore conclude that the difference between the two average progress values is statistically significant ($t = 2.74$, $p = 0.008$), i.e. the progress in the younger experimental group is statistically-significantly higher than the progress of the older experimental group. This result rejects the second null statistical hypothesis and confirms the first research sub-hypothesis.

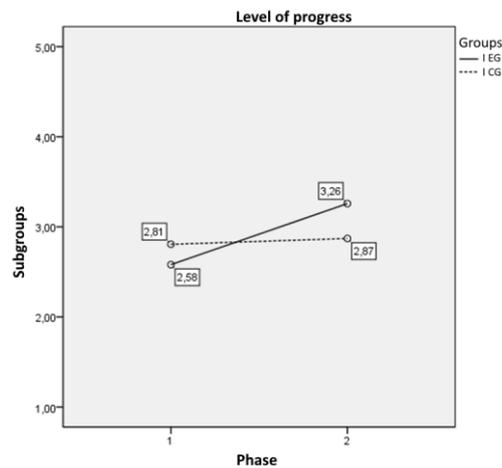


Fig. 3. Differences in the level of progress between the 3-4 year-old experimental and the control groups – initial (1) and final (2) phase

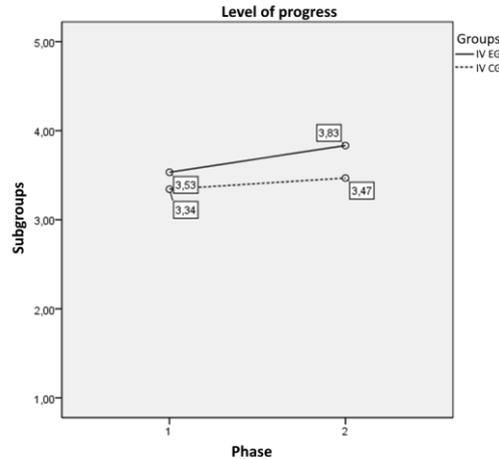


Fig. 3. Differences in the level of progress between the 6-7 year-old experimental and the control groups – initial (1) and final (2) phase

4.4. Relationship between increased individualization and differentiation and the children's gender.

The third null statistical hypothesis examined corresponded to the second research sub-hypothesis and was as follows: after active, multidirectional and targeted application of individualization and differentiation in the kindergarten, the level of educational progress of boys will **not** be higher in comparison to the level of progress of girls.

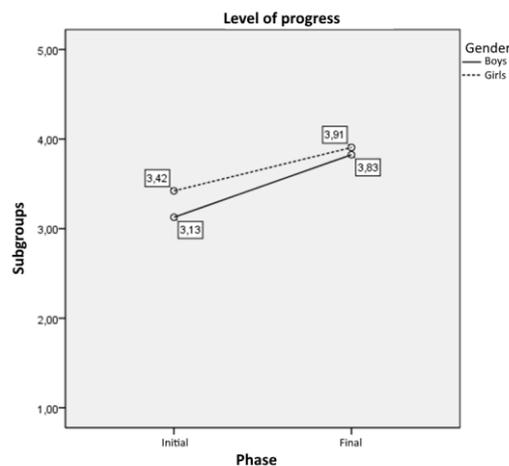


Fig. 5. Differences in the level of progress between the experimental and the control groups – initial and final phase by gender.

In the initial phase there is no significant difference between boys and girls ($t = 1.31$, $p = 0.194$). The statistical analysis results show that in both boys and girls there has been a statistically significant change (for girls $t = 6.88$, $p = 0.000$, while for boys $t = 8.68$, $p = 0.000$) and this is clear in Fig. 5.

Even though in the final phase no statistically-significant difference is registered between boys and girls ($t = 0.39$, $p = 0.695$) which formally confirms the null hypothesis instead of rejecting it, the steeper statistically-significant change for boys in the experimental groups partially confirms the alternate (research) hypothesis. It can be said that, when there is active and targeted application of the individual and differentiated approach, there is a tendency for boys to show greater progress. This justifies the application of stronger individual approach, with more strength and frequency especially for boys.

4.5. Correlation between children’s well-being and involvement and children’s educational progress.

A fact that is very important and essential for teachers to acknowledge in their daily work is the proven correlation between the level of well-being of individual children (in pedagogical situations organized by the teacher – $R=0.783$, i.e. strong correlation according to the Scale for Interpretation of Correlation Coefficients described in Павлова, В. и С. Чипева (2012) which is being used in the analysis henceforth, as well as in games and other activities freely selected by children – $R=0.558$, i.e. significant correlation) and their educational progress. A similar strength of correlation can be seen in the level of involvement of children in the interaction – once again, in both aspects (in pedagogical situations organized by the teacher – $R=0.724$, i.e. strong correlation, as well as in games and other activities freely selected by children – $R=0.646$, i.e. significant correlation).

Therefore we have rejected the fourth null statistical hypothesis examined (corresponding to the third research sub-hypothesis); namely, that active, multidirectional and targeted application of individualization and differentiation in the kindergarten will **not** result in a positive-proportional relationship between the level of well-being of each child and his/her individual educational progress. Thus the third research sub-hypothesis is proven; namely, that there is a positive-proportional relationship between the level of well-being of each child and his/her individual educational progress.

In a similar way, *we have rejected the fifth null statistical hypothesis examined*; namely, that active, multidirectional and targeted application of individualization and differentiation in the kindergarten will **not** result in a positive-proportional relationship between the level of involvement of each child in the pedagogical interaction and his/her individual educational progress. Thus the fourth research sub-hypothesis is proven; namely, that there is a positive-proportional relationship between

the level of involvement of each child in the pedagogical interaction and his/her individual educational progress.

4.6. Well-being and involvement in the context of 6-7 year-old children's readiness for school.

In the course of the additional statistical analysis it was established that *the level of children's well-being in group activities organized by the teacher has a statistically-significant relationship to the grade on the Diagnostic test of children's readiness for school* (Bizhkov & Stoyanova, 1997) during the final phase of the experiment ($R=0.556$), which is understandable when bearing in mind that the results in the test are mostly achieved due to the activities organized by the teacher during the whole preschool period, as well as the pedagogical interaction in the kindergarten.

A similar significant correlation exists between *the grade on the Diagnostic test of children's readiness for school* (Bizhkov & Stoyanova, 1997) and *the child's level of involvement in group activities organized by the teacher* ($R=0.622$), as well as *the child's level of involvement in games and other activities freely selected by children* ($R=0.693$). The correlation with the child's level of well-being in games and other activities freely selected by children is also statistically significant, although less so, i.e. it is moderate ($R=0.366$), most likely due to the unspoken, but also unwarranted, conflict between game play and intentional learning, maintained by parents as well as general social pressure that is often established in the preparatory group, seen as a transitional stage before children enter school.

4.7. Effect of increased individualization and differentiation of pedagogical interaction on children's well-being and involvement.

Table 12 shows that the change in children's level of well-being is positive – both in group activities organized by the teacher (from $R=0.653$ in the initial phase to $R=0.783$ in the final phase), as well as in games and other activities freely selected by children (from $R=0.437$ in the initial phase to $R=0.558$ in the final phase). The level of involvement in games and other activities freely selected by children has also increased in its correlation with the educational progress of children (from $R=0.633$ in the initial phase to $R=0.646$ in the final phase), though by very little. Only the level of involvement in group activities organized by the teacher shows a slight decline – from $R=0.769$ in the initial phase to $R=0.724$ in the final phase, but this could be explained by some children being somewhat demotivated by having to participate in teacher-organized activities in place of children-initiated playing activities, which can also offer educational benefits; this is essentially a positive tendency, bearing in mind the need for development of initiative skills in the earliest possible age.

Table 12. Results of the correlational analysis of the data from the researched 127 children in 4 experimental groups (one for each age group).

	Level of progress toward mastering the content required by the National Educational Standard (INITIAL VALUE)	Conduct of interaction with active application of individualization and differentiation	Level of progress toward mastering the content required by the National Educational Standard (FINAL VALUE)	
Level of well-being...				
...in pedagogical situations and other group activities organized by the teacher	0.653** <i>significant correlation</i>			0.783** <i>strong correlation</i>
...in games and other activities freely selected by children	0.437** <i>moderate correlation</i>			0.558** <i>significant correlation</i>
Level of involvement...				
...in pedagogical situations and other group activities organized by the teacher	0.769** <i>strong correlation</i>		0.724** <i>strong correlation</i>	
...in games and other activities freely selected by children	0.633** <i>significant correlation</i>		0.646** <i>significant correlation</i>	

** The correlation is significant with 0.01 (1%) margin of error. The analysis uses the Scale for Interpretation of Correlation Coefficients described in Павлова и Чунева (2012)

4.8. Individualization and differentiation of pedagogical interaction in the context of 6-7 year-old children's readiness for school

On the doorstep of school, for the oldest children that participated in the research – the 6-7 year-olds – we can also look for a *correlation between the progress in their level of well-being and involvement and their results in the applicable Diagnostic test of children's readiness for school*. Although not statistically significant, there is a positive-proportional relationship between the Test results and the progress in the level of, correspondingly, well-being of the children in group activities organized by the teacher, well-being and involvement of the children in games and other freely-selectable activities; all this after application of the experimental program that focuses on individualizing and differentiating pedagogical interaction. The only similar connection that is not present is one between the Test results and the progress in the level of children's involvement in group activities organized by the teacher; one explanation for this is that, when pedagogical interaction is individualized and differentiated, children's initiative and entrepreneurship is stimulated so it is possible that some of them are less willing to participate in teacher-organized pedagogical interaction, increasingly preferring to have the opportunity to initiate activities themselves.

4.9. Analysis of the individual dynamics in the development of each child as a result of increased individualization and differentiation of pedagogical interaction.

„A correctly-analyzed experiment is worth ten thousand experiments”

Confucius

According to Стоянова (1992), the basis of scientific interest is formed not by the activity of the “average child”, but by the activity of the living, real child; this is especially true when it comes to researching the subject of individualization and differentiation in education. This is the reason why this part follows, analytically and graphically, the dynamic of the development of 10 children from the experimental groups as a result of the individualizing educational program.

4.10. Analysis of the expert opinions of kindergarten teachers.

This part features thorough analysis of expert opinions by kindergarten teachers. Only some key moments are discussed herein, as follows:

- The opinions frequently show an **incorrect understanding of the essence of individualization, whereby its comprehension is mostly narrowed down to an individual form of interaction** – this is a possibility, but it is by no means the only possibility and it is definitely not enough.
- Often, in another example of narrow interpretation, **individualization is understood mainly as children working independently with the cognitive books only.**
- It is still not rare to find the incorrect and incomplete understanding of the essence of individualization and differentiation in education as **concerning only two extremes of children categories – the extremely gifted, and the ones lagging behind for different reasons** – which neglects the rest of the children “in the middle”.
- In several opinions there is **uncertainly whether it is possible to have effective individualization under the current conditions in Bulgaria.**
- Many of the expert opinions express **a critique by kindergarten teachers toward kindergarten regulations** in connection with limited possibilities of individualizing the pedagogical interaction.
- There is also **a critical view toward the primary school as an institution** where children continue their education after kindergarten.
- There are also some **counter-examples of pedagogical interaction, related to incorrect approaches by teachers.**
- An extremely wrong attitude that has been perpetuated is that **“most children with special educational needs hinder the educational process”**; teachers need to eradicate this view from their thinking in order to be able to “compose” inclusive education.
- Of particular interest and value for discussion is the **shared positive pedagogical experience**, which has been analyzed in detail in this part of the dissertation.

4.11. Analysis of the opinions of Master degree students in Preschool Pedagogy.

Researching the expert opinions of Master degree students – future kindergarten teachers has two main goals:

- 1) To research the attitudes of graduate Master degree students – preschool pedagogues toward the possibilities of individualization and differentiation in kindergartens;
- 2) To enrich the innovative model for individualization and differentiation of pedagogical interaction.

As a whole, when compared to the expert opinions of active kindergarten teachers with more experience, the opinions of Master degree students are different in the following ways:

- there are significantly **more general-concept points mentioned, compared to specific technological** ones, which is understandable bearing in mind the lack of pedagogical experience with preschool children;
- **there is greater optimism** toward the belief that it is possible to individualize in the crowded kindergarten groups;
- there is – at least conceptually – a clearly-declared **mindset focused on the child** when creating and developing the pedagogical interaction;
- generally, with the exception of those who have already had kindergarten practice, Master degree students **are not confident when using the terminological apparatus of pedagogy**, especially concerning the difference between skill, method, form, and means and in this respect their opinions do not reach the depth of the opinions of experienced experts;
- despite the limitations mentioned above, students’ opinions can feature some **interesting technological ideas**, some of which have been used in the following chapter.

Everything mentioned above shows some very positive tendencies, as it presents a generally more positive attitude toward the realistic possibilities for individualization and differentiation in kindergartens. The prospect is that, in the very near future, kindergartens will be staffed by qualified specialists who have a clear understanding that group work can, and must, be individualized within an environment of well-being and active involvement by children, in order to achieve optimal educational progress for each child.

4.12. Analysis of the results of the questionnaire to research the attitudes of management personnel toward the necessity for application of individualization and differentiation in pedagogical interaction: a bridge toward implementation of the developmental program in practice.

The questionnaire that was given to 70 directors, assistant-directors and head teachers aims to research the attitudes of management personnel toward encouraging the processes of individualization and differentiation of pedagogical interaction in kindergarten, with the understanding that such mostly-positive attitudes would form a figurative bridge towards the integration of the development program in practice. The other main goal of the questionnaire was to research the opinions of management personnel on some fundamental principles laid down in the author’s concept as a basis of the experimental program.

The distribution of questionnaire responders by age and management position is seen in Table 13, Fig. 24, and Fig. 25, while the dissertation itself includes graphical presentation and in-depth analysis of the answers to each of the 8 questions.

Table 13. Number of questionnaire responders by age and management position.

<i>Management position</i>	<i>Number</i>	<i>Age between 36-44 years</i>	<i>Age between 45-53 years</i>	<i>Age between 54-62 years</i>	<i>Age over 63 years</i>
Directors	53	7	14	31	1
Assistant-directors	13	5	3	5	0
Head teachers	4	1	0	3	0
Total	70	13	17	39	1

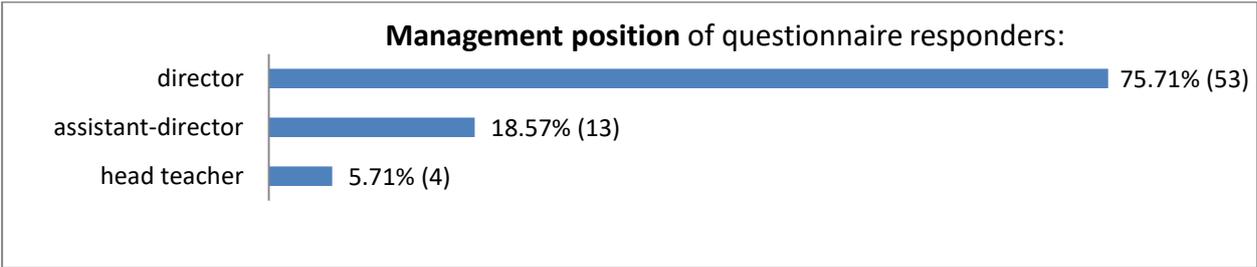


Fig. 24. Distribution by management position of pedagogical personnel responding to questionnaire (directors, assistant-directors, or head teachers, in percentage and number of questionnaire responders).

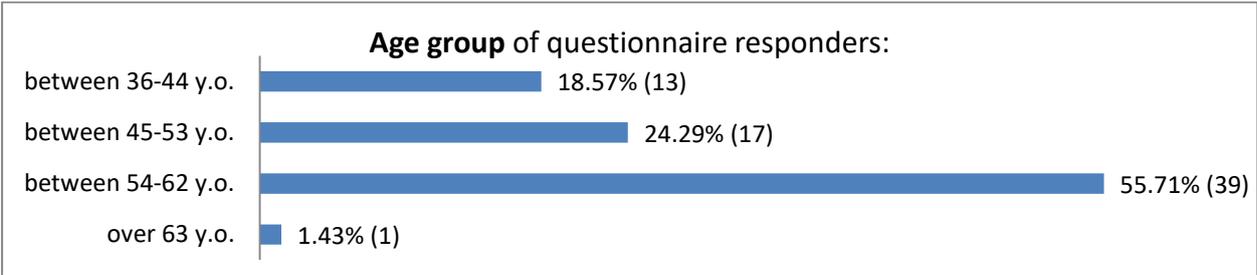


Fig. 25. Distribution by age of pedagogical personnel responding to questionnaire (in percentage and number of questionnaire responders).

This part of the dissertation examines the *sixth null statistical hypothesis* that corresponded to the fifth research sub-hypothesis, which is proven completely; namely, that there is a positive attitude of kindergarten directors, assistant-directors, and head teachers toward more active application in practice of individualization and differentiation in pedagogical interaction.

CHAPTER FIVE

VARIABLE-DYNAMIC EDUCATIONAL MODEL FOR INDIVIDUALIZATION AND DIFFERENTIATION OF PEDAGOGICAL INTERACTION IN KINDERGARTEN

5.1. Goal, essence, key concepts and visualization of the model.

Conceptually, the innovative model that was developed aims **to propose a conceptually- proven, variable-dynamic pedagogical toolset for individualization and differentiation of the group interactions in kindergarten, providing endless (though limited by the applicable requirements) alternative possibilities for personalization of the interaction with each child through adequate simultaneous or consecutive educational projections that reflect the specific individual differences at any given time while also accounting for the specifics of, and respecting, the personalities of all other children in a given group.**

The model is variable-dynamic namely because it presents variants for a general “scaffolding”, a general framework, while its development depends on the educational technologies which the teacher will choose to use with each child at a given time (i.e. it accounts for the dynamic of individual development), in accordance with the child’s individual specifics and requirements. That is because there is not, and there cannot be, a single universal educational model and this is especially valid when seeking the projections of this targeted individualization on the multi-faceted and dynamic pedagogical interaction.

In the context of the suggested model, **individualization** is understood as a conceptually-proven, variable-dynamic system of methods, processes, means and forms of group educational interaction, which are purposefully used within a global personalized approach that guarantees optimal expression of each child’s potential and ensures the child’s emotional well-being and active involvement in the pedagogical interaction while respecting all other children in the group.

Differentiation, in the context of the suggested model, can be viewed as a micro-group variant of individualization, in which a given group’s children are dynamically distributed into sub-groups and regrouped (into both actual separate groups, as well as mental grouping by the teacher to aid the effectiveness of pedagogical interaction) in accordance with the children’s specifics in order to ensure optimal development of their potential; for this purpose, the teacher uses a variable-dynamic system of methods, processes, means, and forms of pedagogical interaction while acknowledging and respecting the dignity of all children in the overall group.

An innovative aspect in the understanding of differentiation is the starting point, in which the children’s sub-groupings and regroupings are not in the sole discretion of the teacher; each child’s initiative is encouraged by having them self-assess and select the difficulty level of the tasks, as well as their thematic connection to the child’s interests, etc.

Sub-grouping and regrouping the children is being done in order to ensure educational progress for each child within a mini-environment of children whose participation in a given subgroup could support the development and/or the expression of specific positive qualities, skills, etc. in the specific child. Sometimes, the main goal is to ensure opportunities for children to achieve expected results with a higher difficulty; in other cases, sub-grouping can be aimed at development of the so-called “soft skills”; it yet other scenarios, the group could be conceived as a team wherein each child has their own part that allows them to develop their strengths, or sometimes their weak points, etc.

Another new aspect which the model highlights is the understanding of the necessity for ensuring a favorable environment and management of the interaction that creates opportunities for smooth and natural transitions from planned pedagogical situations to spontaneous interactions initiated by the

children. As has already been shown, children’s daily observations of their surrounding environment often provoke children to initiate various artistic (or other kinds of) games, which can be effectively converted to planned situations by a good teacher. The opposite is also completely natural, i.e. pedagogical situations can grow into spontaneous creative games or other initiatives by the children.

The model is visualized in Fig. 44.

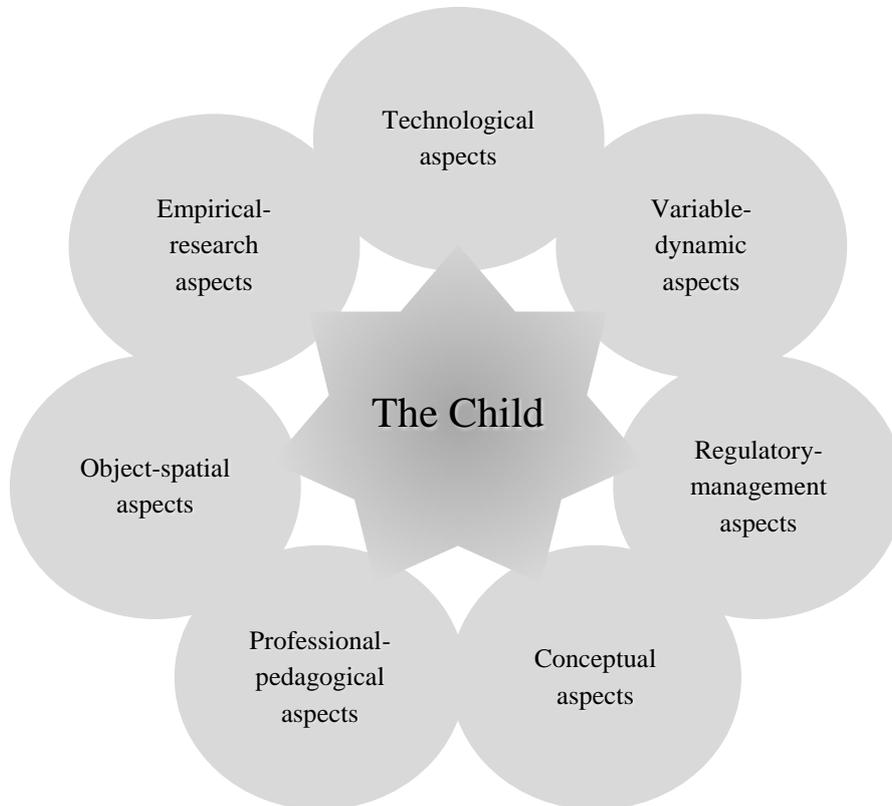


Fig. 44. Author’s educational model for individualization and differentiation of the interaction in kindergartens.

5.2. Contemporary and innovative aspects of the model.

The following can be highlighted as innovative aspects of the model proposed herein:

- Justification of the necessity for stronger application of individualization and differentiation in the country’s mainstream kindergartens, in the context of the contemporary understanding of the terms and the applicable regulatory framework;
- Definition of possibilities for individualization and differentiation especially within the group pedagogical situations;
- Uncovering the role of learning by experience and children’s personally-significant experiences in the context of ensuring effective individualization and differentiation of pedagogical interaction;
- Establishment of an ordered system of criteria and indicators that includes children’s well-being, involvement, and educational progress, which can be observed by teachers during their daily work;
- Presentation of key concepts for preschool education, such as pedagogical situation, goals of stimulating experiences; goals of transforming experience, etc. through the viewpoint of learning by experience and children’s personally-significant experiences;
- Definition of the role of spontaneous pedagogical situations, children’s games and other independent children’s activities as processes initiated by them in the process of individualization of the interaction;

- Argumentation of the significant role of the personality and the professionalism of the kindergarten teacher in the individualized pedagogical interaction;
- Definition of the significance of each child's emotional well-being and level of active involvement in the interaction in kindergarten in the context of individual educational progress;
- With regard to differentiation, there is an innovative understanding of sub-groupings and regrouping of children as a function not in the sole discretion of the teacher; each child's initiative is encouraged by having them self-assess and select the difficulty level of the tasks, as well as their thematic connection to the child's interests, etc.;
- Use of a comprehensive system of methods and tools for evaluating the effect of stronger individualization and differentiation of pedagogical interaction;
 - Psychological-pedagogical experiment.
 - Structured monitoring of pedagogical situations by independent experts.
 - Unstructured daily monitoring of the group children by the teacher.
 - Author's modification of the Leuven diagnostic scale for the child's emotional well-being in the process of pedagogical interaction.
 - Author's modification of the Leuven diagnostic scale for the child's level of involvement in the pedagogical interaction.
 - Rating scale for assessment of the child's educational progress toward mastering the content required by the National Educational Standard.
 - Diagnostic test of children's readiness for school (Bizhkov & Stoyanova, 1997)
 - Partial application (for a limited period) of case study as a method.
 - Individual written expert evaluation by innovative kindergarten teachers with regard to the technological aspects of individualization and differentiation of pedagogical interaction in kindergartens.
 - Researching the opinions of Master degree students from the "Preschool Pedagogy" specialty (with teacher certifications).
 - Questionnaire for kindergarten directors, assistant-directors, and head teachers, aiming to research the attitudes of management personnel toward the necessity for application of individualization and differentiation in pedagogical interaction.
 - Application of statistical analysis to prove a series of correlations; the following should be noted as key correlations:
 - Effect of stronger individualization and differentiation on the educational progress in the context of age and gender of the children;
 - Correlation between well-being and involvement, on one side, and children's educational progress;
 - Correlation between well-being and involvement, on one side, and *6-7 year-old children's readiness for school*;
 - Correlation between stronger individualization and differentiation of pedagogical interaction, on one side, and children's well-being and active involvement;
 - Correlation between stronger individualization and differentiation of pedagogical interaction, on one side, and 6-7 year-old children's readiness for school.
- The variable-dynamic structure of the model is itself an innovation.

5.3. Conceptual aspects of the model.

The author's variable-dynamic educational model is built on the following key conceptual positions, which are presented in detail in the dissertation:

- 5.3.1. Knowledge and dynamic impartial observation of the development of each child's individual potential: key prerequisite for effective individualization.
- 5.3.2. Active application of learning from emotional experience and children's personally-significant practical experience in the context of individualization and differentiation of pedagogical interaction.
- 5.3.3. Encouraging activity and the spirit of discovery in the course of the established unity of planned and spontaneous teaching while accounting for children's individual interests.
- 5.3.4. Stimulating children's personal initiative and personal choice in the search for constructive projection of children's individual potential, specifics, abilities, interests, needs, etc. in pedagogical interaction.
- 5.3.5. Systemic planning/development of the teacher's daily pedagogical work in the scope of individualization or differentiation.
- 5.3.6. Individualization, differentiation, and antidiscrimination: cementing the uniqueness of each child's personality while respecting the value of confidence for all children in the group.
- 5.3.7. Individualization, differentiation and positive collectivization: using the individual specifics of each child in support of building teamwork in the group.
- 5.3.8. Application of an integrative, spiral-like approach to selecting and structuring the educational content in the process of individualization and differentiation of pedagogical interaction.
- 5.3.9. Productive educational interaction with the family in aid of effective individualization and differentiation.

5.4. Variable-dynamic aspects of the model.

As already stated, the model has been conceived mainly as providing a general "scaffolding", a general framework, while the variable-dynamic aspects provide a multitude of individual specific solutions for each separate child. It is nevertheless possible to define some educational projections of individualization and differentiation, which teachers can keep in mind in their planning and application:

- overall cognitive development;
- specifics/deficiencies in physical or sensory development;
- speech and communication development;
- children's cognitive interests;
- level of emotional-volitional development;
- possession of expressed gifts or talents;
- temperament;
- rate and quality of mastering the educational content required by the National Educational Standard;
- level of cognitive and practical self-sufficiency and activity;
- work ability / ability to perform lengthy activities, level of intensity, ease or difficulty during performance, tiredness, etc.
- expressions of individual learning style, inasmuch as they can be observed during preschool age;
- age (in Bulgarian kindergartens, this refers to mixed-age groups);
- productive and non-discriminatory educational possibilities for gender-based differentiation;
- family environment (only/first/second/third child in the family; type of family; mother tongue, other languages spoken in the family, etc.) etc.

It is very important to keep in mind that "differentiation based on interests can (and often should) be combined with other kinds of differentiation" (Tomlinson, 2018; p. 141).

This is an open list that can be expanded, as individual differences have multidirectional projections.

5.5. Empirical-research aspects of the model.

The defined empirical-research aspects of the model are in agreement with the criterial levels of the dissertation (see 3.3.).

5.6. Professional-pedagogical aspects of the model.

As explained in the second chapter (see 2.6.), the teacher plays a key role for effective individualization and differentiation of the pedagogical interaction.

On one hand, kindergarten teachers need a fundament of high psychological-pedagogical competence in the wide spectrum of possible individual differences. On the other hand, it is essential for teachers to continuously upgrade and update their knowledge and skills with regard to adequate and timely application of individualization and differentiation in interactions.

5.7. Object-spatial aspects of the model.

The creation of an educational environment that supports children's individual development is of great significance for the successful application of the model to every child. Therefore, it is very important that the teacher ensures such an environment that supports children's natural processes of perception and understanding of age-appropriate visualized information on a given topic, not only during planned pedagogical situations, but also during children's spontaneous individual or self-initiated learning, as well as the application of the mastered knowledge in practice and, inasmuch as it is possible, in the child's daily life. It is important to provide material and spatial opportunities to the child to individually apply the educational content in different activities.

5.8. Regulatory-management aspects of the model.

Here we can define three leading aspects. The first one is with regard to the regulatory basis that, as we have already stated, needs to change in order to ensure flexible, effective and non-discriminatory processes for individualization and differentiation in practice.

The second aspect is related to the necessity for transformation of the educational program systems, so that they can account for the individual specifics of children and ensure their optimal educational progress.

The third aspect is the administrative one and it is connected to the importance of engaging the kindergarten director in order to support of the effective individualization and differentiation of the educational interaction. This is a proven fact by the research as a whole.

5.9. Technological aspects of the model.

First, it is important to note that, with regard to the goal, the variability and the level of application, this part does not clearly define a distinction between methods, processes, means, and forms – all of these are grouped under the common term “pedagogical toolset”. This is a distinction that is purposefully missing, since a large part of these tools can be used both as processes and as methods; the means could be developed and upgraded into processes or even methods, etc. In other words, it is up to the teacher to make variable choices with regard to the way they can be used. It is not by chance that this difficulty in defining the tools as methods, processes, forms or means is also present in the work of Tomlinson (2014) and it is particularly evident in the translation of one of her books (Tomlinson, 2018), where it is interesting to see that not only is there no such distinction, but also there is no unified term usage – sometimes, the term “supporting constructs” is used (Tomlinson, 2018; p. 70); in other parts, there are “techniques for teaching in a differentiated classroom” (p. 74); in

yet other places, there are “strategies for differentiation” (p. 94-95; p. 126), “ways to differentiate the learning process” (p. 179), etc.

In section 5.9.3. of the dissertation, the term “educational technologies” is used as a general one that, in addition to **the pedagogical toolset as described in 5.9.1.**, also includes the toolset expanded with 1) **the suggested possibilities for sub-grouping and dynamic regrouping of the children as organization of the differentiation** in kindergarten (presented in section 5.9.2.) and 2) the more complex **author-created educational technologies for effective individualization and differentiation of the group pedagogical interactions** during pedagogical situations in kindergartens, described in section 5.9.3. A part of these was developed with the participation of innovative kindergarten teachers, whose co-authorship is clearly stated in the work.

5.9.1. Pedagogical toolset for individualization and differentiation of pedagogical interaction in kindergarten: summary of good pedagogical practices.

Based on analysis of the scientific literature, the personal experience and observations of the author, as well as analysis of the expert opinions of teachers and students that participated in this research, we can propose the following pedagogical toolset for individualization and differentiation, which could be used in pedagogical interactions in kindergarten:

- 1) Individual teacher support during children’s individual work with cognitive books.
- 2) Individual catch-up during other group activities (individual form).
- 3) Comprehensive or partial detailed exhibition of an activity, performed by the teacher for a specific child, or by a child for the other children.
- 4) Customization of a general task for individual performance, making the task either easier or harder in accordance with the educational needs of the specific child.
- 5) Differentiation of individual work tasks by difficulty level or by children’s interests during group work.
- 6) Differentiation of additional tasks to be performed individually with children that have difficulties with specific activities or subject material, with quick-learning children, and/or with gifted children.
- 7) Free activities in separate locations, by interest.
- 8) Taking responsibilities.
- 9) Using a child that has mastered a specific activity as a helper during related discussions.
- 10) Individualization of the content of questions and examples during discussions, linking them to personally-significant experiences for each of the children.
- 11) Separate, specially-developed personal practical exercises/tasks.
- 12) Personalized computer software or applications for exercises (Tomlinson, 2018; p. 94).
- 13) Individual or small-group (non-writing) tasks that have been given out in advance or have been chosen by the children, whose completion forms the basis for the pedagogical interaction during a subsequent group pedagogical situation.
- 14) Project work on a specific individual subject, or a subject suited for a small group.
- 15) Use of appropriate fun/entertaining animation performance to increase the individual motivation or each of the children.
- 16) Creating opportunities for children to make choices.
- 17) Attracting the attention of a specific child or group of children with an unexpected object or event, for which the teacher knows in advance that it would be of interest for the child/children.
- 18) Teacher-limited access to a specific object, which can grab the attention of a specific child/children.

- 19) Group pedagogical situations that have been designed in advance to be “open-ended”, with opportunities for individual/differentiated choices (based on an idea by Tomlinson, 2018; p. 94).
- 20) Advance preparation and active use of sets of materials in accordance with the individual interests of children in the group (author’s adaptation for preschool age of an idea by Tomlinson, 2018; p. 94).
- 21) “Child as an assistant-teacher” (Tomlinson, 2018; p. 98).
- 22) Expanding the subjects included in the applicable program system toward the children’s interests.
- 23) Patient discussion with simple argument points when there are emotionally-negative reactions from the children.
- 24) Repetition of simplified instructions.
- 25) “Child explains to child/children”.
- 26) Use of audio recordings of instructions for tasks or other texts (Tomlinson, 2018; p. 70).
- 27) Video explanations, instructions or step-by-step guide models (Tomlinson, 2018; p. 126).
- 28) “Let’s Make a Deal” in aid of active involvement in the pedagogical interaction (based on an idea by Tomlinson, 2018; p. 94) or “Agreements for Learning” (Tomlinson, 2018; p. 95).
- 29) “Agreed-upon Criteria” (as per Tomlinson, 2018; p. 144).
- 30) Mathematical problems based on children’s interests (as per Tomlinson, 2018; p. 144).
- 31) “Breaking down” a task into parts and performance of the task by separate groups of children (in stages or concurrently).
- 32) Ensuring a low-noise environment (as per Tomlinson, 2018; p. 157) during individual work with cognitive books (e.g. providing earmuffs or earplugs for children if required).
- 33) Variations on the seating arrangements.
- 34) Tables for use by children standing up (as per Tomlinson, 2018; p. 157).
- 35) Encouraging various partnerships between children (as per Tomlinson, 2018; p. 126): rotation in the use of approaches of partnership, individual work, and competitive elements (idea by Tomlinson, 2018; p. 94).
- 36) Individualized activity cards and dice („Think Dots”) - (Tomlinson, 2018; p. 94).

The following is a pedagogical toolset that is included in different ways in the author’s educational technologies, comprehensively examined in section 5.9.3. of the dissertation, which need to be pointed out here in support of documenting the huge variety of the toolset for individualization and differentiation of the pedagogical interaction:

- 1) **Photo-essay (or photo-story)** as a method for personally-significant pedagogical interaction.
- 2) Method of **individual children’s choice of challenge**.
- 3) **Progressively more complex coloring** as a pedagogical approach.
- 4) **Stimulating personally-significant motivation of children’s practical experience** as a pedagogical approach.
- 5) **“The Project Phase” as an approach in the process of learning by doing**, to help children realize the importance of advance planning of personal initiatives and activities.
- 6) **“Fairy-tale Illustration Puzzle”** as an approach for individualization and differentiation of the pedagogical interaction.
- 7) **The “Postman” game** as an approach for individualization and differentiation of the pedagogical interaction.

- 8) Having children use and create by themselves **illustrated predictable books** in the process of individualization of the pedagogical interaction.
- 9) **Simple crossword puzzles, individually created by the teacher** – for each child or for a sub-group of children, in support of children’s preparation for literacy.
- 10) **A game version of the TV game show “Who Wants to Be a Millionaire?”** with variable difficulty questions.
- 11) **Emotionally-motivated individual/differentiated graphical children’s activity** involving various maze drawings, drawing “from”-“to” paths, and other visualizations that incorporate individual or differentiated versions of the “images” or the “heroes that need help” in their graphics, in order to maintain children’s personal interest and motivation.
- 12) Use of an **electronic voting system** as a method for individualization and differentiation of the pedagogical interaction.

5.9.2. Sub-grouping and dynamic regrouping of children as a way to organize the differentiation in kindergarten.

Fortunately, differentiation strategies are used more widely in Bulgarian kindergartens. There is frequent use of the division of children into sub-groups in some way – usually in separate tables, where each table has a different activity, or the same activity in various levels of complexity, etc. Of course, there is a lot of possibility for improvement in this respect, especially toward accepting the idea for the necessity for flexible and impartial grouping and regrouping of the children at any given time, as well as the respective group, differentiated, and individual tasks.

In this respect, below are some suggested variants for **dividing children into sub-groups with possibilities for dynamic regrouping** as a way to organize differentiation in the kindergarten:

- **A group that includes faster and better-achieving children with some children from the group average level;**
- **More advanced children are grouped with the children that have the biggest difficulty to work individually;**
- **One group of advanced children, a second one with average children, and a third group with the children that find it harder to manage,** but in this case the teacher should have different requirements for each group, with the aim being to stimulate the children to master new knowledge, skills, and attitudes, i.e. each group works on tasks of different level of complexity.
- **Distribution into groups that include a couple of children from each category** (i.e. children with different level of progress with regard to the specific knowledge or skills); in other words, by taking into account the individual specifics of each child, the sub-groups are “micro-managed” to include children that can engage in “inter-educational” interaction between themselves. In this case, the tasks are identical and the more advanced children “pull forward” the other group members – they can improve the speed of the average-level children and the knowledge and skills of the children that manage harder.
- **Distribution into groups by common interests** – in this case, the essence of the task can be similar for all groups, but the new skills can be acquired on the basis of different stimulus. Here, the interests can “pull forward” the children that manage harder, but also it is almost certain that the group will contain one or more of the advanced children, who can also offer help and support.
- **Distribution into groups by level of independency** (A. II.), which means that some children need and can receive more help than others, so the teacher should pair them up with children that can offer this help.

The list of variants for distribution into dynamic sub-groups as a way to organize differentiation in the kindergarten is open to additions and updates in accordance with the actual changing requirements of the specific children in a given group, as well as the teachers' creative and methodical ideas.

5.9.3. Author-developed educational technologies for individualizing and differentiating the group pedagogical interaction in kindergarten within pedagogical situations.

It is important to clarify that, due to the fact that the educational technologies mentioned here have been developed within the confines of the Bulgarian regulatory framework with regard to education, i.e. they have been targeted toward specific age groups because Bulgarian kindergartens distribute children into groups by age, in the spirit of the concept of individualization pledged herein, it is important to keep in mind that referring the described educational technologies to a specific age group is only a general guideline. Each of the technologies mentioned below and presented in detail in the dissertation can be developed or adapted for other age sub-groups, based on the individual specifics of the children and their needs, as well as on the overall level of the group.

- 5.9.3.1.** Photo-essay as a method of individualized pedagogical interaction in contemporary kindergartens: the role of children's personally-significant experience (see also *Engels-Kritidis & Cholakova-Mladenova, 2016a*).
- 5.9.3.2.** Method of individual children's choice of challenge.
- 5.9.3.3.** The importance of individual motivation of children's practical experience: projections of learning by doing in the second age group in kindergarten (see also *Engels-Kritidis & Cholakova-Mladenova, 2016*).
- 5.9.3.4.** The importance of individual motivation of children's practical experience: projections of learning by doing in the third age group in kindergarten (see also *Engels-Kritidis & Cholakova-Mladenova, 2016*).
- 5.9.3.5.** Individualizing and differentiating the pedagogical interaction with the help of a "puzzle with fairy-tale illustrations" (see also *Engels-Kritidis & Cholakova-Mladenova, 2015a*).
- 5.9.3.6.** Game-cognitive situations in the fourth preparatory group/class: individualization and differentiation of pedagogical interaction via the game of "Postman" (see also *Engels-Kritidis & Cholakova-Mladenova, 2015*).
- 5.9.3.7.** Individualization of pedagogical interaction in aid of preparation for reading and writing (see also *Engels-Kritidis & Cholakova-Mladenova, 2010*).
- 5.9.3.8.** Individualization of pedagogical interaction by using and making illustrated booklets with tips ("predictable books").
- 5.9.3.9.** Digital technology and individualization and differentiation of pedagogical interaction: using a voting system in the fourth preparatory group/class (see also *Engels-Kritidis, Kamenova & Zheleva, 2018*).

CONCLUSIONS AND RECOMMENDATIONS

The child's uniqueness and omnidirectional personal potential, as seen through the lens of the achievements of modern inclusive education, places individual differences in the position of a huge resource which teachers need to purposefully and actively use with regard to the positive perspective in the development of each child. It is no coincidence that the idea of differentiation and individualization in pedagogy identifies with the idea of effectiveness in the educational process.

Highly valuing pedagogical interaction that conforms to individual differences and aims for personal development and educational progress of each child even within large children's groups is a mindset that is focused on the child/pupil and that must be a guiding principle for teachers. In practice, this viewpoint is projected through various methods, processes, means, and forms that formulate and specify the individual approach toward each child, supplying a "tailor-made suit" ready to serve the child at a specific moment. Underlining the significance of full comprehension of the essence of individualization also serves this key purpose, as it ensures an abundance of effective educational potential for each child in a group, bearing clearly in mind that this applies not just to children with special educational needs or difficulties in learning, children with a migrant background, Roma children, etc.

By presenting classic and current viewpoints mainly from the fields of pedagogy and psychology, this dissertation outlined the role of effective application of individualization and differentiation in the educational interaction in kindergartens. The dissertation underlined the importance of pedagogical communication that respects individual differences in children with regard to their development while also providing a dynamic and timely report and, most importantly, a way to effectively make use of those differences. The positive prospects of learning through experiencing and the personally-significant experience of the child were confirmed and conceptually validated through the lens of the goals of stimulating experiences and the goals of stimulating activities, viewed within the context of individualization and differentiation of the pedagogical interaction. The observation of the child's well-being and their active involvement in pedagogical interaction was defined as a key moment for effective individualization and differentiation, with special attention afforded to individualized and differentiated interaction during group pedagogical situations, as well as during activities initiated by the child (games or other activities chosen freely).

The fact that each child's educational progress is directly related to their well-being and active involvement in pedagogical interaction that is tailored to the child's requirements, skills, interests, rate of activity, etc. has been proven in this dissertation; it once again underlines the significance of how important it is for early childhood teachers to be trained to work by individualizing and differentiating for the benefit of every child. This is because each teacher holds in their hand the potential for continuous updates of methods, techniques, tools, and forms of pedagogical interaction, while frequently it is the children themselves that hint at the necessity for change and the direction this change must take, as long as teachers can adequately, timely, and dynamically follow the children's emotional and educational needs.

At the end of this research and based on the analysis of scientific publications and the results of the experimental educational program, we can form the following **conclusions**:

- 1) By registering a statistically-significant difference between the experimental and control groups ($t = 3.35$, $p = 0.001$) during the final stage, the study confirmed its leading hypothesis, namely that **the level of educational progress of individual children toward mastering the educational content is higher in kindergarten groups where individualization and differentiation is applied actively, purposefully, and in multiple forms, based on learning through experiencing and childrens' personally-significant**

- experience**, compared to groups where individualization and differentiation is applied through few in number and low in variety forms, methods, and techniques.
- 2) The difference between the educational progress in 3-4 year-old children compared to that of 6-7 year-olds was defined as statistically significant ($t = 2.74$ at $p = 0.008$), which also proves that the progress in the younger children's experimental group is statistically significantly greater than the progress in the older children's experimental group. All this additionally confirms the proposed **special significance of active and targeted application of individualization and differentiation starting from the first kindergarten year**.
 - 3) Although a statistically significant difference between boys and girls was not registered ($t = 0.39$, $p = 0.695$), the steeper statistically significant change for boys in the experimental groups partially confirms the proposition that **providing individualized and differentiated interaction has a stronger effect on the educational progress of boys** as compared to that of girls; that said, a statistically significant change is observed in both genders (for girls $t = 6.88$, $p = 0.000$, while for boys $t = 8.68$, $p = 0.000$).
 - 4) In unison with the ideas for the significance of the goals of stimulating life experiences and the goals of transforming children's personally-significant experience, two main diagnostic levels are defined in parallel with the research on the educational progress of children; on one hand – their **well-being in interactions with people in the same environment** (peers, teachers, etc.) and on the other hand – their **active involvement in kindergarten activities**. It is no coincidence that the research dimension of this dissertation and the educational model that was developed are built on the basis of those two key concepts, which lie at the heart of the system known as Leuven Scales.
 - 5) Of great importance in theoretical and applied terms is the proven **correlation between each individual child's level of well-being and their educational progress**, both in pedagogical situations organized by the teacher ($R=0.783$, i.e. strong correlation) as well as in games and other activities chosen by the children freely ($R=0.558$, i.e. significant correlation).
 - 6) Taking into account the role of goals of transforming children's personally-significant experience to achieve effectiveness of the pedagogical interaction combined with active and adequate application of individualization and differentiation during interactions in the kindergarten, the positive proportional **link between the level of individual children's involvement in pedagogical interactions and their individual educational progress** was proven (in pedagogical situations organized by the teacher $R=0.724$, i.e. strong correlation; also in games and other activities freely chosen by children $R=0.646$, i.e. significant correlation).
 - 7) Some differences are observed in the level of children's well-being and involvement in activities that have been initiated freely by them, compared to pedagogical situations organized by the teacher. Although the values are fairly close, it is nonetheless noteworthy that **the level of progress in mastering the content as per the Bulgarian National Educational Standard is more strongly correlated to the level of well-being and involvement in pedagogical situations organized by the teacher**. This is completely understandable as in Bulgarian kindergartens the educational content is mainly taught via regulated educational interactions whose main form is the pedagogical situation. This is most likely the reason why this correlation is strong, while the correlation with the level of well-being and involvement in games and other activities freely chosen by the children is slightly weaker.

- 8) This research has confirmed **the significant role of management personnel in kindergartens** – principals, assistant directors, and head teachers – and **their support of effective and non-discriminatory individualization and differentiation**. In this regard it is encouraging to note that 94.29% of the management personnel researched (70 participants) toward the necessity for more active application of individualization and differentiation in practice during pedagogical interactions.
- 9) The research proved and highlighted the necessity for children to be brought up and educated in **a positive environment that guarantees fulfillment of children's needs by providing opportunities, space, and time for freely-selected activities and creative self-expression**, since the development of self-sufficiency in children's daily routine activities is an essential condition for forming initiative and responsible behavior in each child.
- 10) The research once again underlined **the importance of applying in practice the idea of active, constructive, and positive partnership between teacher and child**, through which the educator builds trust, teamwork, and friendship between the children in the group.
- 11) The dissertation exhibited and justified the innovative understanding of differentiation from the starting viewpoint that defining and rearranging sub-groups of children in the course of pedagogical interactions is not a function exclusive to the teacher; **children's initiative role to use self-evaluation in order to choose the difficulty level of tasks, as well as their thematic connection to children's interests, etc.** should be encouraged.
- 12) **Daily unstructured and natural psychological-pedagogical observation of children** by teachers was confirmed as the best method to allow for dynamic follow-up of the process of development for mental processes and tools, as well as children's progress and achievements in mastering the required educational content.
- 13) In parallel with the traditionally-accepted leading cognitive goals in education, **it is important to distinguish a prospective role for the goals of stimulating life experiences and the goals of transforming activities**, viewed with regard to their direct conceptual correlation with *knowledge, skills, and attitudes* as expected results.
- 14) In the spirit of Roussinova *et al.* (1993), **the pedagogical situation is viewed as a subject-subjective form of communication that ensures the discretion of the pedagogical strategy, the active formation of self-regulation mechanisms, the differentiation and individualization of interactions, the variation of educational content and, most importantly, the unification of pedagogical and real-life situations**. In this respect, it is important to examine pedagogical situations in their capacity of revealing children's need of organized and systematic development through appropriately-motivated processes of intentional and unintentional teaching, practical activities, and game-cognitive activities, **while at the same time demonstrating the actual level of individual progress, evaluated through the practical application of knowledge, skills, emotional engagement, and self-sufficiency** in the means of combining the known with the unknown, with each child's individual way of specification.
- 15) There are many more alternatives for **the successful application of individualization and differentiation in the organized interaction with preschool children, compared to the possibilities within the established educational process for older pupils**; one of the main reasons for this is the inherent flexibility of pedagogical interaction in kindergartens, specifically **the large potential of the pedagogical situation as its main form**.
- 16) In the process of additional analysis it was established that **the level of well-being of children during teacher-organized group activities has a statistically-significant connection to the grades on the *Diagnostic test of children's readiness for school***

(Bizhkov & Stoyanova, 1997) during the final experimental assessment ($R = 0.556$), which is understandable when bearing in mind that the results shown in the test are, to a degree, achieved in teacher-organized activities during the whole preschool period and the respective pedagogical interaction in the kindergarten.

- 17) A similarly significant correlation was established between **the grades on the *Diagnostic test of children's readiness for school*** (Bizhkov & Stoyanova, 1997) **and the level of the child's involvement in teacher-organized activities** ($R = 0.622$), as well as the level of the child's involvement in games and other activities freely selected by children ($R = 0.693$). The correlation with the child's level of well-being during games and other freely-selectable activities is also statistically important, though weaker ($R = 0.366$), possibly due to the unspoken, but also unwarranted, conflict between game play and intentional learning, maintained by parents as well as general social pressure that is often established in the preparatory group, seen as a transitional stage before children enter school.
- 18) For the oldest children that participated in the research, aged 6-7 years-old and on the doorstep of school, we can check for **an additional correlation between the progress of their level of well-being and involvement, on the one hand, and their results in the established *Diagnostic test of children's readiness for school***. Although not statistically significant, there is nonetheless a positive proportional connection between the *Test* results and the progress of the child's well-being during teacher-organized group activities and, respectively, the child's well-being and involvement during games and other freely-selectable activities – all of the above after application of the experimental program that incorporated individualized and differentiated pedagogical interaction. There is only one such connection that was not observed – between the test results and the progress in the level of children's involvement in teacher-organized group activities; this can be attributed to the fact that, by individualizing and differentiating the pedagogical interaction, we are encouraging children's initiative and entrepreneurship, so it is possible that some of them are less willing to participate in teacher-organized pedagogical interaction, increasingly preferring to have the opportunity to initiate activities themselves.
- 19) Compared to the expert opinion of active teachers with more experience, **the opinions of Master degree students are distinguished by a significant prevalence of general conceptual content rather than specific practical techniques**, which is understandable due to their lack of pedagogical experience with preschool children. Also understandably, the students' opinions **exude a greater optimism toward the belief that individualization and differentiation is achievable even in large, populous kindergarten groups**. This overall positive attitude of the Master degree students toward the realistic possibilities of individualization and differentiation in kindergartens outlines the welcome prospect that, in the near future, kindergartens will be staffed by qualified teachers that clearly understand the potential and the necessity of individualizing group work in an environment fostering well-being and active involvement of children, so that optimal educational progress for each child can be achieved.
- 20) Within its concept, the innovative model developed for application by kindergarten teachers includes a unified conceptually-technological, systematically-structured, and variably-dynamic pedagogical toolset for effective individualization and differentiation of group interactions in kindergartens, providing inexhaustible (though limited by the case-specific requirements) alternative possibilities for personalization of the interaction with each individual child via adequate educational projections that account for the specific

individual differences at a specific point in time while also respecting the distinctive features and the personalities of all other children within a given group.

Bearing in mind the aforementioned conclusions, we can also make several **recommendations for pedagogical practice:**

- 1) Apart from goals for the whole group during a given situation, setting individualized goals for the pedagogical interaction needs to be done during the planning stage of the pedagogical situation. In this regard it is essential that **the pedagogical situation guarantees a connection between what is typical for the group's age and the individual specifics of each child** and it is recommended to **ensure smooth transitions** from pedagogical situations as a form of organized pedagogical interaction **toward other individual or group activities, initiated by the children.**
- 2) In parallel with following the specifics of the educational program in use, it is important that the teacher **plans diverse and increasingly complex variations of the educational content in pedagogical situations** while upholding the principle of individualization of the educational goals in unplanned interactions with children during the rest of the daily routine moments. The pedagogue, **while considering both the individual characteristics of children and also the group's overall competence, should "ensure" a series of pedagogical situations of gradually-increasing complexity**, in order to keep each child's achieved level of mental development "awake" and to provide an unending source of "food" to ensure it keeps developing even further.
- 3) In each pedagogical interaction, the teacher needs to make **precise assessment of what part of already-mastered knowledge should be used as a jump-off point toward the new knowledge/skill/attitude** while also keeping in mind that within a given children's group, even one organized by age (as is usual in Bulgaria), the individual layers can be much more numerous than the actual number of children in the group.
- 4) Bearing in mind that **games and play are the leading activities during preschool age, it is highly recommended to ensure an adequate number of game-cognitive situations which, apart from everything else, ensure the maximum possible amount of repetition without children losing interest in the given activities**, as well as smooth transitions toward activities initiated by the children – games or other activities selected freely. **Game-based forms provide opportunities for variability, adjustment of complexity, and natural and spontaneous application of different sensory analyzers** (aural, visual, tactile, taste-related, and smell-related).
- 5) Even though pedagogical interactions with 6-7 year-old children are expected to have a close association with their upcoming role as school pupils, **teachers of this fourth kindergarten grade/preparatory class should continue to view game play as the leading activity during preschool childhood.** Games bring children emotional comfort, combined with the activation of the natural usage of the various sensory analyzers (aural, visual, tactile, taste-related, and smell-related). It is via the teacher's appropriately-targeted use of game-transformative methods of pedagogical interaction that the child builds social experience in a positive emotional way. In this preparatory group/class, game-based situations continue to provide many opportunities for the teacher to exhibit pedagogical creativity in order to effortlessly reach the depths of children's cognitive process while adapting to each child's specifics and individual rhythms. By bringing to the surface the exact thing that would benefit the child most at the given moment, **games allow the teacher to integrate goals and educational content from different educational directions even in this transitional age between kindergarten and school.**

- 6) **By the use of learning by doing and learning from experience, children are encouraged to assess their own knowledge from new viewpoints, to realize that this knowledge helps them in their practical activities and in their daily life,** to experience gratification from the achievement of a goal and also from the acquisition of new skills at the same time. When learning-through-doing, the child uses knowledge and skills that are already mastered to some degree, while also developing new kinds of skills in the process of *doing*. This is why, in order to stimulate learning by doing, it is necessary to find educational content whose process of mastering presents more opportunities for children to externalize, to practice and develop specific knowledge and skills while at the same time empirically mastering knowledge and skills from another field. **When learning by doing is applied, children acquire new knowledge and skills by discovering missing links, by rearranging configurations and ensuring a field of expression of personal creative inspiration.**
- 7) During the process of learning from experience, **restructuring a given problem from a verbal expression into a figurative form, i.e. the variability of presentation, helps to make the mastering of new knowledge both easier and more deeply rooted.** This means that successful mastering of knowledge and skills frequently requires **the educational content to be transformed into a form that is appropriate for the child.**
- 8) It is of exceptional importance to ensure that **the methods of pedagogical interaction,** viewed as methods of specific and discrete guidance of the children's activities, **are realized in partnership with the children, with their active involvement in the form of age-appropriate activity that ensures opportunities for personal initiative, for the feeling of discovery and for creative forms of expression.** In other words, it is important to take every opportunity to convert the methods of pedagogical interaction into methods of children's activity.
- 9) Once again **the importance of ensuring conditions that encourage children's spirit of discovery must be underlined, particularly in connection with the idea of ensuring a material and emotional environment of personal achievement of knowledge** that causes children to experience discovering things by themselves.
- 10) Even though **both girls and boys are equally in need of indiscriminate individualized and differentiated pedagogical interaction,** teachers should keep in mind that, during active and targeted application of such interaction, it has been noted that **boys tend to exhibit greater educational progress.**
- 11) It would be impossible to achieve appropriate individualization of the goals of pedagogical interaction if the teacher **does not have deep knowledge of the emotional, social, cognitive, motive and aesthetic needs of each child.**
- 12) **In order to successfully apply psychological-pedagogical observation as a method, it is important for teachers to develop their personal qualities of observation and impression, to aim for objective and non-prejudiced assessment of specific actions and achievements of the children.** By being familiar with the individual specifics and needs of each child, the encouraging teacher knows that **any findings made should apply to the specific situation at a given moment.** This kind of *flexibility of the teacher's mentality* is of exceptional importance – it represents the teacher's dynamic point-of-view on understanding and adequately interpreting the huge potential each child carries, the lack of prejudice with regard to what each child can and cannot do, the lack of a ceiling over expectations related to each child's cognitive abilities, etc.
- 13) It is very important that **the teacher ensures a dynamic, evolving educational environment** that supports the natural assimilation by the children of age-appropriate,

visualized information on specific subjects, as well as the application of mastered knowledge and skills in practice, as well as in the daily routine of the child, to the degree that this is possible.

- 14) **The freely-selectable children's games and play activities** are those that present the most opportunities for independent and individual creative expression of children, which is why it is necessary that **the teacher ensures adequate time, space and encouragement for such activities by the children.**
- 15) The game-cognitive or practical unplanned situations that are provoked or initiated by children are naturally connected with learning from experience emotions, thoughts, knowledge, remembrance, wishes, cognitive needs, etc.; through activities, games, or questions, these kinds of experiences rise to the surface, allowing children to incorporate them into their overall practical experience. This is when **the teacher should be able to seize the moment, to develop it immediately, spontaneously, and discreetly.** This can happen as an interaction only with the specific child that provoked the situation, but it would be even better if the teacher manages to include the rest of the children as well. This way, the experience transforms into useable knowledge. Such unplanned situations are a good opportunity for spontaneously and natural application of knowledge already possessed by the children, as well as knowledge not yet fully understood or mastered. **The key role of the teacher is to find a discreet, immediate and appropriate way to transform a life experience for the children into a pedagogical situation, all the while maintaining and nurturing each child's personal interest.**
- 16) **The timely and useful communication with each child's family** is of exceptional importance for targeted and effective individualization and differentiation of the pedagogical interaction.
- 17) An extremely important fact that should be acknowledged during the teacher's daily work is **the proven correlation between the level of well-being of each individual child** (both in pedagogical situations organized by the teacher and in games or other activities freely initiated by children) **and the children's educational progress.** This means that, while focusing on the educational progress of each child, the teacher should also follow the child's emotional well-being. **There is a similar correlation between the educational progress and the level of involvement of each child** in pedagogical interactions, which should similarly be monitored.
- 18) **The educational model proposed in this dissertation is variable and dynamic, as it presents an alternative for a general "scaffolding", a general framework, while the actual building of the model depends on the educational technologies and methods that each teacher will choose to use with each child at any given moment** (i.e. the model also allows for a dynamic development of each specific child), taking into account the child's individual specifics and needs. This is because there is not, and there cannot be, a single universal educational model, especially when seeking the projection of targeted individualization on the diverse pedagogical interactions.
- 19) The collected and described herein **pedagogical toolset for individualization and differentiation of kindergarten interactions, as well as the specified variants for grouping and dynamic regrouping of children in order to organize differentiation in the kindergarten can be used as a source of ideas for the teacher's daily work;** the teacher should adapt these for each specific child at a given moment.
- 20) **The included fully-developed educational technologies for effective individualization and differentiation of group pedagogical interactions** in kindergarten, within the boundaries of a pedagogical situation that follows the spirit of the educational model have

also been **conceived as variable-dynamic and can be adapted and further developed by the teacher** in accordance with the specific needs of individual children or sub-groups, or the group as a whole.

Finally, we will provide some **recommendations related to improving the regulatory aspect and updating/enriching the content of university and life-long education:**

- 1) There is a need for improving **the currently applicable documentation** toward ensuring **targeted, multi-faceted, effective and non-discriminatory individualization and differentiation** on the management level. **The connection between the Directive for Inclusive Education (2018) and Directive 5 for Preschool Education (2016) needs development and argumentation**, which especially concerns the need for revision of the second of the aforementioned Directives, bearing in mind its numerous inadequacies, some of which indirectly concern individualization and differentiation.
- 2) The dissertation argues for the **necessity to also develop innovative program systems**, which incorporate the conceptual and technological positions of the variably-dynamic educational model proposed herein. **Such a program system is already in the process of development by the author.**
- 3) The targeted, active and non-discriminatory individualization and differentiation, apart from a key shift in the viewpoint toward establishing pedagogy of open possibilities for each child and mastering by the teachers of specific educational technologies for individualized and differentiated interaction within the group, also requires some formal reforms, the most justified of which is **lowering the number of children in kindergarten groups**. Such an initiative has existed for a while in the kindergarten teachers' community, but we feel it needs to be pursued with more strength.
- 4) Using modern paradigms for personally-oriented education and tuition as basis brings new expectations for pedagogues, which in turn lead to the need for building new competences in both future and current teachers. In this respect it is necessary **to develop effective teaching programs for university academic disciplines for bachelor- and Master degree programs** related to the education of kindergarten teachers toward individualization and differentiation of the pedagogical interaction. **Such a program has already been developed by the author of this work** and will be proposed for inclusion as a selectable discipline in the curriculum of the bachelor-level programs "Preschool Pedagogy with Foreign Language" and "Preschool and Early School Pedagogy", as well as the Master degree programs of "Preschool Pedagogy" of the Faculty of Educational Studies and the Arts of the Sofia University "St. Kliment Ohridski".
- 5) Despite the numerous original and non-traditional ideas related to the technological aspect of individualization and differentiation found in **the expert opinions of kindergarten teachers**, they display **a somewhat lacking knowledge of the essence of some pedagogical concepts**. An incorrect understanding of individualization is seen most frequently, being limited to individual forms of interaction – which is one option, but not the only one and certainly not enough. Therefore, there is a need for **developmental educational trainings of active kindergarten teachers that provide a solid and modern conceptual basis of the issue, along with clarification of the terminology of the pedagogical toolset, while also introducing teachers to the entire spectrum of educational technologies** established in the author's educational model. **Such a course has already been developed and included in the list of courses for continuing qualification of the Faculty of Educational Studies and the Arts.**
- 6) Despite registering a generally positive attitude of directors, assistant-directors and head teachers toward the necessity for applying individualization and differentiation to the

pedagogical interaction in kindergarten, some of the educators' responses to some of the questions show uncertainty toward the realistic technological possibilities, as well as uncertainty toward the proper way for active and multi-faceted application of individualization in practice. This means that it is necessary **to ensure adequate continuing education on the issue for all workers in the field of preschool education.**

As a scientific-practical macro-summary of all more-specific basic-theoretic and methodic conclusions and recommendations included in the present dissertation, it can be argued that an innovative educational model was developed and justified; a model that features a unified conceptual-technological, systemic-structured and variable-dynamic pedagogical toolset for effective individualization and differentiation of group interaction in kindergarten, providing limitless alternatives and opportunities for personalization of the interaction with each child via adequate educational projections, accounting for specific individual differences at a given moment in time while also factoring in the specific and respecting the personality of all other children in the specific kindergarten group.

The prospects for increased individualization and differentiation of the educational interaction were confirmed in the context of stimulating life experiences and personally-significant experience. The proven main hypothesis, that the educational progress of each child is directly proportional to the child's well-being and active involvement in pedagogical interaction that is adapted to the child's needs, abilities, interests, rate of work, gender, etc. underlines how important it is for kindergarten teachers to be trained and to work individualizing and/or differentiating for each child. Because each teacher holds in their hands the ability to continuously renew the methods and techniques they use, as well as the organization of the educational interaction itself. It is this kind of teacher that can breathe life into innovative kindergartens and schools, that can fulfill the responsible mission of creating modern, up-to-date and flexible models for educational interaction, based on partnership and active involvement of the children that optimally develops each child, taking into account the child's individual needs in a dynamic and stimulating educational environment.

CONTRIBUTIONS OF THE DISSERTATION

At the macro level, the most important contribution that has simultaneously theoretical, scientific-research, and practical-application aspects is **the developed educational model** that proposes a unified conceptually-validated variable-dynamic pedagogical toolset for individualization and differentiation of the group interaction in kindergartens, marking endless (though limited by the applicable requirements) alternative possibilities for personalization of the interaction with each child through adequate simultaneous or consecutive educational projections that reflect the specific individual differences at any given time while also accounting for the specifics of, and respecting, the personalities of all other children in a given group.

The other significant contributing moments of the dissertation could be grouped into theoretical, research, or practical-application groups:

Contributions in theoretical aspect:

1. The terms “individualization” and “differentiation” are defined by uncovering their significance in relation to the pedagogical interaction in kindergartens.
2. The need for stronger application of individualization and differentiation in Bulgarian kindergartens is justified.
3. The educational perspective of learning from emotional experience and children’s personally significant practical experience is outlined in the context of individualization and differentiation of the pedagogical interaction.
4. The significance of each child’s emotional well-being and level of active involvement in the pedagogical interaction is validated with arguments in the context of the child’s individual educational progress.
5. Viewed through the lens of learning from emotional experience and children’s personally significant practical experience, the pedagogical situation, as the leading kindergarten form, is given new capacity, focusing on its realistic possibilities for individualization and differentiation of the pedagogical interaction with children, based on the inherent variable-dynamic, simultaneous or consecutive transitions in its organization.
6. The role of activities initiated by children and the individually-chosen activities in the context of each child’s educational progress is outlined.
7. Proof is presented of the key role of the teacher in the personally-significant pedagogical interaction, as well as for children’s educational progress.
8. Arguments are presented for the significance of knowing and dynamically-following the development of each child’s individual potential as a key prerequisite for effective individualization and differentiation in the context of learning from emotional experience and children’s personally significant practical experience.

Contributions in research aspect:

9. A *system of criteria and indicators* for evaluating the effect of individualization and differentiation on the pedagogical interaction in kindergartens is proposed and justified.
10. Based on the proposed criteria and indicators, a *comprehensive system of research methods and diagnostic tools* is developed to evaluate the effect of increased individualization and differentiation on the pedagogical interaction; this system has possibilities to be used in a wider spectrum of research in the field of pedagogy.
11. Using statistical-mathematical methods, the *following correlations are proven*:
 - the effect of increased individualization and differentiation on children’s educational progress;

- the connection between increased individualization and differentiation, and the children's age group;
 - the connection between increased individualization and differentiation, and the children's gender;
 - the correlation of children's well-being and involvement with their educational progress;
 - the effect of increased individualization and differentiation on children's well-being and active involvement.
12. The analysis of the individual dynamic in the development of separate children as a consequence of the increased individualization and differentiation of pedagogical interaction partially expands, in a practical-application context, the *psychology of individual differences*.
 13. The analysis of expert opinions of kindergarten teachers and the opinions of Master-level students qualifying for kindergarten teacher positions expands, in a practical-application context, the *field of preschool pedagogy as a science*.
 14. Through the questionnaire used in the research, the *positive attitude of kindergarten management personnel* towards encouragement of the individualization and differentiation of pedagogical interaction is proven, which forms a kind of bridge towards implementation of the development program in practice.

Contribution moments in practical-application aspect:

15. Based on the researched bibliography, the good pedagogical practice, and the author's viewpoint, there is a detailed description of a pedagogical toolset (incorporating methods, attitudes, means, and forms) for targeted individualization and differentiation of the interaction in kindergartens.
16. Based on the researched bibliography, the good pedagogical practice, and the author's viewpoint, possibilities of sub-grouping and dynamic regrouping of children as a method to organize differentiation in kindergarten are outlined; a significant contribution moment is the application of sub-grouping and regrouping as a function not only of the teacher, but also of the children themselves – via self-assessment and self-expression, children can select for themselves the tasks' difficulty level, the connection to the children's own interests, etc.
17. Multi-faceted variable-dynamic educational technologies for effective individualization and differentiation of the group pedagogical interaction in kindergarten in the framework of the pedagogical situation are developed and approbated in practice.

LIST OF AUTHOR'S PUBLICATIONS ON THE DISSERTATION TOPIC

1. **Енгелс-Критидис, Р.** Значимостта на индивидуализацията и диференциацията в педагогическото взаимодействие в детската градина. Педагогика, 8/2015, стр. 1147-1156, ISSN 0861-3982.
2. **Енгелс-Критидис, Р.** Значимостта на индивидуализацията и диференциацията за постигане на образователен напредък при деца от първа и четвърта група в детската градина. Списание на Софийския университет за образователни изследвания, 1/2016, стр. 16-26, ISSN 1314-8753.
3. **Енгелс-Критидис, Р.** Индивидуализация и диференциация в педагогическата ситуация. В: Сборник доклади от Девета научно-практическа конференция по предучилищно образование „Водим бъдещето за ръка – заедно с нашите деца“ (11-13 май 2016). Пазарджик, Макрос, 2016, с. 303-305, ISBN 978-954-561-409-5.
4. **Енгелс-Критидис, Р.** Роля на индивидуализацията и диференциацията в педагогическото взаимодействие в детската градина. – В: Годишник на СУ „Св. Климент Охридски“ – ФНПП; том 109, стр. 32-46. С., УИ „Св. Климент Охридски“, 2017, ISSN 0861-8216.
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6. **Енгелс-Критидис, Р.** Целите за стимулиране на преживяванията в контекста на индивидуализацията и диференциацията на педагогическото взаимодействие в детската градина. Педагогика, 4/2018, стр. 476-500. ISSN 0861-3982.
7. **Енгелс-Критидис, Р. и В. Чолакова-Младенова.** Игрово-познавателните ситуации в подготвителна група/клас: индивидуализиране и интегриране на образователно съдържание чрез играта „Пощальон“. В: Сборник с доклади от IV Есенен научно-образователен форум „Учителят и модернизиранието на образованието – национални и европейски практики“ (14-15 ноември 2014). София, УИ „Св. Климент Охридски“, 2015, стр. 163-172, ISBN 978-954-07-4013-3.
8. **Енгелс-Критидис, Р. и В. Чолакова-Младенова.** Индивидуализиране и интегриране на образователно съдържание в предучилищна възраст: „Пъзел с илюстрации от приказки“. В: Сборник с доклади от IV Есенен научно-образователен форум „Учителят и модернизиранието на образованието – национални и европейски практики“ (14-15 ноември 2014), София, УИ „Св. Климент Охридски“, 2015, стр. 173-180, ISBN 978-954-07-4013-3.
9. **Енгелс-Критидис, Р. и В. Чолакова-Младенова.** Ролята на личностно значимия практически опит: две проекции на ученето чрез правене в детската градина. В: Сборник с доклади от V Есенен научно-образователен форум „Съвременното училище и квалификацията на учителите“ (20-21 ноември 2015), София, УИ „Св. Климент Охридски“, 2016, стр. 141-150, ISBN 978-954-07-4105-5.
10. **Енгелс-Критидис, Р. и В. Чолакова-Младенова.** Фоторазказът като метод на педагогическо взаимодействие в съвременната детска градина: ролята на личностно значимия детски опит. В: Сборник с доклади от V Есенен научно-образователен форум „Съвременното училище и квалификацията на учителите“ (20-21 ноември 2015), София, УИ „Св. Климент Охридски“, 2016, стр. 199-207, ISBN 978-954-07-4105-5.
11. **Енгелс-Критидис, Р. и Д. Йотова.** Учене чрез преживяване и личностно значим детски опит. В: Сборник с доклади от VII ЕСЕНЕН НАУЧНО-ОБРАЗОВАТЕЛЕН ФОРУМ „Съвременни педагогически технологии в образованието“ 10-11 ноември 2017), организиран от Департамент за информация и усъвършенстване на учителите, СУ „Св. Климент Охридски“, София, УИ „Св. Климент Охридски“, 2018, стр. 58-64, ISBN 978-954-07-4554-1.
12. **Енгелс-Критидис, Р., Цв. Каменова и Г. Желева.** Индивидуализация и диференциация на педагогическото взаимодействие в подготвителна група/клас чрез използване на вотинг система. В: Смесеното обучение – модернизиранието на образованието чрез технологиите. Сборник с доклади от научно-практическа конференция (20 октомври 2017), стр. 26-37, София, Джуниър Ачийвмънт България, 2018, ISBN 978-954-8421-38-6; ISBN 978-954-8421-39-3.