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**MEDIA LITERACY AND  
CRITICAL THINKING  
IN 5-7-YEAR-OLD CHILDREN**

**ABSTRACT**

**OF DISSERTATION**

**FOR ACQUISITION OF EDUCATIONAL AND SCIENTIFIC DEGREE “DOCTOR”  
IN PROFESSIONAL FIELD 1.2. PEDAGOGY  
(MEDIA PEDAGOGY)**

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**Sofia, 2023**

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The content of the dissertation includes an introduction, five chapters, a conclusion, recommendations, contributions, bibliography, and applications. The dissertation contains 171 pages. There are 10 tables, 12 figures, 6 graphs, 3 diagrams, and an appendix with 12 applications. The bibliography contains 136 titles, of which 65 are in English.

The abstract follows the structure of the dissertation and has the original numbering of figures, graphs, tables, and charts within. The bibliography in the abstract covers only the literature cited in the abstract.

The dissertation has been discussed and directed for public defense by the Department of Preschool and Media Pedagogy at the Faculty of Educational Sciences and the Arts of Sofia University. The public defense of the dissertation will take place on 9<sup>th</sup> February 2024 at 13.00 at the Faculty.

## **INTRODUCTION**

Children's access to a huge flow of information and the ever-expanding range of online resources provide a space on the Internet where they can make their own choices without adults' help or permission. The new technologies change the perception of time - it seems to run faster since much of what children want online happens instantly - conversations, correspondence, receiving information, "switching" from one activity to another, speeding up, slowing down, skipping ahead or rolling back, etc. and respectively, they expect real life to proceed with similar speed, flexibility and often reversibility of events. Therefore, children should be taught how to think and interact efficiently rather than what to think and do. Striving to use and implement the latest and most advanced technology should not be an end in itself - form and content should be in harmony and complement each other, especially when they relate to the upbringing and education of children, both at the institutional level and in the family environment.

Experts in the field of media education think that it is no longer an advantage to be media-literate, but rather that it is a disempowering obstacle if one is not media-literate (Celot & Tornero, 2009). Len Masterman considers that the main aspects of media education include the development of critical thinking, especially when interacting with media messages, analyzing the media language and means of expression, being aware of media production mechanisms, and the ways messages are perceived by the audience. The greatest threat facing contemporary values of democracy is the gap between the creators of media products, who are obsessed with power and the desire to manipulate, and the audience that trusts them; in this kind of context, media education is part of the solution to this issue (Stoyanova, 2021a).

In the 21st century, children have access to a vast amount of information available online at an increasingly early age; therefore, it is essential to start learning from the very beginning of their exposure to it how to relate critically to the flow of media messages. Studies of their online habits show that by the age of eight, they are already regular and frequent media users, although up to that time their behavior is largely monitored by adults. Carrying out even most basic everyday activities nowadays requires knowledge, skills, and competencies regarding the media not only from a technological point of view but also in the aspect of analysis, synthesis, and evaluation of the messages that media sources convey. This makes media literacy very closely related to critical thinking, so advancing research in this area, especially concerning early childhood, is of utmost importance in order to build an appropriate strategy for implementing critical media literacy in the preschool age and to prevent the creation of

dangerous and undesirable habits, as well as to reduce the need for remedial action at a later age.

The author defines the relatively new concept of “critical media literacy” for Bulgarian scientific literature, which doesn’t exclude the existing definitions of the two concepts of “media literacy” and “critical thinking”, some of which are presented in the first two chapters of the dissertation. It should therefore be understood that, from the author’s point of view, “critical media literacy” is the development of knowledge, skills, and attitudes for critical reading and competent participation in the various media communication environments; the application of moderate skepticism about information provided by, and to, us; the process of posing relevant questions and seeking options of answers; and the expression of interest in understanding otherness in its various aspects.

The research **Aims** to establish the relationship between critical thinking skills and the level of media literacy, on the basis of which to create a pedagogical model for the development of critical media literacy in the context of media education for 5-7-year-old children. The **Object** of the research is the process of critical media literacy development in children, while the **Subject** is critical thinking through media literacy in the context of media education in preschool age.

The dynamic and eventful 21<sup>st</sup> century presents a multitude of challenges that the education system is required to respond to, namely, what and how to teach; what knowledge, skills, and habits to develop in children and students; what and how to assess; and, last but not least - to succeed in integrating all children and students in the learning process so that there are none who do not receive the necessary knowledge, skills and support. Against this ever-changing background, critical media literacy is recognized as an important factor, tool, and medium for preparing children for real life.

The dissertation is organized into five chapters: **Chapter One** provides an overview of media literacy in the context of preschool education - its place in the competency framework, in the multimodal approach, and in the context of educational strands in preschool education. **Chapter Two** examines concepts of critical thinking and its manifestation in 5-7-year-olds in the context of Benjamin Bloom's taxonomy, reviews questioning skills as an important component of critical media literacy, and defines the term “critical media literacy”, also presenting analysis of recent research done in the United Kingdom, based on this interrelationship. **Chapter Three** describes the aim, subject, objectives, tasks, and hypotheses

of the research, the criteria for measuring critical media literacy, as well as the methods, participants, and stages. **Chapter Four** presents the conceptual framework, goals and methods of the author's Model for Development of Critical Media Literacy in 5-7-Year-Old Children, which was applied in the experimental group, as well as the author's test-training battery (in the theoretical-scientific and diagnostic-applied aspects, the test-training battery has qualities that make it a reliable diagnostic and, at the same time, educational tool (as per Bizhkov & Kraevski, 1999) to be used in the process of critical media literacy development); additionally, the chapter includes an analysis of the author's written questionnaires used in the research for investigating teachers' and parents' competences in the field of media literacy. Lastly, the chapter includes presentation and appropriate scale analysis of a preliminary study of fragments of the model that have been implemented with teachers and their preschool groups (in practical-applied terms) as well as in a theoretical aspect - by students. **Chapter Five** presents a statistical analysis of the obtained data, where the test-training battery, the questionnaires, and the scales assessing the levels of media literacy and critical thinking are analyzed; the reliability of the test-training battery and the questionnaires is calculated using Cronbach's alpha coefficient, the results are visualized and analyzed statistically, proving the relationship between critical thinking and media literacy in the experimental group and the lack of relationship in the control group, which in turn confirms that the proposed author's pedagogical model works. Also, a comparative analysis between the groups and by gender is made, since the equal distribution by gender in the two groups (experimental and control) allows it. The **Appendix** includes the questionnaires for teachers and parents, as well as a second subtest of the test-training battery; some of the stories (text and illustrations) used in the experiment, as well as several worksheets of situations. Additional tables and graphs are included to extend the statistical analysis; for the reader's convenience, the titles of the appendices are indicated in the table of contents.

## *Chapter One*

### **MEDIA LITERACY IN THE CONTEXT OF PRESCHOOL EDUCATION**

#### **1.1. Understanding media literacy**

Anderson and Mayer (1988) define “medium” (singular form of “media”) as "a recognizable human activity that organizes reality into 'texts' for reading and involvement". This action-oriented definition provides a natural articulation of the concept of competence: media-literate people who are competent participants in media reality. Furthermore, it highlights the centrality of the concepts of “text” (in the semiotic sense) and the creation of meaning, which have a structure-forming role in media literacy research. In this sense, “text”

should be understood as any mode of expression or communication in a particular real form, which uses a symbol system that includes language, still or animated images, graphic design, sound, music, and interactivity (Renee Hobbs) (as cited in Fastrez et al., 2022).

Nowadays, the concept of literacy has expanded the range of meanings, including a plethora of different skills, knowledge and attitudes that provide literate people with the ability to understand and interact with their surroundings. In turn, this ability depends on a critical understanding of messages and media texts, as well as the unconscious semantic and semiotic relationship that takes place at the psycholinguistic level. Sociocultural definitions of literacy should conceptualize reading, writing, and the creation of meaning as integral elements of social practices, discourses as socially-recognized ways of using language (reading, writing, speaking, listening), gestural and other kinds of semiotic units (images, sounds, graphics, signs, codes), and ways of thinking, beliefs, feelings, values, actions, and interactions with people and things so that we can be recognized as part of a socially-significant group or as "playing" a socially-significant role (James Gee), i.e. being part of discourse means that others can recognize the social role we "play", or a "version" of it, the way we use language, as well as our beliefs, feelings, actions, outfit, etc. (Knobel & Lankshear, 2007).

Media literacy integrates many terms and concepts such as digital literacy (focusing on the binary nature of the signals transmitted), computer literacy (referring mostly to computerization), information literacy (receiving, absorbing, contextualizing and multiplying information), audio-visual literacy (sound and image as carriers of the message); this peculiar symbiosis can lead to confusion, but the term "media literacy" encompasses the most holistic interpretation and interaction between all of them (Celot & Tornero, 2009).

Media literacy is a response to the integration of media and technology into people's lives. Electronic media (telephone, films, radio, and television) opened the way to mass communication, made possible by Johannes Gutenberg's invention of the printing press in the middle of the 15<sup>th</sup> century and dominating in its advanced forms in the late 19<sup>th</sup> century and the first half of the 20<sup>th</sup> century; followed by the emergence of digital media, the paradigm of which is the Internet, dating from the 1970s and widespread since 1989. In this regard, media literacy contains an expanding and reinforcing core function of different kinds of literacy, involving not only technical skills but also critical understanding and analytical simultaneous reading of a vast amount of information sources, arguments, social prescriptions, symbolic and cultural codes and conventions (Celot & Tornero, 2009), as well as their application in different contexts.

David Buckingham (Buckingham, 2007) questions whether the individual is the crux and how best to teach media literacy. Specifically, he argues that one cannot teach a limited set of cognitive skills that individuals somehow acquire. His proposal of several key concepts about media – production, language, representation, and audience - provides a theoretical framework that can be applied to the full range of contemporary mass media. He argues that teachers need to start with students' understanding of media and, using these concepts, to provide them with the opportunity to think consciously. "In this sense, media literacy is a corollary of media pedagogy, a scientific theory explaining the necessity of applying digital media to the needs of education, pedagogical interaction, teaching, and lifelong learning, i.e., media pedagogy is the discipline of using media technologies as a means of pedagogical influence and impact" (Danov, 2023, p. 22). Media literacy education aims to enable learners to reflect systematically on the processes of reading and writing and to understand and analyze their own experiences as readers and writers. In this line of thought, Lev Vygotsky identifies the dialogue between teacher and student as the most important element in the process of learning, and teachers should work in the so-called zones of proximal development, supporting students until they learn how to manage by themselves. However, Buckingham adds that even such a dynamic model may be insufficiently social, as it does not take into account the social functions and uses of knowledge and language in the classroom context, continuing the division between cognitive and affective processes, and thus also neglects the fundamental importance of students' emotional involvement in the media environment, which is crucial (Martens, 2010). The choice of an appropriate context could assist so that, in addition to developing media literacy, all three fields can be developed: cognitive, affective, and psychomotor, influencing children's thoughts, feelings, and behavior.

Most scholars define media literacy as people's knowledge and skills to analyze, evaluate, or create media messages. This knowledge and skills mainly relate to four key aspects: media industry, media messages, media audiences, and media effects. However, defining media literacy is only part of the problem, so the focus should be on the ways that educators can teach media knowledge and skills so as to implement an effective media education strategy (Martens, 2010). Media literacy can also be defined as a set of skills required for searching, selecting, evaluating, and sharing across media formats (Considine, Horton & Moorman; Enochsson; Livingston; Kuiper, Volman, & Terwel, as cited in Kuiper et al., 2005), which can identify the most important components in three strands of media literacy and refer to the world wide web (www), namely, skills for searching, reading, and evaluating on the web. Young people are



encouraged to be active users of the opportunities of the World Wide Web, emphasizing their abilities to critically examine, analyze, and evaluate the information they receive. A Special Resolution on Media Education and New Technologies by the European Council, adopted as early as 1989, according to which modern societies need to understand the structure, mechanisms, and content of the media, which requires the constant development of the ability to critically perceive and evaluate media. Covington advocates a similar idea that media literacy involves skills of critical insight and the ability to view, evaluate, and interpret content. British researcher Sonia Livingstone has an almost identical understanding of media literacy, defining it as the skills to access, analyze, evaluate, create, and disseminate media content (Livingstone, 2004).

Children became a target of the media industry when its accelerated development began in the second half of the 20<sup>th</sup> century. That was also when some of the most popular edutainment television series in the United States were created, such as Mister Rogers' Neighborhood in 1968 and Sesame Street a year later. This is why children's media behavior and attitude are the focus of research regarding media use and media effects (Herdzina & Lauricella, 2020). A certain level of media literacy is necessary in order to integrate appropriate media use into daily life. The development of media literacy among children includes the creation of skills to analyze and ask questions; the ability to distinguish facts from opinions; the ability to analyze the context, background, and causes of events; the ability to use contemporary content and tools to verify and study information; the ability to interpret the metaphorical meaning in a story, the ability to draw parallels to the present, and to work with sources to verify information; the ability to express opinions supported by facts; the ability to search for and verify different sources; the skills to identify prejudice, distortion, misinformation, and deception; the skills for working with texts – defining the target audience, the aim of the message, finding the keywords that present different viewpoints, etc (Lokshyna & Prykhodkina, 2020). Four levels define the approach of the media pedagogy philosophy, namely: 1) media awareness – knowledge about media; 2) media understanding – critical analysis of media and its content; 3) media attitude – appropriate attitudes towards the media environment; 4) media behavior – competent use of media to achieve personal and professional success (Danov, 2020). Media education for children refers to the development of all four levels, even if some children are under strict parental supervision or mainly depend on their parents' degree of understanding.

## **1.2. Preschool children and media literacy**

Children are influenced by the media information flow from as early as the age of two; at three they begin to show preferences, and by five they have acquired the skills to handle electronic devices – the colossal media resources that surround children from an early age, often difficult even for adults to master, create the need for media education. Media literacy primarily implies an understanding of the nature of the disseminated messages, an awareness of their purposes, their degree of credibility, the types of sources, the identity of the addressees, etc.; beginning as a disposition towards curiosity, doubt, and a desire to discover the truth, it creates new knowledge and competencies that shape children's media habits and behaviors, enabling them to apply critical thinking and attitudes to all media and their content (Danov, 2016). Media is becoming an integral part of modern society, penetrating even a relatively conservative system such as education at an accelerated pace.

It is crucial to pay attention to the active and creative use of media as an educational tool both within and beyond the framework of formal education, and also as a critical reflection of the influence of media in society. Education should encourage reading and increase learners' literacy and knowledge of the world around them (Simons, Meeus, & T'Sas, 2017). David Buckingham defines media education as the process of teaching and learning about media, and media literacy as its outcome - the knowledge and skills students acquire (Buckingham, 2007). As defined by the Council of the European Union (2018), the main purpose of this type of education is to develop students' critical thinking and active behavior. Media education enables children to attempt to make informed decisions even at an early age, to “read”, evaluate and create media messages. Through media education, children are challenged to think about thinking, arriving at relevant answers on their own, i.e. they learn how, not what, to think. In turn, this enables another important quality – creativity. Media education empowers students and becomes a field for the expression of different skills, talents, and interests.

## **1.3. Media literacy and the competency framework**

The definition of competences is "a dynamic set of knowledge, skills, attitudes, and dispositions that students acquire in the process of learning" (MON, 2019b, p. 2) and while knowledge asks questions that require specific answers such as what, when, where, how much, etc., skills involve the application of knowledge in practice, while attitude is the disposition towards knowledge reflected in learners' behavior. Competencies are acquired, not innate abilities, "the kind that are developed through quality learning, in an appropriate pedagogical

environment, and through the acquisition of substantial practical experience (Zwell, 2000)" (MON, 2019b, p. 2).

A contemporary understanding of competence outlines three leading components - knowledge, skills, and attitudes – associated with a “lifelong learning” approach. A recommendation of the Council of the European Union (2018) defines them as follows: "Knowledge is facts and figures, concepts, notions and theories already established"; "Skills are the ability and capacity of a person to apply reason and to use existing knowledge to achieve results"; and "Attitudes describe the predisposition and the way of thinking for acting or reacting to ideas, people, or situations" (Chavdarova-Kostova, 2022, p. 13). The objectives to be fulfilled by these key competences are the acquisition of "broader and more engaging learning experiences" by learners, whom the educational institutions are supposed to prepare for the challenges of accelerated political, economic, and technological processes that contribute to the frequent changes in their lives, to teach them how to "think critically and creatively, to work independently and as part of a team, to be innovative and to develop learning skills that are important to them" (Key competences for lifelong learning, 2018, p. 4). Due to the lack of complete unity among scholars regarding the definition of "competence" and "competency", the understanding prevails that competence is "the broader concept, containing personal qualities built from competencies" (Stoyanova, M., 2016). Different readings of competence are due to a multitude of factors: individual and organizational; or "soft" (behavioral) and "hard" (technical); and "drawing on the thesis for the division of the content of education into "meta-subject" (for all subjects), "intersubject" (for a cycle of subjects and educational areas) and "subject" (for each subject of study), Andrei Viktorovich Khutorsky arranges competences hierarchically into three levels: subject, general and key.

This framework defines digital competence as “the confident, critical and responsible use of digital technologies for learning, in the workplace, and for participation in society”, and it includes 'information and data literacy, media literacy, content creation skills, working safely in digital environments, dealing with intellectual property issues and cyber security competencies' (MON, 2019b). The main focus remains the digital part, which partly deprives media literacy of a deeper reading, as it includes all other types of media besides digital ones.

For measuring the expected results and learners' achievements, the competency approach seeks correspondence with the criteria of international studies - PIRLS (Progress in International Reading Literacy Study), TIMSS (Trends in International Mathematics and Science Study), PISA (Programme for International Student Assessment), ICCS (Institute for

Creative Civil Strategies), which makes it possible to compare the levels of Bulgarian students with ones from other countries and is in service of mobility and competitiveness (MON, 2019b). In the State Education Standards (DOS), the expected outcomes are indicated by "verbs that refer to the different levels of the thought process - memorizing, understanding, applying, analyzing, evaluating, creating – distributed depending on the stage - in the early stage, the lower levels prevail: memorizing, understanding, applying, while in the following stages the ratio changes in favor of the higher levels – analyzing, evaluating, creating" (MON, 2019b). These facilitate teachers in their choice of activities and balance the ratio of the development of all levels of thought processes with which the model proposed in chapter four of the dissertation is aligned – Model for Development of Critical Media Literacy in Preschool Children.

#### **1.4. Media literacy and the multimodal approach**

Multimodality (from Eng. Multimodality – multi (many, different) mode (way, feeling, form, measure degree, quantity, rhythm, tune, fashion, style, (from Latin mood – inclination), etc.) could be defined broadly as communication actions in terms of the textual, aural, linguistic, spatial and visual resources used to create a media message (Murray, 2013). The development of multimodality was accelerated at the end of the 20<sup>th</sup> century when the means of expression across the arts and media combined to create the multilayered nature of contemporary multimodal text.

The specific modal competences considered by Monique Lebrun, Nathalie Lassel, and Jean-François Boutin (Groupe de recherche en Littérature Médiatique Multimodale) relate to multimodality and include:

1. Textual modality - recognizing, analyzing, and using semiotic resources: linguistic/grammatical codes, i.e. at the linguistic level;

2. Visual modality - recognizing, analyzing, and using semiotic resources that relate to static images, moving images, shape, color, volume, texture, structure, organization and representation of space, framing, formatting, combining, editing;

3. Sound modality - recognition, analysis, and use of semiotic resources that relate to noise, sound, music, and speech (text, monologue, dialogue; linguistic, phonological, rhetorical codes);

4. Cinematic modality - recognition, analysis, and use of semiotic resources that refer to movements of objects or gestures;

5. Recognition, analysis, and use of different media: traditional media (print, radio, TV, paintings, sculptures), digital media (digital text, digital sound and image, social networks, interface, computer networks, sharing tweets, memes).

In the age of digitalization and artificial intelligence, the children's world is saturated with powerful images, speech, and sounds that are a product of multimedia culture. Contemporary information is a complex synthesis of audiovisual language that expresses multilayered concepts and ideas about the world. A variety of images instantly flash before children's eyes, so understanding language is no longer limited to traditional reading and writing; children need to be as proficient in "reading" and "writing" the language of images and sounds as they are in "traditional" literacy.

### **1.5. Media literacy in the context of the educational areas of preschool education**

Media literacy can be integrated into education in several ways. Firstly, by promoting the development of media literacy through the content of a specific subject (educational area), as it plays an influential role in Arts and Music Education (visual and audio literacy), Language education, especially within mother-tongue classes, where the focus is on the communicative functions of media (reading and understanding the different formats of text), as well as in History, Geography, Exact Science and Natural Science Education (Environment area), where there is an opportunity to raise the level of media literacy. In addition, media literacy should be explicitly addressed during the school year by discussing media issues and topics (Simons, Meeus, & T'Sas, 2017). Some experts are of the opinion that media literacy should be taught in a separate subject, in cases where access to technical resources is limited and teachers lack the necessary qualifications or confidence to deal with technical devices, or during classes on any subject/educational area through projects that develop media literacy in learners. The choice between media literacy being taught as a separate subject or as part of each subject should be made according to the factors that predetermine one option or the other. Still, it would undoubtedly be pointless to make it an end in itself or to impose the choice on teachers who feel uncomfortable with its use.

Preschool education should provide a learning environment in which play is the leading component, should be age-appropriate, and should ensure the holistic development of the child's personality. The child is expected to acquire the competences to support his/her transition to school education. In almost every educational area in the preschool age, children have the chance to develop knowledge and skills in media literacy.

## *Chapter Two*

### **CRITICAL THINKING AND PRESCHOOL CHILDREN**

#### **2.1. Understanding critical thinking**

Children must learn from an early age to communicate easily with others and to share their ideas clearly, to be able to help each other and to participate in the social life of the group/class. When targeted development of media literacy begins at a later age, there is a high probability that already wrongly-formed habits and misconceptions in children will need to be addressed, which will require more energy and will often have an inferior result, as it will be associated with prohibitions and restrictions, which does not correspond with the idea of media literacy, namely – broadening the horizons and opportunities for interaction with other participants in the communication process and with the world in general. Therefore, if the emphasis is on the broader concept of media literacy, given the contemporary invasion of technological innovations for the mass consumer and digitalization, critical thinking about media content and the environment is essential.

American philosopher John Dewey, who is regarded as the author of the term "critical thinking", defines it as "the active, persistent, and careful examination of any established or supposed form of knowledge in the light of the grounds which support it and the subsequent inferences one is disposed to draw" (Vakleva & Georgieva, 2021, p. 46). David Levy, an American professor of psychology, defines critical thinking as an active and cognitive strategy for examining, evaluating, and understanding events, dealing with problems, and making decisions. Thomas Sass, an American psychiatrist and academic of Hungarian origin, defines thinking as a process of self-induction – a person is thinking until he is satisfied with the decision, which is called "explanation", and uses it as an excuse to stop thinking about the issue anymore. Keeping the mind open to other explanations means maintaining ambiguity and indeterminacy, which is a kind of mental irritation whose "relief" occurs through a thought process (Levy, 2010). "One of the most essential features of our thinking is the way we are personally attached to - and then hold fast to - our opinions, beliefs, and interpretations. This tendency, called the "perseverance effect", can often lead to distorting, minimizing, or even ignoring any facts that contradict our "personal reality" (Shiraev & Levy, 2019, pp. 55-56).

The most valuable period for education and learning is between the ages of 3 and 20 years, because at the end of the third year the metabolic activity of the child's brain is at its highest level (twice as much as an adult's) and it begins to decline gradually after the ninth year, stabilizing in the last years of adolescence. There is a gradual loss of synaptic

connections that are not utilized until the tenth year (Kostova, 2017), which means that preschool age is crucial for thought processes, including critical thinking. Critical thinking is the art of thinking about thinking, during the process of thinking about how to enhance our thinking. Critical thinking analyzes, evaluates, and improves thinking (Paul & Elder, 2021). Developing critical thinking is one of the fundamental skills that people must acquire. According to David Levy (Levy, 2010), it is a skill that can be successfully taught or learned. Eric Shivaev and David Levy (2019) view thinking principles or meta-thoughts (literally "thoughts about thinking") as cognitive skills that ensure specific strategies for exploring and solving problems in cross-cultural psychology, serving as an antidote to thinking that often tends to be biased, simplistic, rigid, lazy, or careless.

Critical thinking can be viewed as either independent thinking or social thinking, in which finding information is the beginning, not the end, of a process based on asking questions to solve problems. In this regard, critical thinking should be among the main goals for preschool education (Danov, 2020a). Despite the world's sociocultural diversity, the essential universality of critical thinking principles transcends the limitations of any cultural group. Moreover, they can be used in a variety of fields, stretching from philosophy and theology to law, political science, history, sociology, anthropology, journalism, business, medicine, sports, and even art – in fact, in all areas of education and learning (Shiraev & Levy, 2019).

David Levy and Eric Shiraev assume that the development of critical thinking begins in early childhood when language formation starts and the child uses the symbols of language to achieve a specific goal. The emphasis on critical thinking has a distinct role in formal and informal education, as it is part of the core competencies that facilitate lifelong learning. Mental operations are actively developed in 5-7-year-old children, cognitive interest is enhanced, which gives rise to their motivation to learn. At this point, children are ready to form a conscious, critical, and responsible perception of information (Yankovych, 2019).

The main task of critical thinking is to provide learners with the power to reflect and investigate through skeptical questions (McPeck) as well as to develop thinking skills that help them realize the reason and truth behind everyday life events (Haloren) (as cited in Feuerstein, 1999). The generation of children growing up with near-universal access to newer digital, interactive, and mobile technologies is often referred to as "digital natives" because their entire existence is in the presence of these technologies. Thus, in 2001, Mark Prensky distinguished between two generations - the young, born into the world of new technologies,

and the adult, for whom these technologies were brought in - when arguing the difference between the terms 'digital natives' and 'digital immigrants', which he introduced. As of the start of the 21<sup>st</sup> century, when everyone has grown up with the new technologies, the generational differences on this basis are diminishing, and Prensky focuses on the so-called "digital wisdom." Although children are now “digital natives”, this does not imply that they are digital media experts, nor that they have the skills to analyze, evaluate, and create media content - important prerequisites for media literacy. These children still need adult support to develop a foundation of skills that they can build on as they use technology and become media-literate. By the age of four, children begin to understand that others may believe or know something different than they themselves know or understand, which is the beginning of the theory of mind development (Herdzina & Lauricella, 2020).

Jenny Leon (2015) believes that critical thinking acquired in childhood can further develop throughout life, while G. Heymon (2008) argues that children begin to develop reasoning skills around the age of three and typically question misinformation conveyed by adults, highlighting the social experience for children's critical thinking during this period. D. Kuhn (1999) argues that even young children can think about thinking (Yarali & Aytar, 2020), while Peter Facione believes that critical thinking is neither just a skill, nor an attitude, but is primarily a process. When children are encouraged to think critically and invest creativity in their interactions, they will tend to exhibit it in their early years at school, when learning requires more effort and rigor than in preschool.

## **2.2. Critical thinking for children in the context of Bloom’s taxonomy**

The taxonomy (classification) of educational goals created in 1956 by a team of researchers under the supervision of the American psychologist Benjamin Bloom (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956) is widely used in education and includes three fields (domains), each containing several levels:

- The cognitive domain - based on knowledge;
- The affective domain - based on attitudes;
- The psychomotor domain - based on skills.

The cognitive domain includes six levels: knowledge, understanding, application, analysis, synthesis, and evaluation. In 1990, Lorin Anderson, one of Bloom's students, slightly changed the names of the levels of the cognitive field to make them easier to understand; from



nouns, they are transformed into verbal nouns, the positions of the last two levels are swapped, and synthesis is changed to creation. The transformed taxonomy of the cognitive field includes remembering, understanding, applying, analyzing, evaluating, and creating – these concepts are also at the core of many scholars' definitions of media literacy.

The authors of the taxonomy (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956) define it as referring only to the classification of expected and desired behaviors of learners - how each learner acts, thinks, and feels as a result of participating in a unit of study (the unit of study should be understood as a relatively self-contained part of the overall curriculum, focused on a particular topic or set of competences).

In terms of language, communicative competence prevails since language is a means of communication that allows life experiences, knowledge, ideas, and values to be exchanged; therefore, two aspects are of great importance in the learning process – how to communicate and what is communicated. The ways in which knowledge functions are manifested as skills, while attitudes are built based on all the levels relating to competencies: Knowledge, Skills, Dispositions, and Values, which in turn form the consciousness, which is the regulating factor of human behavior. For the formation of personal consciousness, according to Benjamin Bloom's theory it is necessary to unite all three domains: cognitive, affective, and psychomotor (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956).

The work in kindergartens and schools is more often focused on the development of the cognitive field, neglecting the affective and psychomotor fields, and this harms the development of emotional intelligence, which is a significant shortcoming of contemporary upbringing and education (Kostova, 2017). Bloom's taxonomy and the formation of communicative competence are closely related to the sphere of educational practice, as the cognitive field builds the knowledge that is necessary for the implementation of communication and the expansion of knowledge; the psychomotor field is related to the mastery of specific communication skills; while the emotional field is responsible for the learners' willingness to use what they have learned in the context of communication (Danov, 2011).

Critical thinking is a set of cognitive skills and intellectual attitudes that are necessary for "effectively recognizing, analyzing, and evaluating arguments and plausible claims, detecting and overcoming one's own biases and prejudices, and formulating and presenting convincing arguments to support conclusions drawn" (Bassham, Irwin, Nardone & Wallace) (op. cit. in Danov, 2020, p. 531); it can be viewed as independent and social thinking that begins

with searching for and finding information, as well as posing relevant questions whose answers might address a given problem (Kloster) (op. cit. in Danov, 2020).

### **2.3. Critical thinking and the art of asking questions**

It is sometimes good to not know the answer to a question, and it is normal for adults not to have all the answers. The process of asking questions serves to explore as many variants of answers as possible, not to find a single correct answer (Herdzina & Lauricella, 2020). Asking questions is primarily done by the teacher, while the children are expected to provide the answers, but the ability to ask meaningful and well-formulated questions is significant for both the teacher and the children. Appropriate questions posed to learners provoke critical thinking.

Asking questions that involve analysis, synthesis, and evaluation encourages the development of critical thinking and engages children to justify their answers, which improves their ability to express what they feel and think. Educators have good reason to state that learning how to think critically is a vital and indispensable skill, yet specific situations in which to master it are not always provided. According to Eric Shiraev (Shiraev & Levy, 2019), although we are convinced of the value of critical thinking, there are still no full-fledged programs regarding the acquisition of critical thinking at all levels of the educational system.

Jean Piaget concludes that without influencing and transforming the object, the subject can't reach its essence, in the same way that construction and deconstruction of media products and messages are discussed. The creation of questioning skills in children is essential for the development of critical media literacy. Building such habits and developing techniques are often neglected mainly due to the desire in adults to achieve upbringing and education results as quickly and easily as possible, as well as the fear of not being able to answer their questions. This leads to two conclusions: 1. that pedagogical interaction should not 'expect' an immediate outcome, but rather be part of a longer process; 2. that children's questioning should be a starting point for a process of seeking and discovering different answers and perspectives. The ability to ask the right questions at the right time and place refers to the level of critical thinking that creates a sense of self-confidence, adaptability, and adequacy in understanding the world.

The insufficient differentiation of preschool children's perceptions consists of the fact that they 'initially perceive objects and phenomena as undifferentiated complex wholes' in which they can hardly notice and distinguish their essential features; conversely, when playing games, children construct and deconstruct a specific, holistic concept, which helps them start

developing analytical-synthetic cognitive abilities. Preschool-age children also master language to a large extent, which provides a broader foundation as they begin to acquire knowledge that is a suitable medium for various thought processes. In the preschool age, "the visual-active type of thinking predominates". The transition from visual-active to verbal thinking was studied by G. Minska, who constructed a task in three plans: visual-active, visual-image, and verbal. The general conclusion from the data is that "the turning point for the transition to the higher form of thinking is towards the age of 5-6 years" (Piriov, 1967, p. 193)

#### **2.4. Defining the concept of critical media literacy in the Bulgarian context**

Critical media literacy is the development of knowledge, skills, and attitudes that help critically read and competently participate in different media communication environments; show moderate skepticism about information given by, or to, us; ask relevant questions and seek options of answers; show interest in understanding otherness in its various aspects.

Critical media literacy includes the basic understanding of media literacy that has been used so far - accessing, analyzing, evaluating, creating, and disseminating media content (Aufderheide & Firestone, Livingstone, Buckingham, et al.); additionally, according to Potter, it includes the development of skills and habits to critically examine the information we receive or create ourselves based on our thought processes.

Critical media literacy is primarily about creating skills and habits in children for asking questions and seeking their answers, which helps develop a curiosity about their surroundings that provokes them to reflect and explore. In order to apply a healthy amount of skepticism toward the information they receive, children should be able to identify harmful content and avoid it (knowing the consequences it can cause them), be able to express their opinions freely, and be aware of whom to turn to for help if needed, before unintended consequences occur; understand the purpose of messages in the media space as well as the norms of ethical behavior; be familiar with basic ethical rules in different communication environments so that they do not break them; be able to protect themselves and their friends and relatives from malicious content on the internet (Kostova, 2007). For children, critical media literacy is asking the right question at the right time and place and finding credible answers; it is children's ability to distinguish the commercial message, the virtual from the real, the fake from the true, etc.

Potter "presents a theoretical scheme based on a set of seven specific skills necessary for the formation of media literacy - these are analysis, evaluation, grouping, induction, deduction, synthesis and abstraction, and also five sets of knowledge structures - media effects, media content, media industries, the real world and the self", while paying attention to the definitions that emphasize critical thinking skills (Tsankova, Angova, Nikolova, Valchanov, Valkov, Minev & Osikovsky, 2022). The combination of traditional and electronic forms provides synchronous and asynchronous communication and expands the possibilities of training methods. The demands on teachers are increasing as they are supposed to skillfully apply information and communication technologies in their work with children and students. New technologies allow interactivity, enabling differentiation and individualization of the learning process. A variety of models are increasingly incorporated to help learners how to learn most effectively, preparing them for lifelong learning. Since learning is a process of becoming aware of the frame of reference within which people think, feel and act, applying adequate criticism to sources of information, in the process of lifelong learning they develop newer and more inclusive frameworks from which they subsequently emerge themselves (Fleming, 1997). A new culture of teaching and learning is created - interactivity instead of just listening, stimulation instead of pressure, formal and informal learning, and knowledge about knowledge (learning about ways of learning). There are also increasing demands on teachers' competences - methodological and didactic, media, technical, and social competences. Effective teaching uses strategies that stimulate the development of multiple intelligences and the mastery of lifelong learning skills. Therefore, the student's task of learning how to learn most effectively is much more important than the task of providing a huge volume of information which he subsequently finds difficult to make use of. The pupil must be prepared to integrate himself into different learning situations in the future, which can best be achieved through targeted methodological variety. Children need to develop critical thinking and media literacy skills to help them cope with the challenges of a changing world, as the requirements they will have to meet in the future become increasingly difficult to predict.

## *Chapter Three*

### **RESEARCH ON CRITICAL MEDIA LITERACY IN 5–7-YEAR-OLD CHILDREN**

#### **3.1. Aim, subject, and objectives of the research**

The research aims to establish the relationship between critical thinking skills and the level of media literacy, based on which to create a pedagogical model for the development of critical media literacy in the context of media education for 5-7-year-olds.

The object of the research is the process of critical media literacy development, and the subject is critical thinking through media literacy in the context of media education in preschool age.

#### **3.2. Hypothesis and research tasks**

*Main hypothesis:* the application of the Model for the development of critical media literacy in 5-7-year-old children creates appropriate attitudes, knowledge, and skills necessary for the development of critical media literacy in preschool age.

*Sub-hypothesis 1:* Increasing the level of critical thinking leads to a higher level of media literacy in the process of developing critical media literacy in 5-7-year-old children.

*Sub-hypothesis 2:* The use of media education products in the process of pedagogical interaction to learn about media and as tools for developing critical thinking (i.e., media education about and through media) leads to a higher level of critical media literacy in 5-7-year-old children.

*Sub-hypothesis 3:* Higher levels of media literacy in preschool teachers are predictive of better outcomes in terms of children's critical media literacy development.

*Subhypothesis 4:* Higher levels of media literacy in the family are a predictor of better outcomes in terms of children's critical media literacy development.

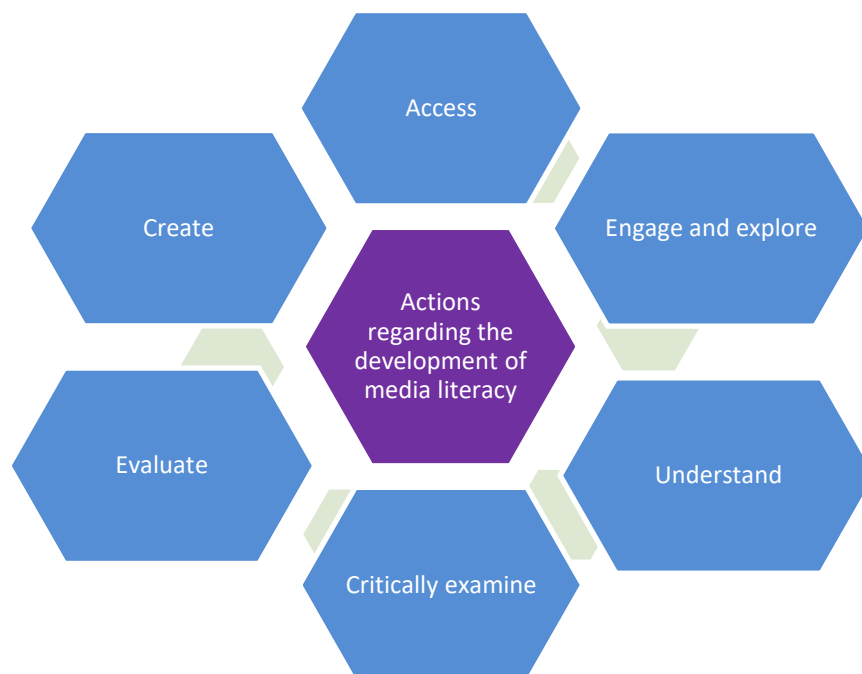
#### **3.2.2. Objectives of the research**

1. Introducing the nature and importance of media literacy for 5–7-year-old children;
2. Exploring the education system and context in which media literacy occurs for preschool children;
3. Presenting the nature and importance of critical thinking for 5–7-year-old children;

4. Finding the intersections between media literacy and critical thinking and arguing for the need to define the term "critical media literacy" in the Bulgarian context;
5. Presentation and testing of the author's Model for development of critical media literacy in 5-7-year-old children;
6. Creation and application of an appropriate diagnostic toolkit for assessing the level of critical media literacy in 5-7-year-old children;
7. Design and implement an appropriate educational toolkit to increase the level of critical media literacy in 5-7-year-old children;
8. Creation and implementation of questionnaires to measure the competencies of teachers and parents in terms of media literacy.

### 3.3. Criteria for measuring critical media literacy in preschool-age children

There are six main actions in the media space that lead to the development of media literacy: access, engage and explore, understand, critically examine, evaluate, and create (Figure 3); which can also be criteria for assessing the level of media literacy, and therefore largely enter into the test-training battery that diagnoses the level of critical media literacy in children, but also has educational functions.

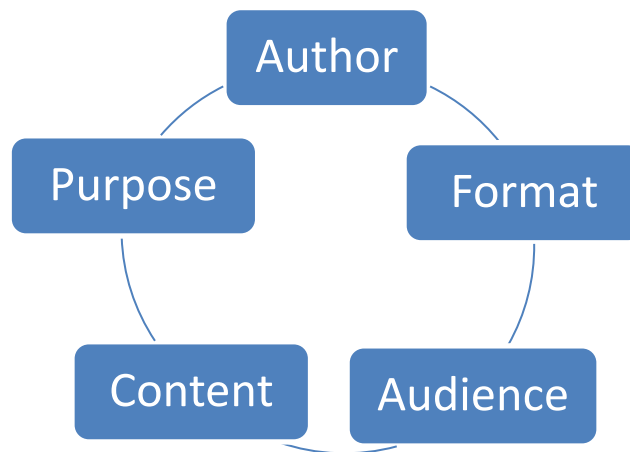


• *Fig. 3. Actions regarding the development of media literacy*

*Understanding* means introducing the idea of types of media by showing children samples of media, including a news item on television, a cartoon or feature film, a popular science film, or an advertisement. By asking children questions, their awareness of different types of media is built, such as what they are like, where they have seen them, which people watch/read/use them, and why they engage with this type of media.

It is necessary to make full use of the spaces where children play, learn, or visit - the kindergarten, the museum, the classroom, as well as the home environment - to provide prompts that encourage them to ask questions and find answers concerning their media education.

Five key issues and concepts are associated with the construction and deconstruction of media - author, format, audience, content, and purpose (Figure 4) - which are explored by children as they engage with different media products.



*Figure. 4. Key questions and conceptions for constructing and deconstructing media (by Partnership for 21st Century Skills)*

The authorship, format, audience, content, and purpose of media can be explored both in the preschool group and in the family, which should be included in the process of media education for children. For the model applied in the thesis, mainly traditional media is used – creating a book based on a specific fairy tale, performing a play based on a fairy tale, analyzing still shots from a film based on a children's story, etc. When it comes to children, a special place is given to visual literacy, since it influences the perceptions of the children's audience the most. Video and sound are basic units of modern media products, so awareness of the tools and the principles they work with are essential for media literacy programs.

### **3.4. Methods, participants, and stages of the research**

#### **3.4.1. Methods of the research**

- Research and analysis of the scientific literature on the topic of the dissertation - media literacy and critical thinking in the context of preschool education (described in Chapters One and Two);
- Research and analysis of the official legislative documentation on preschool education strands and the competence framework in education and finding intersections with media literacy (Chapter One);
- Psychological-pedagogical experiment for verification (Chapters Three, Four, and Five);
- A standardized-questionnaire survey of teachers to determine their level of competency in media literacy (Chapters Four and Five);
- Survey of parents to determine their level of competency in media literacy (Chapters Four and Five);
- Methodology of Creation of a Test-Training Battery to measure critical media literacy in 5-7-year-olds (Chapter Four);
- Creation of a Model for Development of Critical Media Literacy in 5-7-year-old children, applied in the experimental group to demonstrate the relationship between critical thinking and media literacy (Chapter Four);
- Statistical and mathematical methods for processing and analysis of the results (Chapter Five).

#### **3.4.2. Participants in the research**

- Thirty-eight children at preschool age (5–7 years old), divided into two groups (control and experimental);
- Seventeen parents of children who participated in the research;
- Nine teachers from the kindergarten where the research was conducted;
- Sixteen teachers from different kindergartens and their preschool groups, in which some pilot pedagogical situations from the Model were tested in real-life;
- Eleven students of “Media Pedagogy and Artistic Communication” from Sofia University “St. Kliment Ohridski”, who developed some pilot theoretical presentations of pedagogical situations from the Model.

#### **3.4.3. Stages of the research**

The experiment was conditionally separated into three stages:



Stage One: Pilot study of model elements:

1.1. With kindergarten teachers who perform situations from the Model with their children in real-life

1.2. With students who theoretically present situations from the Model

Stage Two: Actual experiment with 5-7-year-old children

2.1. Diagnostic stage

2.2. Formative stage

2.3. Summative stage

Third stage: Study of environmental factors

3.1. Educational (teacher survey)

3.2. Family (parent survey)

The two questionnaire surveys with teachers and parents of the children, conducted during the experiment, studied factors related to media literacy that are required in order to create an appropriate and safe media environment in kindergarten and at home for developing critical media literacy in children. A limitation of the approach is the questionnaire itself – being a self-assessment tool that incorporates the risk of unrealistic reporting by respondents. Additionally, researchers point to the possibility of discrepancy between measuring self-assessment and measuring performance. The actual behavior (i.e., the actions that the teacher/parent undertakes) should be performed after the teachers assess their competencies or self-efficacy (Bandura 1994, as cited in Simons, Meeus, & T'Sas, 2017 ). Therefore, the questions in the teacher and parent surveys include the assessment of some key indicators (Fig. 6 and Fig. 7) that can easily be self-assessed (the results obtained are analyzed and described in detail in Chapter 5).

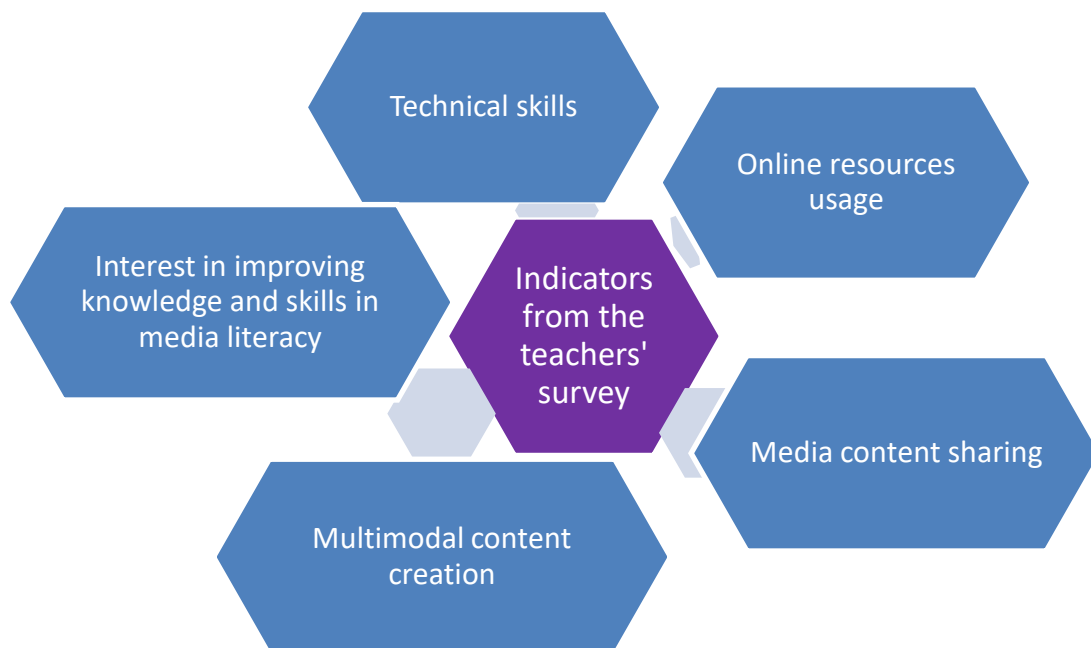


Figure 6. Indicators from the teachers' survey

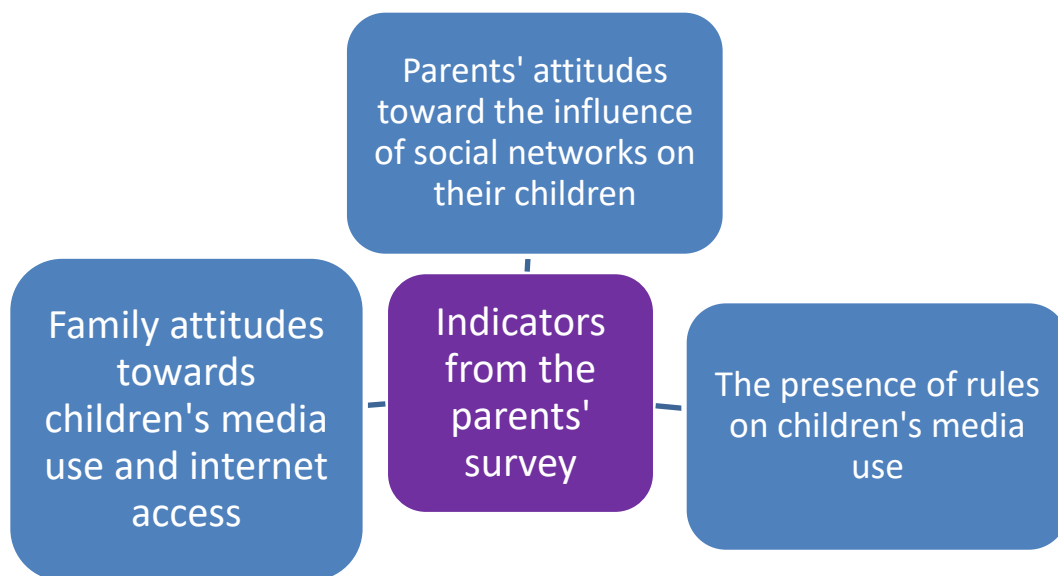
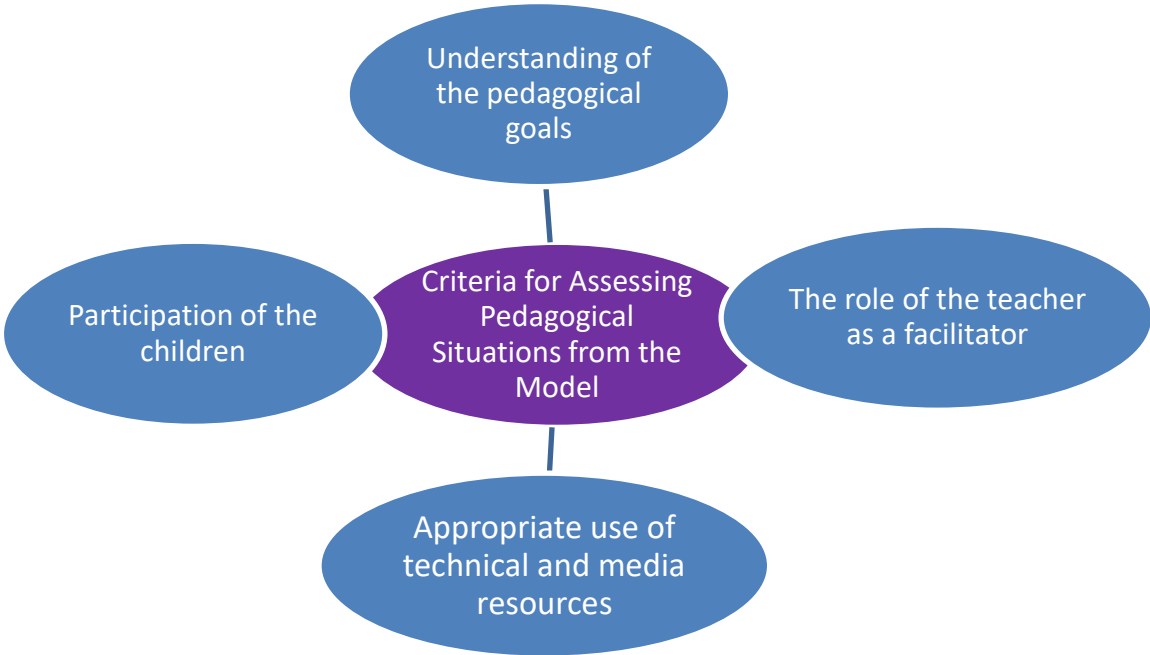


Figure 7. Indicators from the parents' survey

In the pilot study, analysis was done on the situations included in the model, which were performed by kindergarten teachers and students from Sofia University according to pre-set criteria (Fig. 8) in order to refine the tasks and to evaluate to what extent different groups of

children can cope with them, which in our opinion provides an opportunity for feedback on the teachers' understanding of the purpose of the pedagogical interaction, as well as on the children's willingness to respond to the set tasks in terms of the development of critical media literacy. It is necessary to take note of the teacher's role as a facilitator, since the focus of the training is the communication process and not a specific final result, which means that the teacher should only guide, support, and inspire the children to communicate in the best possible way and listen carefully to their responses which, as unlikely as they may sound, can be an unconventional but fruitful starting point for new topics of conversation and an opportunity for a smooth transition from one task to another. Sometimes, in their desire to achieve a predetermined answer, educators change the goal, something that is not desirable. This type of interaction implies the occurrence of unforeseen situations, since the child is actively involved in them and may ask questions that the teacher is unable to answer, but which are suitable as an opportunity to look for a variety of valid answers together with the children - an important part of media education.



*Figure 8. Criteria for Assessing Pedagogical Situations from the Model*

## *Chapter Four*

### **MODEL FOR DEVELOPING CRITICAL MEDIA LITERACY IN PRESCHOOL CHILDREN**

#### **4.1. The need to develop critical media literacy in preschool age**

Buckingham argues that effective practices in media education are not a matter of protecting children from the perceived negative effects of the media; on the contrary, they seek to lead children to more active and critical participation in the media culture that surrounds them (Buckingham, 2007). This view is entirely in agreement with the policy that the European Association for Viewers Interest (EAVI) has pursued over the last ten years in its overall work, which has not been directed toward expansion of media regulation and the imposition of restrictions on the media industry and content, but rather toward action that accelerates the development of media literacy and promotes its significance. Therefore, if the media is the primary vehicle for the dissemination of personal, economic, and/or political interests, the more media literate a society becomes, the less likely people are to accept the seemingly-attractive and the false (Celot & Tornero, 2009).

#### **4.2. Goals of the model**

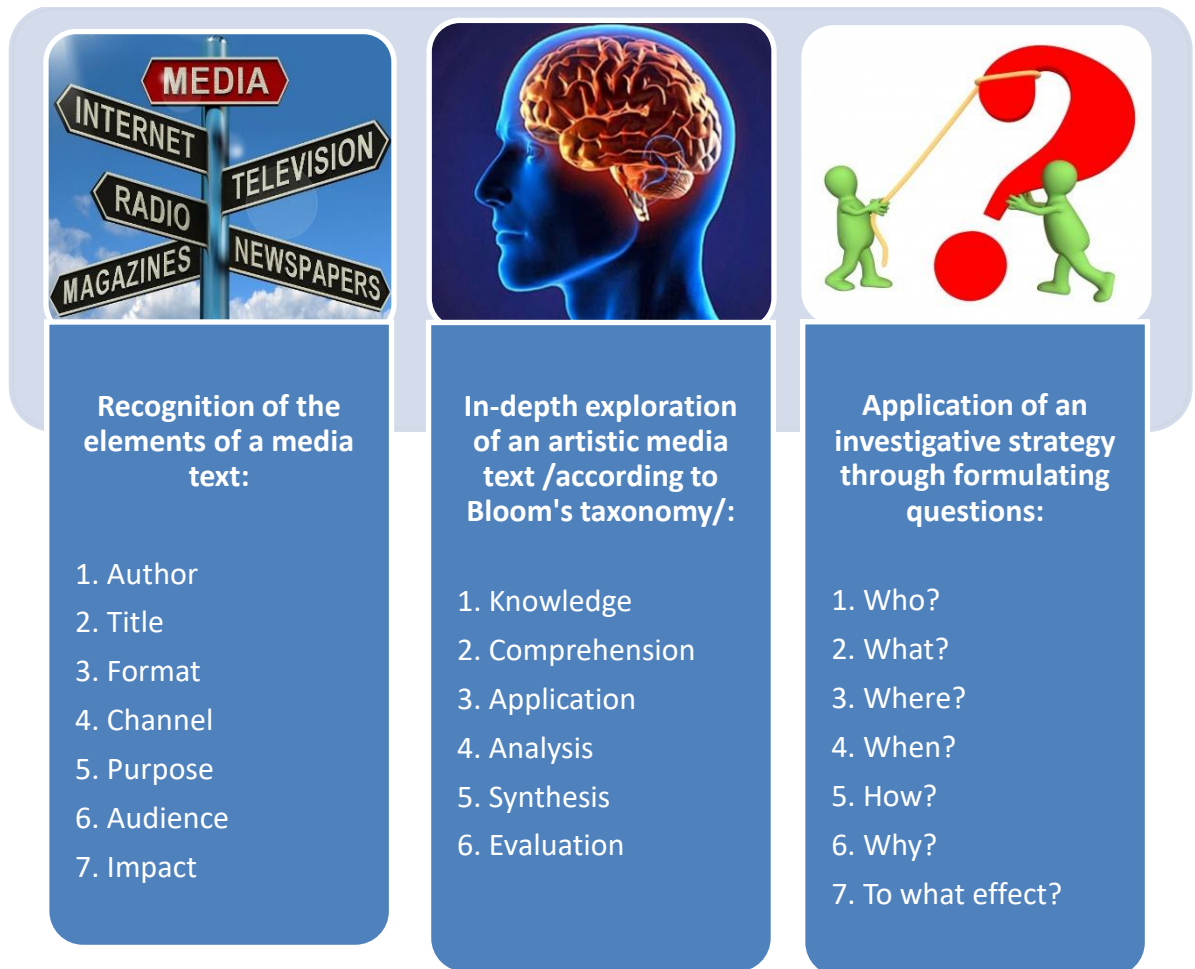
The proposed model aims to conceptually and technologically present a tool for the development of critical media literacy based on pedagogical situations involving multimodal tasks, games, and activities based on fairytales. To achieve this goal, approaches and methods are presented for the development of media literacy and critical thinking, as well as tools for the assessment of performance that are easily adaptable to different educational settings (with full, or partial, provision and use of technical resources), as they are designed to enable children to understand and analyze media products and sources rather than just mechanically interact with them.

The model is based on situations that evoke specific behavioral attitudes and a desire in children to communicate, based not on abstract concepts but rather on specific scenes from fairy tales for children. The mechanism of development of the test-training battery is also presented, so that teachers can choose the fairy tales to work with and assess the level of critical media literacy the children demonstrate, and/or educate them in this direction.

### **4.3. Visualization of the model**

The model for the development of critical media literacy (Figure 9) is developed within a more general conceptual framework that includes: 1. Recognition of the elements of a media text (author, title, format, channel, purpose, audience, impact) 2. In-depth exploration of the media text by examining it based on the cognitive levels of thought processes from Bloom's taxonomy (knowledge, comprehension, application, analysis, synthesis, evaluation), and 3. Application of an investigative strategy by formulating questions (who, what, where, when, how, why, with what effect). The basic model (Fig. 9), which is applicable to both children and other age groups, is followed by three methodological sub-models: Thinking Language Use (Fig. 10), Story-Based Approaches (Fig. 11), and Dialogue and Questioning Techniques (Fig. 12), which aim to develop children's critical media literacy.

Based on these models, the dissertation presents two subtests of the test-training battery (the first one is in the main text, while the second one can be found in the appendices) that can be used as a matrix for creating new ones and applied to teaching or assessing critical media literacy. The teacher can select the story (or stories) to be used in the creation of the corresponding new subtest from the test-training battery. An important component is the inclusion of techniques from so-called neuro-gymnastics, which improve brain function and predispose toward motor activity that children enjoy performing.



*Figure 9. Critical Media Literacy Development Model*

The pedagogical interaction in accordance with the proposed Model also borrows activities from the "Learning Task Generator" model, created according to the Willis & Willis' taxonomy (adapted by Todor Shopov):

- Enumeration (brainstorming, fact-finding, guessing games, etc.);
- Arranging & Sorting (chronological sequencing, classification games, etc.);
- Matching (listening and matching - labeling, titles, etc.);
- Comparing (finding similarities and discovering differences);
- Problem-solving (advising, giving recommendations, action scenario, logic problem);
- Sharing personal experience (narrative, memory, etc.);
- Projects and creative activity (creating a poster, collage, drawing a picture, etc.) (cited in Shopov, 2013)

A visualization of the three sub-models used to develop critical-media literacy in 5–7-year-old children:

## THINKING LANGUAGE USE

Sub-model “*Working with fairytales according to Bloom’s taxonomy*” to develop thought processes, including critical thinking (Fig. 10)

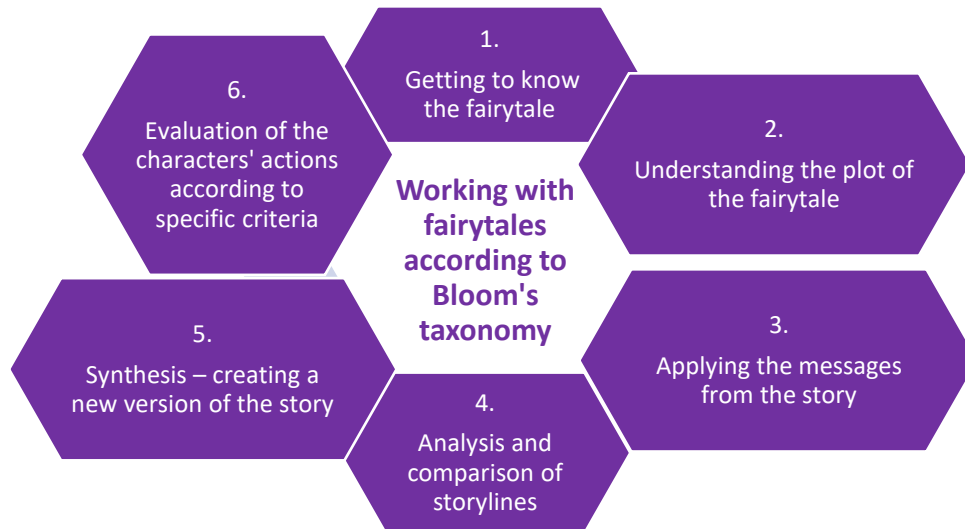


Fig. 10. Working with fairytales according to Bloom’s taxonomy (development of critical thinking)

## STORY-BASED APPROACHES

Sub-model “*Exploring a fairytale*” for developing media literacy (Fig. 11)



Fig. 11. Exploring a fairytale (development of media literacy)

## DIALOGUE AND QUESTIONING TECHNIQUES

Sub-model “*A query about the fairytale*” to develop skills for making and asking questions (Fig. 12).



*Fig. 12. A query about the fairytale*

### **4.4. Methods of pedagogical interactions used in the model**

Critical media literacy is an important component of contemporary education. An element particular to this kind of literacy is that people usually develop it in informal educational settings and can often demonstrate, sometimes even confidently, media behaviors that may be unethical and/or malicious. Appropriate knowledge, skills, and attitudes can prepare children to navigate further through the vast amount of information that reaches them through the various platforms on the internet, to distinguish between sources of information they can trust and others they should not, to learn to make informed decisions.

Some of the methods for fostering critical media literacy in children may include the following: 1. analysis of media products, messages, and texts, and evaluating their content according to different indicators; 2. construction and deconstruction of media messages and products; 3. analysis of media-presented life stories from different perspectives or viewpoints; 4. creation of media content with a specific purpose, appropriate to the age of children (photos, audio recordings, postcards, books).



The model focuses on the development of skills and knowledge for the critical understanding of aspects of media products, which concern a basic evaluation of the content and the type of media, and since children are involved in the process of creating a media product, they can become familiar with its different characteristics. The focus in this context is mainly on the development of children's competences in the use of digital devices (technical skills) and critical understanding (cognitive skills) relating to the encoding, decoding, and evaluation of media texts; to some extent, it covers the creation of media content linked to social competences. In terms of technical skills, research includes using the Internet, watching television, going to the cinema or theatre, reading books, using a mobile phone (smartphone), etc.

Benjamin Bloom's 1956 taxonomy is directly relevant to the present research with regard to the cognitive field. The cognitive learning goals of knowledge, comprehension, application, analysis, synthesis, and evaluation will be referred to as levels of thought processes for this dissertation, at least as they relate to critical thinking or higher levels of thinking – analysis, synthesis, and evaluation (Moore & Stanley, 2013). Reflecting, analyzing, stating one's own opinion, asking meaningful questions, transforming the text into different genres and formats, and placing it in a variety of contexts enable children to become familiar with the specifics of contemporary media products and to better understand the messages and goals that are embedded in them.

#### **4.5. Analysis and technology of the creation of the test-training battery – an educational method and diagnostic instrument for critical media literacy**

The two subtests from the test-training battery, one on the story titled “The Good Rabbits” (Naumov, 2018) and the other on the story titled “Elephant Bath” (Naumov, 2019), were used to measure levels of critical thinking and media literacy at the beginning and at the end of the experiment. The Model for Development of Critical Media Literacy goes through the following stages: 1. recognition of elements of media products (including messages): title, author, source, channel, etc.; 2. comprehension, synthesis, and analysis of media-presented artistic text (including all levels of thought processes from the educational objectives of Bloom's taxonomy); 3. asking relevant questions to the characters of the fairytale.

## *Chapter Five*

### **PRESENTATION AND ANALYSIS OF THE RESULTS**

#### **5.1. Analysis of the first stage: Pilot research of Model elements with teachers and university students**

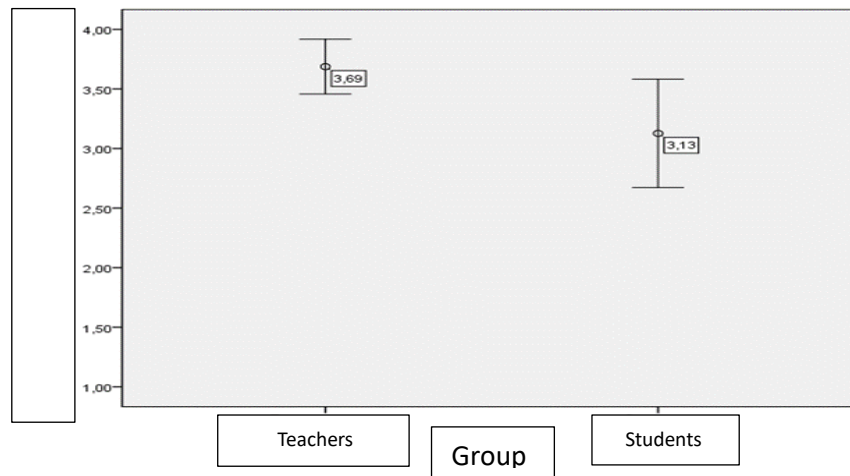
Before the implementation of the Model for the Development of Critical Media Literacy in 5-7-Year-Old Children, a pilot study was conducted with teachers ( $n = 16$ ) and their groups of preschool children, and with students ( $n = 11$ ) from Sofia University. The actual experiment involved 38 preschool children (5-7-year-olds) divided into two groups: experimental ( $n = 21$ ) and control ( $n = 17$ ), which had an almost equal gender ratio, making it possible to analyze the results by gender as well. In the third stage, an anonymous survey was conducted with teachers ( $n = 9$ ) of the kindergarten where the experiment took place, and with parents ( $n = 17$ ) of the children, to assess the environmental factors in the family and the kindergarten that are essential for the development of critical media literacy in children. To test the internal consistency reliability of the instruments used in the study, Cronbach's alpha statistic was used and the results show very good reliability of the scales, namely values above 0.5.

To investigate the level of understanding of the objectives, implementation, and attitudes towards the situations set out in the model, teachers ( $n = 16$ ) of preschool groups were involved in implementing pedagogical situations (according to predefined instructions and recourses), each of them recorded in audio or video format for a later assessment. The situations were evaluated according to five criteria: understanding of the objectives; appropriate use of technical and media tools; teacher's role as facilitator in the pedagogical interaction; children's participation and creative interpretation.

Similarly, students ( $n = 11$ ) from the Media Pedagogy and Artistic Communication specialty took part in the preliminary study and had to create theoretical pedagogical situations in accordance with the same predefined instructions and materials. Cronbach's alpha coefficient was calculated to assess the consistency of the scale for evaluation of the realized pedagogical interaction to increase media literacy in children - in practice by teachers and theoretically by students, the value of which shows a very good consistency of the scale.

The results show the presence of a statistically significant difference ( $t = 2.426$ ;  $p = 0.028$ ) between lecturers and students in favor of lecturers (Graph 1). In this situation, the complexity of the task must be taken into account; it is higher for lecturers as they put the situation into practice. The results obtained from this preliminary stage provide useful feedback

on the implementation of the model, with its distinctive characteristic emerging - the consideration of critical media literacy as a process rather than outcome.



*Graph 1*

The research approach in the first phase of the study aimed at determining the level of understanding of the essence of the educational goals that have been set, related to the development of critical thinking and media literacy in children and the adequacy of the approaches to achieve them. The focus was in two directions: on the one hand, on their practical implementation by teachers working in the system of preschool education and, on the other hand, the theoretical aspect as carried out by students from the specialty "Media Pedagogy and Artistic Communication" at Sofia University. The teachers' task was to conduct pedagogical situations with the children from their groups according to predefined themes, guidelines, and media resources, and the students' task was to develop theoretically a plan-scenario and strategy for determining the media tools for a pedagogical situation with the same educational recourses. Each teacher provided an audio or video recording of a pedagogical situation on the set topic within a given deadline, and each student presented the vision of the pedagogical situation.

The first stage helped to refine the themes and approaches included in the model and presented the understanding and attitudes of educators currently working in the preschool education system with regard to the challenges posed by the contemporary media environment.

The teachers' task was more difficult, as they had to implement the interaction in practice and also record it. The teachers' wish to support children in their performance is noticeable, but this inclination often changes the purpose of applying the model, which is to provoke the children to communicate freely, use their imagination, and be curious rather than trying to find

the right answer. Sometimes, the so-called wrong answer can be a very good starting point in the exercise of critical thinking.

Critical media literacy works on levels that are considered less often because they are taken for granted. In other words, if we take a text as an example, in the context of media literacy we will consider all of its modalities as well as the environment in which it occurs and the way in which these characteristics affect the perception of the text and communication in general, which complicates the definition of media literacy and the assessment of its level.

## **5.2. Analysis of the second stage: Application of the model with 5-7-year-old children (quasi-experiment)**

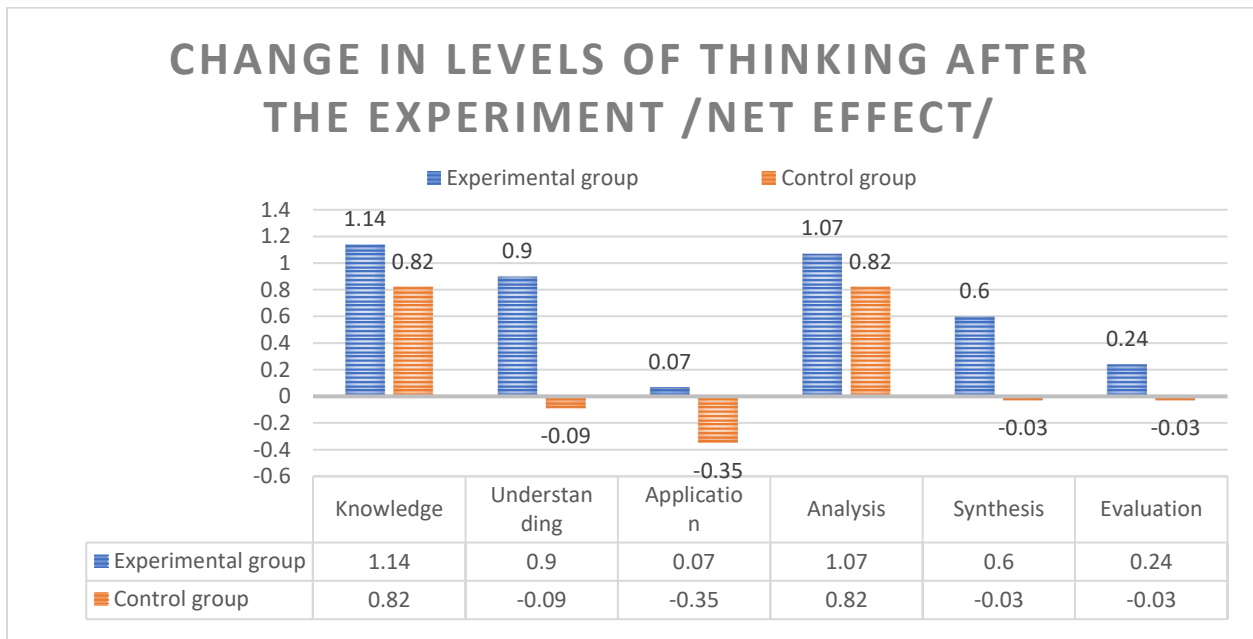
The second phase of the study involved 38 children. Individual psychological interviews/ conversations (lasting approximately 20 minutes each) were conducted with all children at the beginning and at the end of the experiment, in order to assess their levels of critical thinking and media literacy. The children were in two groups: 21 children in the experimental group and 17 children in the control group.

The two groups of preschool children (experimental and control) were given an entry and then an exit assessment on two main statistical variables: 1) level of critical thinking and 2) level of media literacy. The main variables were measured on a scale with 8 test items for critical thinking and 8 test items for media literacy. Items measuring critical thinking are divided into four subscales that reflect the following levels in ascending order: application (two questions), analysis (two questions), synthesis (two questions), and evaluation (two questions). The two main indicators (critical thinking and media literacy) were evaluated for their level of consistency using Cronbach's alpha coefficient, with values (0.717 to 0.852) indicating very good scale reliability for both the input and output assessments.

### **5.2.1. Critical thinking – data analysis**

Before applying the model, an assessment was done of the levels of the thought processes (learning objectives) - knowledge, understanding, application, and high-levels - analysis, synthesis, and evaluation, in order to analyze the results. Given the specifics of the age group that was studied - 5-7-year-olds - the level of "application" was added to critical thinking as it is intermediate and one of the most challenging for the respondents. This is why the measurement of children's critical thinking in this particular study involves not three, but four levels: application, analysis, synthesis, and evaluation.

The statistical data collected from the study was processed using the IBM SPSS Statistics V.20 program; the methods used were dependent samples t-test and independent samples t-test. The results reported the most significant change in the intra-group levels of thinking of the experimental group children in terms of knowledge (by 1.14) and analysis (1.07), while there was minimal change in terms of evaluation (0.24) and application (0.07) (Diagram 1).



*Diagram 1*

The data shows a statistically significant difference between the control and experimental groups after the implementation of the experiment in terms of understanding ( $t = 6.11$ ;  $p = 0.000$ ), synthesis ( $t = 3.94$ ;  $p = 0.000$ ), and application ( $t = 2.60$ ;  $p = 0.014$ ), and no statistically significant difference in terms of knowledge, analysis, and evaluation.

Intra-group and inter-group comparisons, for levels of thinking on the basis of gender, were also possible due to the even distribution of the ratio of girls ( $n = 9$ ) - boys ( $n = 12$ ) in the experimental group and girls ( $n = 9$ ) - boys ( $n = 8$ ) in the control group.

A statistically significant inter-group difference (between the experimental and control group) was recorded for comprehension in girls ( $t = 4.72$ ;  $p = 0.000$ ) and boys ( $t = 4.05$ ;  $p = 0.001$ ); application in girls ( $t = 3.24$ ;  $p = 0.005$ ) and synthesis in girls ( $t = 2.45$ ;  $p = 0.028$ ) and boys ( $t = 2.98$ ;  $p = 0.008$ ). The biggest, statistically significant change was found in the experimental group, distributed by gender, as follows: knowledge - boys (1.21), comprehension - boys (1.04), application - girls (0.33), analysis - boys (1.25), synthesis - girls (0.61). The

results show a relatively even distribution of good scores across the different levels of thought processes between genders.

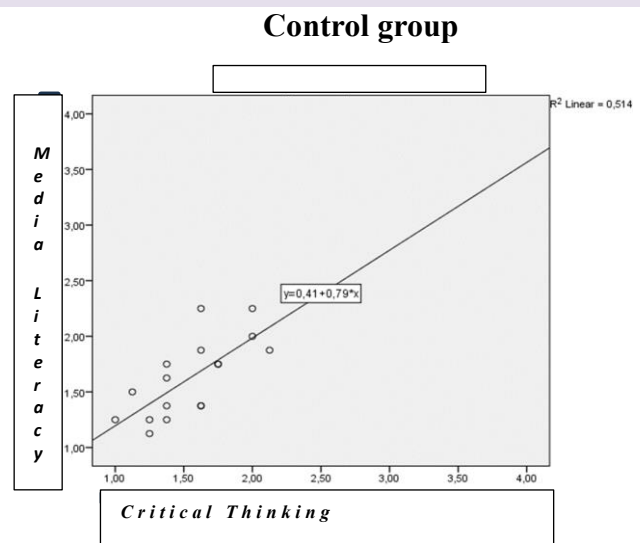
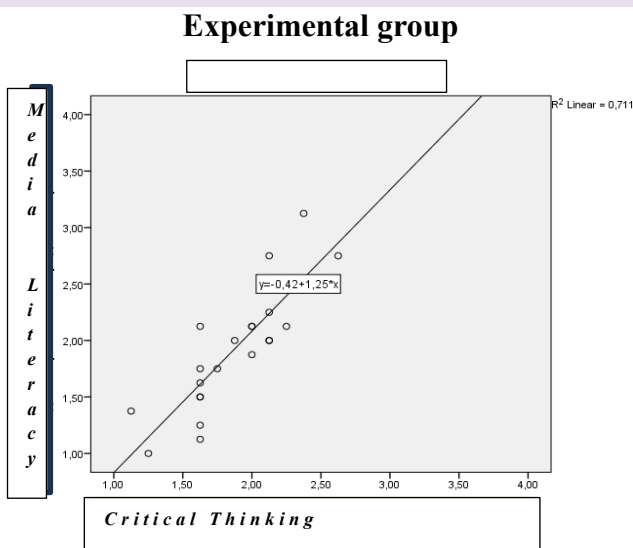
### **5.2.2. Media literacy and critical thinking – data analysis**

The regression and correlation analysis showed that, in the experiment group, before the experiment, 71.1% (coefficient of determination 0.711) of the differences in the media literacy score are due to the critical thinking factor. If the level of critical thinking is increased by 1, the level of media literacy will increase by 1.25 (regression coefficient 1.252). *Therefore, we can state that the applied model works ( $t = 6.836$ ;  $p = 0.000$ ) (Graph 3), confirming the first sub-hypothesis that, in the context of 5-7-year-olds' development of critical media literacy, an increase in the level of critical thinking leads to a higher level of media literacy.*

The analysis of the control group before the experiment showed that 51.4% (coefficient of determination 0.514) of the differences in media literacy were due to critical thinking and that there was also a significant relationship ( $t = 3.981$ ;  $p = 0.001$ ) - if critical thinking is increased by 1, the level of media literacy in the control group will increase by 0.79 (regression coefficient 0.789), proving again the relationship between critical thinking and media literacy (Graph 4)

After application of the model in the experimental group, the coefficient of determination was 0.532, and the regression coefficient - 0.924, and since the results indicated a statistically significant difference ( $t = 4.650$ ;  $p = 0.000$ ), 53.2% of the differences in media literacy were explained by critical thinking. In the study, after applying the model, the conclusion is that, as critical thinking increases by one, media literacy increases by 0.92 (Graph 5). *The results and the proof of the four sub-hypotheses confirm the general hypothesis that the applied author's model for the development of critical media literacy in preschool*

### Critical thinking and media literacy BEFORE the experiment



Graph 3

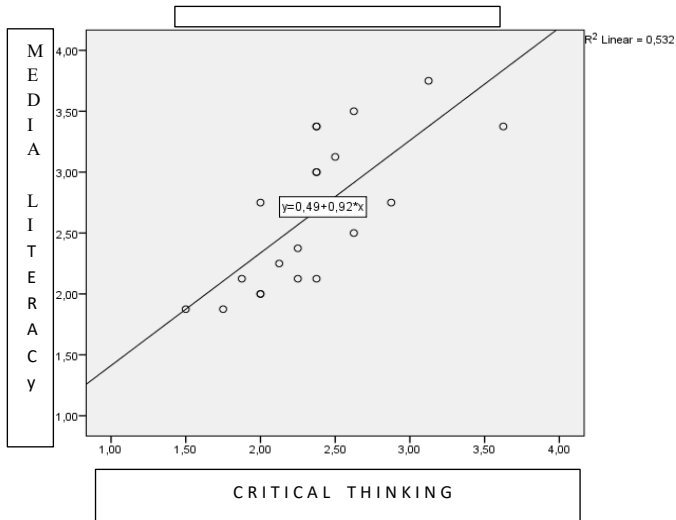
Graph 4

*education creates appropriate skills, attitudes and knowledge for the further development of critical media literacy in children (Graph 5 and Graph 6).*

After the experiment in the control group, the results show a regression coefficient of 0.209 and a coefficient of determination of 0.363, but not a statistically significant relationship ( $t = 1.990$ ;  $p = 0.065$ ), which means that the model in the control group is not adequate (Graph 6).

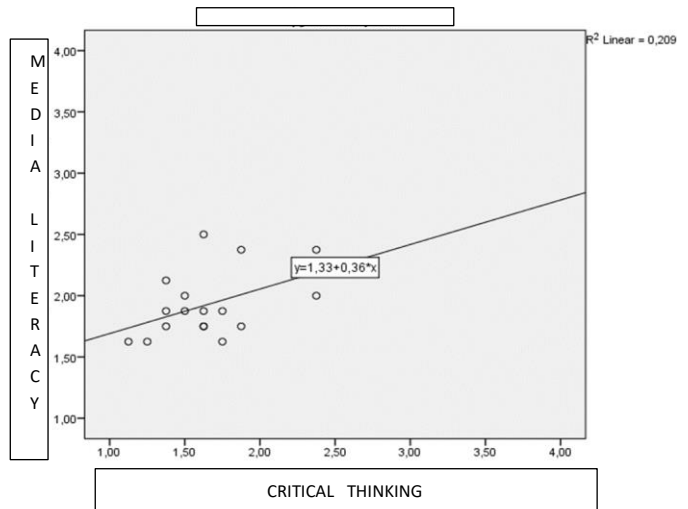
## Critical thinking and media literacy AFTER the experiment

### Experimental group



Graph 5

### Control group



Graph 6

**CONCLUSION:** The results show that, before the experiment, in the experimental group and the control group there was a statistically significant relationship, and after the experiment in the control group, there is no statistically significant relationship between critical thinking and media literacy, while in the experimental group there is a relationship, which confirms the effectiveness of the applied model.

### 5.3. Analysis of the third stage: Survey of Teachers and Parents

#### 5.3.1. Survey of teachers

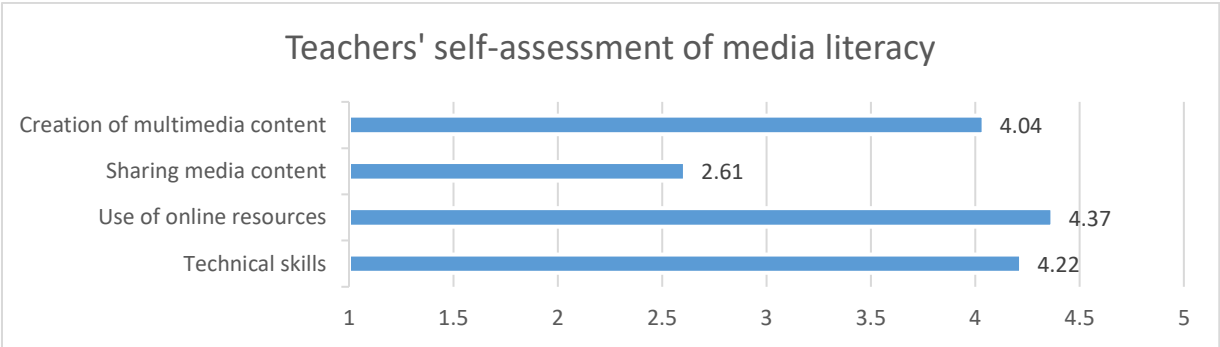
In conjunction with the experiment, an anonymous survey was conducted with teachers ( $n = 9$ ) from the kindergarten where the experiment took place; the survey was voluntary and was completed only by the teachers who wished to participate. The survey aimed to explore their attitudes towards using media in pedagogical situations and interaction, and their self-assessment of working with media.

The survey included questions that required teachers' self-assessment of their media literacy, relating to social competencies and communication skills in a media environment: participation, social networking, content creation, assessment of their ability to interact with the media, and interest in increasing their competence in various aspects of media literacy. The scale contains the following indicators: technical skills in using media tools (6 questions); skills



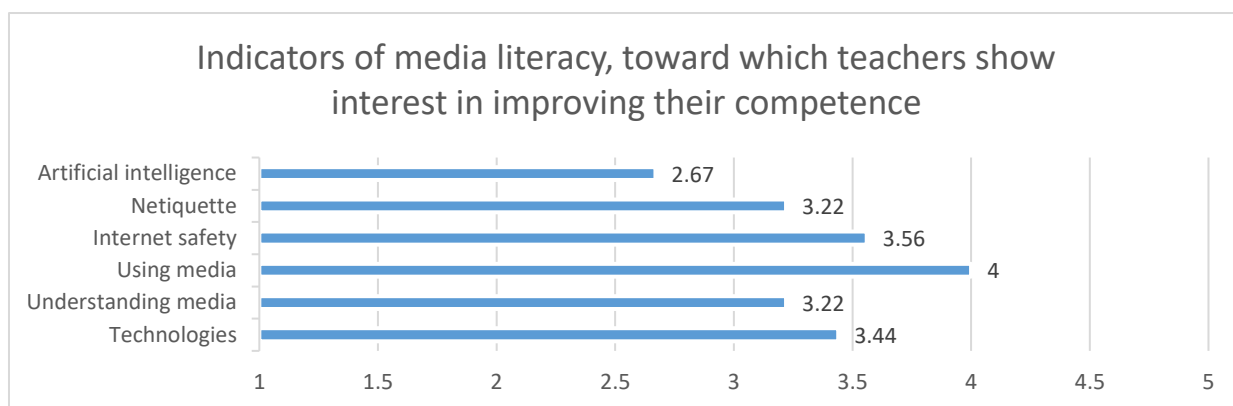
in using online resources (3 questions); sharing media content (4 questions); and creating multimedia content (5 questions). Again, Cronbach's alpha, calculated for each of the indicators (0.932), showed reliability of the scale.

The self-assessment results from a questionnaire survey involve the hidden risk of incorrect information leading to erroneous conclusions. Self-assessment instruments, noted by Esther Hargitay, have the risk of misleading responses from respondents. Hence, the selection of questions in the survey is in the direction of self-assessment of the level of technical knowledge and skills of media literacy and the desired actions towards improving or acquiring new ones. In this sense, Rob Kling distinguishes between two types of access (prerequisite of media literacy): **technical access** - the availability of technology, and **social access** - the needed skills to use information technology in a professional capacity. The technical access of the kindergarten where the experiment took place can be described as very high, as the kindergarten has a high-speed Internet connection, a laptop, a screen or interactive whiteboard in each of the rooms, DVD/CD players, a music hall, puppet theatre props, a separate library room of resources for teachers, etc.



*Diagram 2*

The second part of the teachers' questionnaire examines attitudes and interest toward improving their competence levels with regard to new technologies, understanding media, using media in learning, internet safety, netiquette - ethical behavior and communication online, and artificial intelligence. The results show the highest interest in the application of media in teaching and the lowest (but relatively high in general) interest in expanding their competence in artificial intelligence (Diagram 3).



*Diagram 3*

Moreover, the fact that in the kindergarten where the experiment took place teachers have access to, and make use of, a variety of media products - traditional and interactive books for children (there is a separate library), props for puppet theater, music hall, a laptop in each group, TV monitor, Internet connection, etc., including a relatively high level of media literacy of teachers (63.73 on a scale ranging from 0 to 100) - *supports the third sub-hypothesis that a higher level of media literacy in teachers is a prerequisite for better outcomes in the development of critical media literacy in children.*

### **5.3.2. Survey of parents**

Due to the importance of children's home setting and their relatives' attitudes towards the media environment, an anonymous survey was conducted among parents (n = 17) of the children who participated in the research; the survey showed that all parents were up to 39 years of age and 85% of them had a university degree. The survey aimed to explore:

- ✓ family attitude towards children's media use (2 questions);
- ✓ the existence of rules about children's media use (3 questions);
- ✓ parents' attitudes towards the supposed effects of social networks on their children (1 question).

The results of the survey show that half of the parents don't permit their children to go online on their own; none of the children have their own mobile phone, and with regard to watching TV - approximately 60% have rules about the content (what children are allowed to watch) and the duration of watching TV; most parents (86%) allow their children to be online for a limited time and discuss the dangers on the internet with their children. 70% of parents believe that social networks can cause more harm than benefit to their children. The findings from the parent survey in this regard confirm the unofficial information children gave about themselves concerning their access to the internet and the rules they follow. The results show a

relatively high level (score of 2.65 on a scale of 1 to 4) of media literacy among the parents, which reflects positively on the development of media literacy in their children, and the same is confirmed by the positive attitude their children expressed during the interviews with them about the rules they are obliged to follow at home. *The results support the fourth sub-hypothesis that a higher level of media literacy in parents is a prerequisite for better outcomes of children's critical media literacy development.*

## **CONCLUSIONS AND RECOMMENDATIONS**

The 21st century's saturated media environment poses challenges in every part of life. The development of digital technologies is a key factor determining communication in its various aspects. The advancement of generative artificial intelligence made available to the general public as of November 2022, is about to set humanity on a new milestone in its progress, integrating and transforming, to a large extent, the activities of life as we have known them up to now. The current trend in the relationship between humans and technology where, on one hand, humans "train" technology, while on the other hand, they are taught how to use it to achieve their goals, places human natural and artificial intelligence in new forms of interaction and interplay that will be extensively researched and developed in the coming years. There are new challenges that are related to how people can protect themselves from possible online threats to their safety and well-being, and how to handle issues like ethics, morality, misinformation, authorship, etc., which have long been seeking answers and are once again on the agenda. Given the dynamic nature and technological saturation of the world in which we live, children and pupils, in addition to knowledge, need to have awareness, skills, and attitudes about everything that surrounds them in order to manage and to succeed in life, which means having critical thinking, a good communication culture, the ability to cooperate and solve problems, etc., which are areas that educational institutions should focus on in their programs.

Despite the abundance of technical means and various media products in children's environments, they rarely understand the nature of media if they have not been taught how to do so. The use of technical means is interesting for them, but it is not always possible for all children to do independent work at the same time in kindergartens, so a skillful combination of new and traditional media gives much better results in pedagogical interaction. Researchers are already aware that, if learners are only taught facts, it would be surprising if they showed critical thinking at the end of the curriculum, as they usually simply reproduce what they have been

taught; It could happen that, at the end of the training, critical thinking emerges as a natural outcome, but research suggests that this is rarely the case.

This experiment shows that to achieve better educational outcomes, a targeted development of critical media literacy is needed, which means that specific programs need to be implemented in all preschool groups. Increasing children's critical media literacy will help them adapt more quickly and easily to the school education system, where discipline is usually more rigorous, and achievement of results is more intensive.

***For better and more sustainable outcomes in terms of children's critical media literacy, the following are needed:***

1. A unified national policy for the development of critical media literacy in preschool age;
2. The development of critical media literacy to be integrated into some of the educational areas or to have separate pedagogical situations for teaching it to preschool children;
3. Individual support for parents to achieve a common and appropriate attitude and understanding of the development of critical media literacy for children;
4. Encouraging and supporting teaching staff to implement pedagogical situations that develop critical media literacy;
5. Accessible educational resources to be used and to facilitate the work of teaching staff.

## **CONCLUSIONS**

1. The development of critical media literacy starting from preschool age increases the opportunity to create healthy habits in children when interacting with media;
2. Multimodality, which is in the context of media education, implies a natural implementation of the so-called integrativeness of educational content, due to the nature of preschool education;
3. Media education could reduce the so-called digital divide among children due to possible lack of technical resources, lack of internet connection, lack of knowledge and skills to use media resources, etc. at home;
4. In the process of developing critical media literacy in preschool pedagogical interaction, appropriate space is provided for interest-based learning by integrating the play component that is inherent for the preschool age.

## CONTRIBUTIONS

1. Defining the concept of CRITICAL MEDIA LITERACY - relatively new in the context of the theory of media pedagogy in Bulgaria;
2. Developing and testing a Model for Development of Critical Media Literacy in 5-7-year-old children;
3. Development of the methodology of the process of creating the test-training battery for critical media literacy in preschool children;
4. Demonstrating the relationship between media literacy and critical thinking;
5. Demonstrating the relationship between teachers' media literacy level as a prerequisite for children's successful development of critical media literacy;
6. Demonstrating the relationship between parents' media literacy level as a prerequisite for the successful development of critical media literacy in children.

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