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# Implementing media educational technology in Ukrainian preschool institutions

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**Abstract.** This study investigates the implementation of media educational technology in preschool institutions in Ukraine. The increasing prevalence of media manipulation, fake information, and uncontrolled media consumption among children necessitates media education from an early age. The research involved developing and experimentally testing a model for media educational technology tailored for preschoolers aged 5-6 years. The technology encompasses a three-stage process: diagnostic-target, integrational, and analytical, incorporating various forms, methods, and means of media education activities. A key component is innovative “media educational tales” designed to engage children in learning about media literacy concepts. The effectiveness of the technology was evaluated through a confirmatory experiment conducted in multiple preschool institutions across Ukraine, involving 384 respondents. The results demonstrated a significant improvement in media literacy levels among children in the experimental groups, with 20.9% achieving a high level and 61.7% reaching a sufficient level after implementing the technology. The study highlights the feasibility and positive impact of implementing structured media educational approaches in preschool settings while also revealing the need for further training and support for preschool teachers in this domain<sup>1</sup>.

**Keywords:** media education, media literacy, preschool education, educational technology, critical thinking, media educational tales, Ukraine

## 1. Introduction

The pervasive influence of mass media and the rising concerns over media manipulation, misinformation, and the unregulated use of digital technologies among young children have underscored the urgency of media education from the earliest stages of child development. In

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modern Ukrainian society, media threats such as manipulative messaging, exposure to harmful content, technological addictions, and the promotion of aggression or violence through media platforms are escalating. Consequently, fostering media literacy has become an increasingly pressing need, particularly for preschool-aged children, as their initial encounters with mass media occur at progressively younger ages.

Several factors contribute to the imperative of introducing media education during the preschool years. In 2016, Ukraine adopted the Concept for the Introduction of Media Education in Ukraine (new edition) [13], focusing on preschool media education. In January 2021, a new Basic Component of Preschool Education was adopted, in which critical thinking is defined as a cross-cutting skill of preschoolers [17]. Critical thinking is often equated with media education. Thus, forming media literacy aligns with the updated State Standard of Preschool Education objectives.

However, media education in preschool settings extends beyond the development of critical thinking alone. It encompasses a multitude of competencies, as outlined in the Catalogs of Media Competences, which are fostered through various preschool activities, including those focused on personal development, play, social interaction, language acquisition, and artistic expressions, primarily by educational lines: “Child’s personality”, “Child’s game”, “Child in society”, “Child’s speech”, “Child in the world of Art” [4, 17].

Another reason for introducing media education at the preschool level is advantageous because it establishes a foundation for media literacy as a lifestyle habit rather than treating it as an isolated subject. Delaying media education until later stages may necessitate a more challenging process of re-educating and reshaping skills and behaviours related to media consumption and engagement.

Given the relevance of media education in modern society, the Ministry of Education and Science of Ukraine approved an all-Ukrainian experiment on media education for 2017–2022, which involves 153 educational institutions, not only schools, gymnasiums, lyceums, regional institutes of postgraduate education but also preschool educational institutions [8]. However, the question concerning the format of the media education implementation remains controversial, as well as whether preschool age is sensitive to the formation of critical thinking. Creating teaching and methodological support for media education in preschool is a problem. There are few such publications. Among the first is primarily “Media literacy and critical thinking in the preschool education” [25].

Despite the recognised relevance of media education, the implementation format and the suitability of preschool age for cultivating critical thinking remain subjects of ongoing discussion. Moreover, creating comprehensive teaching and methodological support for preschool media education represents a significant challenge, with limited existing publications and resources in this domain.

## 2. Literature review

The profound impact of mass media on child development has been extensively explored in the literature by researchers such as Chorna [6], Danyliak [7], Tereshchuk et al. [24], Waters, Domoff and Tang [26] and others. Their works highlight the insufficient utilisation of media’s

potential, particularly print media, in fostering children's education and development and the necessity of mitigating the detrimental effects of low-quality media content.

Specific to the domain of preschool media education, numerous scholars, including Ashytok [1], Brzyszczyk [3], Drzewiecki [9], Kachura [11], Kondratenko [12], Krutiy [14], Oleyuk [18], Polievikova [20], Semeniako [21], Sockaya [22], Šupšáková [23], and others, have contributed valuable insights. Their investigations have underscored the positive functions of modern media in preschool educational settings, such as didactic, educational, diagnostic, and entertaining roles. Concurrently, they have drawn attention to the potential threats of certain media to young children, reinforcing the relevance of media education initiatives precisely during preschool. As Kachura [11] aptly notes: "The average child is already from two years under the influence of the information flow coming from the TV, at the age of three a child shows fairly stable preferences in the choice of cartoons, and to five years, begins to master computer skills. These resources carry so much information that it is difficult to master, even for an adult, what to say about a child. Media education is the key to forming a person capable of active and safe functioning in the modern media" [11].

While the aforementioned studies have explored various aspects of preschool media education, they have not comprehensively addressed the specific forms, methods, and components of a systematic media education approach. Yankovych et al. [28] conducted a comprehensive investigation into the technology for fostering media literacy among older preschool children. However, certain aspects, such as the need for a media educational approach that combines traditional and innovative elements, still need to be solved.

Moreover, the literature has consistently highlighted the low levels of media literacy among parents and preschool teachers, who play a pivotal role in guiding children towards media literacy. Frequently, these stakeholders lack a thorough understanding of media, media education, and media literacy, often associating them solely with traditional mass media outlets such as radio, television, and the Internet. Consequently, there is a pressing need to enhance the media culture and competencies of those responsible for facilitating children's media education.

While methodological materials and resources for cultivating children's media literacy have begun to emerge in Ukraine [25], such developments have been more extensively undertaken in other countries, notably Poland, where the "Media Education" (Edukacja Medialna) website offers scripts, exercises, and supplementary information for conducting media education classes in preschools, schools, cultural centres, and libraries [10]. These resources align with the Catalogue of Media and Information competencies defined within the framework of the "Digital Future" project. Other noteworthy developments, such as workshops and media education classes for preschoolers and their parents, have also been created [4].

The need for an innovative media product which would be used with interest by parents with children and thus increase the media literacy level was identified.

The relevance of the problem of implementing media education at preschool institutions, the need to perform tasks aimed at the formation of media literacy of children arising from the Basic component of preschool education [17], the need for innovative, attractive to children and adults, media products, the need to resolve these controversies led to the definition of the purpose of the study: to prove and experimentally test the media educational technology at preschool educational institutions of Ukraine.

The *object* of the research is institutions of preschool education of Ukraine; the *subject* is the

media education of preschoolers (age 5–6).

### **3. Material and methods**

A multifaceted approach employing theoretical and empirical methods was adopted to achieve the research objectives. The theoretical methods included functional and structural analysis, interpretive and analytical methods, and comparative analysis of literary and informational sources. These methods facilitated an in-depth examination of the research problem. They revealed the existing forms, methods, and means of realising media education and fostering children’s media literacy within Ukrainian pedagogy.

Furthermore, interviews were conducted with specialists from the Academy of Ukrainian Press (AUP), an organisation founded in 2001 primarily focused on promoting media education in Ukraine. Specifically, insights were gathered from Oksana V. Volosheniuk, a manager of media education programs at AUP, and Yuliia O. Huza, the editor of the “Media Education and Media Literacy” website.

Modelling emerged as a pivotal method in the research process, enabling the development of a model for media educational technology tailored to preschool educational institutions in Ukraine.

Empirical methods were employed to complement the theoretical foundation, including testing, observation, interviews, expert assessments, questionnaires, and surveys. These methods facilitated the measurement of media literacy levels among the experiment participants. Notably, a pedagogical experiment was conducted to validate the effectiveness of the proposed media educational technology within Ukrainian preschool institutions.

The scientific research was carried out in preschool educational institutions and educational complexes across various regions of Ukraine, including Kyiv, Ternopil, Khmelnytskyi city and region, Kherson, and Mukachevo. This broad geographical distribution ensured a comprehensive representation of the target population and enhanced the generalizability of the findings.

## **4. Results**

### **4.1. Implementing media education in preschool settings: distinctive considerations**

Integrating media education into preschool curricula necessitates a nuanced approach that accounts for young children’s unique developmental characteristics and learning modalities. While media literacy is recognised as an essential competency, its cultivation at the preschool level requires careful consideration of several distinctive factors.

Firstly, preschool media education is characterised by a three-component structure: education about media, education through media, and education for media. This tripartite approach underscores the multifaceted nature of media literacy, encompassing an understanding of media formats and their functions and the ability to engage with and responsibly create media content critically. Crucially, the implementation of media education at this stage relies on a partnership

among preschool teachers, parents, and children, fostering a shared commitment to developing critical, conscious, and responsible information processing skills across all stakeholders [28].

However, preschool media education differs fundamentally from media literacy initiatives targeting older students or adults. This distinction arises from the unique cognitive and developmental characteristics of preschool-aged children. It is characteristic for preschoolers to thoughtlessly absorb information transmitted from TV screens, computer monitors, and radio receivers. Immersing into the informational and virtual world, a child often does not even think about the content of what the child sees and hears if they are not prepared for the critical, conscious, responsible perception of information. However, such abilities are difficult to form. Some factors become obstacles, but some are favourable.

Thus, the problems will be highlighted at the beginning.

1. According to the periodisation of the intellectual development of children by Piaget [19], a child aged 5–6 years (2–7 years old period) is at the stage of preoperative representations, during which intuitive, visual-effective, and visual-imagery thinking predominate. Psychologists say that “thinking specifically, preschoolers tend to understand a lot literally. Therefore, they often misunderstand the words used in abstract and figurative meanings” [2, p. 15]. Since preschoolers are characterised by weak abilities to perform abstract mental operations, their thoughts often turn out to be very naive and unrealistic. Therefore, media literacy formation is problematic.
2. Preschoolers’ restricted life experiences and limited ability to discern credible sources of information can impede their capacity to evaluate media content critically. The main criterion remains: “familiar-strange” (one can believe a familiar person); authoritative and non-authoritative (parents and kindergarten teachers are authoritative, peers, and often somewhat younger or elder brothers and sisters are non-authoritative). Finding errors in the media is an unreal task for an average child.
3. Media education involves its implementation through the media (including TV and computer). At the same time, a child should spend little time on the TV, especially on the computer [17].

At the same time, the potential of preschool age for forming media literacy should not be underestimated. In this context, the work of Brailko [2] is of great interest, who found out that cognitive activity and constant cognitive interest are the foundation of future educational motivation in preschool age (5–6 years). All mental operations actively develop in children.

Liubchenko [16] shows that the mental process changes quickly when children are taught with a purpose (even briefly). If 5–6-year-old preschoolers are taught to observe and draw conclusions (for example, to differentiate which things float and which sink, under which conditions leaves appear earlier on the cut branches of poplars, to compare the shape of a tool with the conditions of its use), significant changes in their mental development occur.

Children learn to search for and identify the most peculiar features of things and phenomena to find significant dependencies and relationships. Thus, logical forms of thinking develop rapidly in children [16, pp. 213–214].

The criticality of mind is characteristic of older preschoolers; it lies in the ability to objectively evaluate their and others’ opinions, thoroughly prove, and comprehensively check all the

hypotheses. Children who have developed this feature tend to check everything thoroughly before doing anything. If one opinion does not pass the test, they reject it without hesitation and look for a new, more correct one [2, p. 10].

Studying the work of psychologists on the development of the mental activity of preschoolers indicates that the formation of critical thinking can only be started in preschool institutions, and it is necessary to continue this work at school age. At the same time, it is necessary to implement the partnership pedagogy (children will not become media literate without the help of parents and kindergarten teachers).

It is advisable to consider the role of fairy tales in shaping the preschooler's personality. However, to develop children's media literacy, it is necessary to use it in cognitive activities.

#### **4.2. Utilising media educational tales: an innovative approach to fostering preschoolers' media literacy**

Recognising the pivotal role of storytelling and imaginative play in young children's cognitive and affective development, the research proposes the integration of "media educational tales" as a central component of the educational and methodological complex "Seeds of media education". These carefully crafted narratives serve as an engaging and age-appropriate means of introducing preschoolers to essential media literacy concepts and fostering a critical yet responsible approach to media consumption.

During the preschool years, play emerges as the predominant mode of learning and exploration, while fairy tales and stories profoundly shape children's understanding of the world and moral frameworks. Capitalising on these inherent strengths, media educational tales offer a unique blend of familiar narrative structures and contemporary media-centric themes, effectively bridging the realms of imagination and media literacy.

These tales are distinguished by their ability to transform into interactive dramatic plays, where children assume the roles of various characters and reenact the narrative's events. This participatory approach enhances engagement and retention and cultivates crucial skills such as interpreting verbal and non-verbal cues, role-playing, and collaborative problem-solving.

The thematic scope of the media educational tales encompasses diverse topics, including the definition of fundamental media concepts, information evaluation and verification strategies, distinguishing truth from falsehood, addressing media-related threats and ethical considerations, and exploring the legal and economic aspects of media production and consumption.

For instance, the fairy tale "Wonderful Word Media" introduces children to media through an allegorical narrative set in the fantastical Forest Kingdom. By personifying abstract concepts as animal characters, the story engages children's imaginations while imparting knowledge about the various media formats, functions, and roles in disseminating information.

"At the meeting, the animals said they would like to know everything about their Kingdom: who lived, who and what ate, how many huts the inhabitants had, and so on.

Owl, Wolf and Squirrel were involved in collecting such information. Animals and the Owl, a large clever bird, worked for a long time.

Moreover, later, they wrote about everything they had found out in a book, as well as in a magazine and newspaper of the Forest Kingdom. They also reported on the Forest Radio and Television.

The forest dwellers learned everything that interested them from magazines, newspapers, television, and radio. Only some can see Owl, Wolf or Squirrel to ask them questions. However, everyone could use a newspaper, magazine, radio or television program to find out how many huts there are in the Kingdom, who and what dishes are cooked and what food they like.

In the Forest Kingdom, newspapers, magazines, radio, and television were called wonderful word media. The media, having received information about the life of the Forest Kingdom inhabitants from Owl, Wolf and Squirrel, retold the animals what they heard and saw”.

However, in the Forest Kingdom, there was a group of children from the kindergarten. Moreover, they told the fairy-tale inhabitants they could also get information... (children supplement: from a computer, tablet, mobile phone).

Then, the kindergarten teacher and the children summed up. Newspapers, magazines, radio, television, tablets, and the Internet are called the word media. Media transmit information from those who have received it to those who want to use it [15, p. 78].

The safe use of media is the most painful problem that children face. Nobody wants to limit himself/herself in time to play with a smartphone or a tablet. The fairy tale “A Hare and a Smartphone” is devoted to this topic [15, p. 85]. It tells the story of a Hare who found a smartphone and devoted himself to the game. In this tale, the moral motives and security of using new media are closely intertwined. The Hare did not go to the Bureau of Finds but played hard. At the same time, he ignored the rules of being in the Forest: he forgot about carefulness and fell into the clutches of the Wolf. The fairy tale also educates the ability to help and support each other (the animals freed the Hare as a group). In connection with the emergence of such a dangerous situation, preschoolers learn not to succumb to temptation (temptation and danger often walk together) [15, p. 85].

A fairy tale has a different meaning if the child is its hero.

In this fairy tale, the kindergarten group created advice for the forest animals, advised not to get carried away with smartphones but to play on playgrounds to help parents in the garden or at home.

A media educational tale, in which a group of children and each child are the heroes of the fairy tale, strengthens the motivation for media education, which we used in the experimental model of the technology.

Thus, the enrichment of the educational complex has necessitated the specification of diagnostic tools for forming the media literacy of older preschoolers. Identical to the term media literacy, we consider media competence.

Notably, the media educational tales are designed to transcend the boundaries of passive consumption by positioning the preschool group, and by extension, each child, as the central protagonists of the narrative. This strategic approach enhances motivation and personal investment and facilitates the seamless integration of media literacy concepts into children’s lived experiences and frames of reference.



Furthermore, the tales catalyse collaborative learning, fostering partnerships among children, parents, and preschool teachers. Through shared storytelling experiences, critical discussions, and collaborative media creation activities, all stakeholders collectively reinforce the principles of media literacy, establishing a cohesive and supportive learning environment.

By harnessing the inherent allure of storytelling and the preschooler's propensity for imaginative play, media educational tales present an innovative and developmentally appropriate medium for introducing complex media literacy concepts. These narratives captivate young minds and provide a robust foundation for cultivating critical thinking, ethical awareness, and responsible media engagement – essential competencies for navigating the rapidly evolving media landscape of the 21st century.

### **4.3. Assessing preschoolers' media literacy development: a diagnostic framework**

Recognising the multifaceted nature of media literacy and its importance in early childhood development, the research endeavoured to establish a comprehensive diagnostic framework to assess and monitor the formation of media literacy competencies among preschool-aged children. This framework serves as a crucial tool for educators and researchers, enabling them to evaluate the effectiveness of media education initiatives, identify areas for further intervention, and tailor pedagogical approaches to address young learners' specific needs and developmental stages.

Drawing upon extensive scholarly works on diagnosing personal development in preschoolers, implementing media education, and analysing media education competencies identified in initiatives such as the "Digital Future" project in Poland, the research team distilled an "ideal result" – a profile that encapsulates the highest level of media literacy formation expected in preschoolers upon the successful completion of media education interventions.

According to this profile, a preschooler with well-developed media literacy competencies is acutely aware of the significance of learning about media, through media, and for media. They engage with media educational tales and activities with genuine interest and enthusiasm, responding positively to opportunities for media education classes and exploration of computer-based media tools. Moreover, they demonstrate a nuanced understanding of the diversity of media formats, their respective functions, and the potential benefits and risks associated with each.

These media-literate preschoolers possess the ability to discern and navigate various sources of information, critically evaluating the veracity of media messages and employing strategies to verify the authenticity of information. They recognise the existence of media threats, such as misinformation and manipulation, and are equipped with the knowledge and skills to mitigate these risks. Furthermore, they exhibit an understanding of intellectual property rights, appreciating the importance of responsible content creation and the legal implications of appropriating the work of others without proper attribution.

Complementing their theoretical knowledge, media-literate preschoolers actively create simple media products, such as drawings, photo galleries, and comics, showcasing their creativity and analytical abilities. Crucially, they adhere to established guidelines for safe and responsible media usage, demonstrating a capacity for self-regulation and ethical decision-making.

The diagnostic framework also accounts for preschoolers exhibiting sufficient media literacy formation. While not fully conversant with the diversity of media formats or the intricacies of information verification and authenticity, these children recognise the importance of learning about, through, and for media. Their media creations may be limited to drawings. However, they experience positive emotions when engaging with media products, willingly participate in discussions and analyses of media educational tales, and demonstrate a critical approach to media consumption in collaboration with their parents.

Conversely, preschoolers exhibiting low levels of media literacy may not fully comprehend the significance of media education lessons or their benefits. They lack knowledge of various media types, functions, and strategies for evaluating information sources or distinguishing truth from falsehood. Moreover, without parental permission, they may use unsupervised or irresponsible media, such as mobile phones, tablets, or gadgets.

#### **4.4. Introducing the model of media educational technology for preschool institutions**

The research on the development and experimental verification of media education at preschool educational institutions was conducted during 2017–2020 (two stages: 2017–2018 – the first stage; 2019–2020 – the second stage) at the preschool education institutions of Ternopil (No 3, 16, 18, 19, Educational complex No 35), Khmelnytskyi (No 28, 29, 46), Kolkivtsi Educational complex (Khmelnytskyi region), Kherson (Educational complex No 7), Mukachevo (Educational complex No 1). A total of 384 respondents were involved in the confirmatory experiment [28]. 225 children were involved in the formation experiment (2019–2020): 5 control and 5 experimental groups.

Some principles of the study of media literacy of preschool children were verified at Ternopil Volodymyr Hnatiuk National Pedagogical University at the Department of Pedagogy and Methods of Primary and Preschool Education and Khmelnytskyi Humanitarian Pedagogical Academy at the Department of Preschool Pedagogy, Psychology and Methods of Professional Disciplines.

Several questions were asked of the children at the stage of the confirmatory experiment. The list of questions and answers to them is given in table 1.

Based on the analysis of answers to the first question, “Do you know the word “media”? What do you think it is?” we concluded that the essence of the word is incomprehensible to children. 37 preschoolers out of 384 answered that the media is a TV; other 12 added that this is also a computer (but not a children’s magazine, book or theatre).

Older preschoolers were asked: “If you want to learn about something, how would you do it?” However, they could not answer this question without help. Only after the prompts “From the TV show ...” and “From the children’s magazine” did the answers “come from the computer” and “from the mobile phone”.

All children know that TVs often display distorted information, especially regarding advertising. However, they could not answer how to distinguish truth from untruth.

When asked how to check out whether what happens in life is described in fairy tales, children did not immediately answer that they needed to ask their dad, mom, or teacher. There was also such an answer: “One has to go with a mother or a father to the forest and check there,

**Table 1**

Survey results of preschoolers during the confirmatory experiment.

Content of the question	Number of positive responses and % of general quantity	Number of negative responses and % of general quantity	Note
1. Do you know the word “media”? What do you think it is?	0 0%	384 100%	49 (13%) answered inaccurately, incompletely
2. Do you know what are the ways to learn something, to get information?	0 0%	384 100%	(children, with the help of tips, partially answered the question)
3. Have you ever heard that what is written in newspapers, magazines, books, or shown on TV screens (for example, advertising) is not always true, and the authors of books and articles can make errors?	322 84%	62 16%	Only from television screens, mostly advertising
4. Do you know how to check the truth of what is written in children’s books and magazines and shown on TV screens?	0 0%	384 100%	
5. How do you check if what is described in fairy tales happens in life?	0 0%	384 100%	
6. Do you have a mobile phone? For what purpose do you use a mobile phone?	200 52%	184 48%	Phones are used for communication and entertainment
7. Do you know you can use a computer, tablet, or mobile phone to watch TV following specific safety rules?	384 100%	0 0%	
8. Do you play on a mobile phone, use a computer or a tablet, watch TV, or violate security rules?	257 67%	127 33%	
9. Do you read children’s books or magazines?	384 100%	0 0%	
10. Do you love talking with your parents about fairy tales, their acts, what they do well, and what is wrong?	384 100%	0 0%	

for example, whether a fox is talking to a hare”. What a child says is a vivid confirmation that children have developed visual and effective thinking. Consequently, no child independently gave the correct answer to this question.

During the experiment, kindergarten teachers asked: “Should children know that unusual events are reflected in fairy tales? Maybe it is better for them to grow up with faith in the reality of the fair world”. We were answering that stereotypes formed in childhood often accompany people throughout their lives. For example, in adulthood, many are convinced that hedgehogs wear apples on their thorns. Such pictures were seen in books and magazines in childhood and remained in their memories as such that correspond to reality. Who defined the age when it

comes to finding out the truth?”

During the experiment, we found a direction in the field of media education, which kindergarten teachers give much attention to in preschool education: child safety in the media and during contact with the media. Kindergarten teachers in preschool institutions discuss the threats of modern digital means to the child's organism. However, preschoolers often do not want to perceive and respond positively to such information and share it with their parents, who also prohibit the use of mobile phones, gadgets, tablets, etc. However, such devices increasingly attract children's attention.

During the survey, all children answered that they like to read children's books and magazines and watch TV and could not give preference to any single media product. Similarly, everyone answered that they like to talk about fairy-tale heroes, their acts, what they do well and what is wrong, but we have found in individual conversations that there is a need for a deeper critical analysis of such works, for example, whether the reflected events, in children's opinion, are reliable.

Unfortunately, the only media product preschoolers use is drawings, but they do not set the goal of using them to transmit information. In addition, the children did not create newspapers or comics with their parents or kindergarten teachers to convey information. The role of a fairy tale is underestimated, particularly one that would acquaint with the media world, how to get the necessary information, distinguish truth from falsehood, and so on.

During the experimental study, a group of experts was created: a methodologist from an educational institution, a teacher, and one of the parents, who distributed the children by level.

According to the results of the confirmatory experiment conducted in 2017–2018, it was found that 246 (64%) children (in control and experimental groups) are at a low level of media literacy formation; 138 children (36%) – are at a sufficient level. Preschoolers with sufficient media literacy had several advantages over low-level children: they followed the rules studied while using the media, showed creativity when creating pictures to transmit information, and critically analysed the media. However, in order to obtain a high level of media literacy, they lacked knowledge about the variety of media, how to distinguish truth from lie, how to verify the authenticity of information, the inadmissibility of appropriating the work of another author, the ability to create newspapers, comic books and other media products, analyse them, and also realise the necessity of organising special classes for the formation of such knowledge and skills. The results obtained during the confirmatory experiment determined the relevance of developing and implementing media educational technology.

As the technology, we first understand a system with a straightforward algorithm of actions. We have identified the stages of diagnostic-target (setting the goals), integrational (work on the implementation of goals), and analytical (analysis of the results of the experiment on the implementation of technology).

The technology model is depicted in figure 1. It demonstrated the process of implementing media education for preschoolers in partnership with parents and kindergarten teachers from the goals to the result, using forms, methods, and means of media education activities, including the media educational tale as an innovative media product.

One of the main elements of the substantiated technology is the cycle of classes “Grains of Media Education” (supplemented by media educational tales), which is a part of the procedural component.

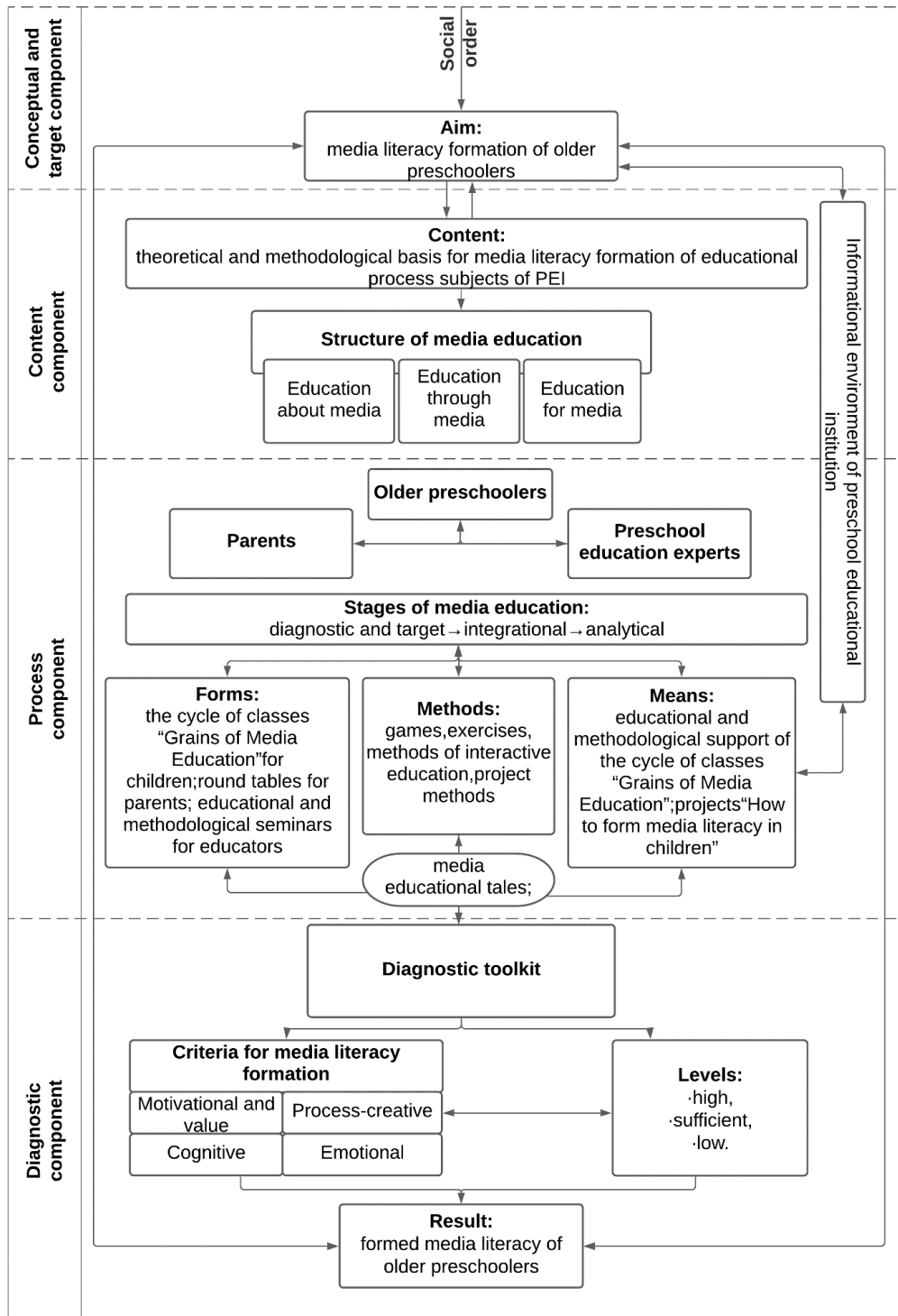


Figure 1: Media educational technology at preschool educational institutions.

The organisation of the experiment to test the model of technology provided for the methodical training of kindergarten teachers. For this purpose, special methodological guidelines and recommendations for kindergarten teachers were developed and used, in which both theoretical principles and practical approaches to the organisation of the process of media literacy formation of children of the older preschool age in preschool institutions were developed and used. Kindergarten teachers involved in the experiment were instructed in detail about the essence of the experimental work in control and experimental groups. Traditional methods and programs were used in control groups; experimental groups implemented the developed technology model [15].

In the first stage, the diagnostics of children's media literacy formation in the control and experimental groups was conducted. In control and experimental groups, no child was at the high media literacy level. In control groups, 41 children (37.3%) out of 110 were at a sufficient level, and 69 (62.7%) – at a low level of media literacy. In the experimental groups, – 44 (40%) out of 115 children were at a sufficient level, and 71 (61.7%) – at a low level of media literacy.

At the first stage, according to the diagnostics of the formation of media literacy among older preschoolers, the goals of media education were set.

In the second stage – integrational – the integration of actions of all the subjects of the educational process of the preschool educational institution took place, the inseparability of the processes of motivation formation to media education, knowledge about media, their functions, a computer as the latest media tool, danger of the modern technical devices; skills of critical thinking and creation of the simplest media together with parents and kindergarten teachers.

At this stage, children with parents and kindergarten teachers read and analysed media educational tales, and media education classes were conducted for children: “Where do we get information from?”, “Truth and untruth: how to distinguish”, “Does Little Red Riding Hood really exist?”, “What do you know about the copyright of the authors of books?”

During the media education class “Where do we get information from?” preschoolers found out about the essence of media, its types, how beneficial they are to a child, realised that there are many sources of information, learned to choose the source of information according to their needs; tried to find another source of information than from an older person. Since preschoolers are thinking specifically, it is unnecessary to demand them to remember the meaning of the word media.

Therefore, the knowledge of the essence of the concept of media was not tested during the experiment. However, as a result of experimental work, preschoolers have learned that TV and children's magazines, booklets, and theatre are also media. Every day, a preschooler is receiving a variety of new information. The kindergarten teachers told children they could learn much by asking parents or adults to flip children's magazines and watch television programs. The class helped them find ways to find information.

The media education class “Truth and Untruth: How to Make a Difference?” was complicated for older preschoolers. Its goal was to get the children to know that not everything we learn is true; therefore, one must learn to check information. After completing the training, preschoolers developed the ability to formulate simple questions to verify the accuracy of information, know whom to contact to verify the truthfulness of information, and critically perceive information.

The media education class “Does Little Red Riding Hood really exist?” was enjoyable for the children. The kindergarten teachers told the children that not everything described in the fairy

tale is true. After the class, the children knew that the actors from TV screens or magazines and books with whom they got acquainted could be fictional; heroes of fairy tales are also fictionalised.

Children can often distinguish between truth and untruth in fairy tales. However, they do not always succeed. During the class, they become convinced that the author of fairy tales is inspired by the real world, for example, the world of animals. Preschoolers can create their hero through their imagination.

When the experiment began, we thought that the main problem in implementing media education in preschool was the lack of engaging educational and methodological support. Therefore, by substantiating the media educational technology, we developed it and named it “Grains of Media Education”.

The name of the methodological support, “Grains of Media Education”, itself testifies that children develop elementary knowledge and skills that will become the basis for media education in elementary school. We implemented various media education trends, borrowing the experience of Polish pedagogy: using information, relations and communication in the media environment, media language, creative use of media, ethics and values, legal and economic aspects of media use [10].

It has already been pointed out that the problems of media education are challenging for children and parents. When reading the methodological development “Grains of Media Education”, parents could discover what media education is. Parents, children, and kindergarten teachers acted on the principles of pedagogy partnership, using the information environment of a preschool educational institution.

During the experiment, promising ideas of the experience of the children’s media literacy formation in preschool institutions of Ukraine were realised, in particular, the creation of a photo paper, “My Family Tree”, a comic book “, One Day from My Child’s Life”.

Children not only acted as the authors of comic books but also as their characters. For example, one of the preschoolers acted as a doctor, and the kindergarten teacher (his father) was taking photos of him during his work. Then, a series of comics was created from the photos.

Due to the comics, a child learns to distinguish between two types of text information: language and thought.

One of the comics topics was: “A TV is My Friend”. At the same time, children discovered that TV is not only a medium that transmits information but also affects children. It was illustrated as the following: a father calls his child to eat, read a book, and wash, but the child has the only answer: “No, let’s watch the cartoons”. Ultimately, the children saw the result of such behaviour: a pale, frustrated face, poor eyesight, headaches, and distorted spine. In the picture, the child yells: “OK, let’s turn off the TV and go to the garden”.

During the experiment, we trained preschoolers to avoid extremes: not to consider everything seen on the TV as untruth, and not to believe everything entirely that they saw or heard in the media; to choose older adults (parents, kindergarten teachers, etc.) to verify the correctness of the information.

At the analytical stage, the media education activities of the subjects of the educational process of the preschool educational institution were analysed. After the experiment was carried out, positive changes in the dynamics of levels of media literacy formation were observed: in experimental groups, 24 children (20.9%) were at a high level of media literacy, 71 children

(61.7%) were at a sufficient level; 20 children (17.4%) were at a low level of media literacy. In control groups, 44 children (40%) were at a sufficient level, and 66 children (60%) had low levels of media literacy.

In the control groups, the distribution of children in the groups, which was recorded during the confirmatory experiment, has mostly stayed the same.

The dynamics of the formation of media literacy levels are presented in table 2.

**Table 2**

The dynamics of the formation of media literacy levels of the older preschool children.

Levels	Control group (110 children)		Experimental group (115 children)	
	Before experiment	After experiment	Before experiment	After experiment
High	–	–	–	24 (20.9%)
Sufficient	41 (37.3%)	44 (40%)	44 (38.3%)	71 (61.7%)
Low	69 (62.7%)	66 (60%)	71 (61.7%)	20 (17.4%)

Thus, the research has proved the effectiveness of implementing media educational technology at preschool educational institutions.

After the experiment, we concluded that children are more likely to analyse media production with their parents and kindergarten teachers; they are more interested in magazines.

Significantly (by 44.3%) in the experimental groups decreased the number of low-level media literacy. Instead, one in five children has a high level. Compared to the first stage of the experiment (2017–2018), during the second stage (2019–2020), the number of representatives of the low level of media literacy in the experimental groups decreased by 10.6% (it was 28% during the first stage, it became 17.4% after completion of the second stage) [28].

However, during the experiment, we realised that a new form of work – reading and analysis of media educational tales – increases the motivation of kindergarten teachers to participate in media educational activities. At the same time, the problems have remained. Kindergarten teachers are primarily trying to implement the State Standard for Preschool Education (it is gratifying that critical thinking is now mentioned as a cross-cutting skill of preschoolers) and do everything to meet parents' expectations. Traditionally, parents want their children to learn to read, write and count in preschool educational institutions. Consequently, it is precisely for this purpose that their primary efforts are directed. The obstacle to media education is the high level of group filling (up to 35 children in a group) in the preschool educational institution. Tired of the difficult work during which it is necessary to constantly meet the requirements of parents, methodologists, and managers, kindergarten teachers often do not want to assume additional responsibilities for the implementation of all directions of media education. Moreover, after that, we look forward to enthusiasts, especially those trained, attending the courses at the Academy of Ukrainian Press.

Studies conducted in higher education pedagogical institutions among undergraduate part-time students (more than 90% of them are kindergarten teachers) have shown that they do not know what media and media education are. Only 2% of the polled masters are familiar with the Concept of Media Education Implementation in Ukraine. Approximately 50% of the masters-kindergarten teachers who are part-time students are convinced that media education



is education with the help of state-of-the-art computer technology [27].

All the students we interviewed were women aged 23 to 46. Studies were conducted only in absentia since more than 90% of the students of this form of study work as kindergarten teachers and must implement media education. However, they have a very low awareness of media literacy.

Consequently, on the one hand, kindergarten teachers need to increase media literacy, but on the other hand, they have insufficient motivation. The exception is such a direction of media education as preventing threats of the modern computer equipment for a child, which is not surprising because this is one of the tasks of the kindergarten teacher, as defined by the State Standard for Preschool Education.

Thus, the research has shown, on the one hand, the feasibility of implementing the media educational technology at preschool educational institutions; on the other – the need for further education of future kindergarten teachers, creating a better working environment for them. However, the fulfilment of the latter task depends on Ukraine's economic development and the funds that will be invested in the educational sector.

## 5. Conclusions

The research has provided compelling evidence for the urgent necessity of implementing comprehensive media educational technology in preschool institutions across Ukraine. The escalating concerns surrounding media manipulation, the proliferation of misinformation and fake content, and the alarmingly early exposure of children to various media formats underscore the critical importance of cultivating media literacy from the earliest stages of development.

The efficacy of the proposed media educational technology model has been validated through an extensive experimental study spanning multiple preschool institutions and involving 384 respondents. The model encompasses a three-stage process – diagnostic-target, integrational, and analytical – incorporating diverse forms, methods, and innovative means of media education activities tailored for preschoolers aged 5-6 years.

A cornerstone of this technology is the integration of “media educational tales” – a novel media product designed to engage children through storytelling while imparting essential media literacy concepts. These tales capture children's imagination and facilitate discussions and activities that foster critical thinking, ethical awareness, and responsible media consumption habits.

The experimental results demonstrate a remarkable positive shift in media literacy levels among children in the experimental groups. Before the intervention, a staggering 61.7% of children exhibited low levels of media literacy, while only 38.3% were at a sufficient level, with no child achieving a high level of proficiency. However, following the implementation of the proposed technology, 20.9% of children attained a high level of media literacy, 61.7% reached a sufficient level, and only 17.4% remained at a low level. This substantial decrease of 44.3% in the proportion of children with low media literacy underscores the profound impact of the technology.

Notably, the research extends beyond the confines of the preschool setting, revealing the pressing need for comprehensive media literacy education among preschool teachers. Surveys

conducted with undergraduate and master's students in pedagogical institutions, a significant proportion of whom are practising preschool teachers, unveiled alarming gaps in their understanding of media, media education, and the Concept of Media Education Implementation in Ukraine. This finding highlights the imperative of enhancing media literacy training programs for preschool educators to ensure their preparedness to guide children effectively in this domain.

Furthermore, the study illuminates preschool teachers' challenges in implementing media education initiatives. These challenges range from the inherent complexities of fostering abstract thinking and critical analysis skills in preschoolers to the practical constraints of overcrowded classrooms and the need to balance media education objectives with traditional academic expectations from parents and administrators.

The research underscores the necessity for continued efforts in developing innovative, engaging media educational resources and curricula tailored for the preschool age group. Moreover, it calls for the creation of supportive professional environments that empower preschool teachers to prioritise media education effectively through enhanced training opportunities, reduced classroom sizes, and greater recognition of the significance of media literacy in early childhood development.

While acknowledging the economic challenges faced by the Ukrainian educational sector, the findings of this research serve as a clarion call for strategic investments in media education initiatives at the preschool level. By fostering media literacy from the formative years, society can better equip future generations with the critical thinking skills and ethical foundations necessary to navigate the increasingly complex and media-saturated landscape of the 21st century.

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