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The Influence of the Modern Educational Environment on the Formation of Patriotic Consciousness in Preschool Children

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Abstract

The relevance of studyingpatriotic education in preschool children is driven by the specificity of modern social conditions, particularly the critical circumstances the country faces. Additionally, this issue remains insufficiently covered in theoretical sources. The aim of this article is to determine the effectiveness of modern multimedia technologies in shaping the patriotic self-awareness of preschoolers. A formative experiment was conducted to examine the impact of modern informational aspects of the educational environment on the effectiveness of patriotic education in preschoolers. Supplementary methods, such as interviews and observations, were employed. The control group comprised 75 children, and the experimental group includes 80 preschoolers. The quantitative composition of the samples was determined according to the algorithm for calculating statistical power using the G*Power software package. To test the experimental effect, the Kolmogorov-Smirnov test, Student's t-test, and Cohen's d-test were used. The results of the formative experiment indicate the effectiveness of modern multimedia technologies in fostering patriotic consciousness among preschoolers in today's educational environment. Notably, high indicators of the cognitive component of patriotic consciousness increased in 32.5% of children, high indicators of the emotional component rose by 25%, and the high level of the activity criterion grew by 22.5%. It was found that the most pronounced positive dynamics occurred in the emotional and activity components of patriotic consciousness. At the same time, the formation of ideas about patriotic and state-related objects and phenomena does not significantly depend on the format of the program format. The study revealedan established set of knowledge about the state and patriotic aspects is combined with unstable patriotic feelings and a weak activity orientation. The results of the experimental study provide a foundation for the effective use of multimedia technologies in the educational process of preschoolers. Furthermore, the obtained data create conditions for the development of children's patriotism. Future research should focus on developing standardizedmethods for diagnosing the components of patriotic consciousness in preschool children.

Keywords: preschool age, educational environment, multimedia technologies, patriotism, patriotic self-awareness, upbringing, preschool education, patriotic consciousness

1. Introduction

Preschool education is a critical stage in a child's development and socialization, as it lays the foundation for future personal growth (Yang & Bao, 2023). The effective organization of preschool education and upbringing must incorporatemodern theoretical concepts and practical approaches (Shyyan et al., 2018). The search for new ways to optimize preschool preparation has become especially relevant in the context of full-scale war. Under martial law, the preschool education system must not only focus on forming basic life competencies but also ensure proper socialization of children in societal crisis (Frolenkova & Kupina, 2022). The issue of fostering humanistic qualities in the digital age

is becoming a global concern (Semenets-Orlova et al., 2022), as the optimization of social processes is crucial for a country's integration into the international community (Artemenko et al., 2024). In this context, creating an educational environment that considers modern technological trends is of great significance (Chovriy et al., 2024). However, only a well-grounded combination of modern information technologies with traditional forms of preschool education will enable the effective achievementof educational goals (Yao, 2023). One of the key tasks of modern preschool education in Ukraine is fostering children's patriotism based on preserving the country's cultural and historical traditions (Mkrtichian, 2021). Research onthe impact of the modern educational environment on the formation of patriotic feelings in preschoolers remain sporadic (Teslenko, 2021). Moreover, such programs are predominantly practical and lack systematic scientific research. Consequently, studying the impact of information technologies on modern patriotic education for preschoolers is characterized by significant scientific novelty. Furthermore, research on preschool children in wartime conditions is of particular interest in clarifying various aspects of socialization and the specifics of the educational process. Therefore, determining the influence of the modern educational environment on the formation of patriotic consciousness in preschool children has both theoretical and practical significance.

The research hypothesis suggests that educational programs incorporating multimedia technologies have an effective impact on the formation of patriotic consciousness in preschoolers. The aim of the article is to determine the effectiveness of modern multimedia technologies in fostering patriotic self-awareness in preschoolers. To achieve this aim, the following objectives were set:

1) to analyze the conditions for the formation of patriotism in preschool children;

2) to empirically determine the indicators of the formation of components of patriotic self-awareness in preschoolers;

3) to develop and test a program for fostering patriotic self-awareness in children using multimedia technologies.

2. Literature Review

The concept of the "educational environment" is central to our study. Reipolska (2021) identifies the following components of the educational environment in preschool institutions: spatial-material, social, and content-activity. In the context of modern conditions, these components imply the integration of information technologies into the physical space of activities, which also influencesthe nature of children's communication. At the same time, play, as the primary activity of preschoolers, facilitates the accumulation of experience about the surrounding world. Gagarina (2025), while generally supporting this position, emphasizes the exceptional importance of creating a safe educational environment for preschoolers' development. We believe that crucial aspects include ensuring conditions for preserving children's health as well as forming physical and informational safety in the educational process. Researchers emphasize the development of cognitive abilities, physical growth, and the formation of children's communication skills within the educational environment (Peng et al., 2023). Li (2023) agrees with this view and asserts that the educational space for preschoolers should be oriented toward maximizing the fulfillment of children's needs while considering their individuality. Overall, we support the idea that an effective educational environment in a preschool institution should focus on learning, health, and child safety (Lohmander & Samuelsson, 2020).

The modern educational environment for preschoolers is inconceivable without multimedia and information technologies. This is primarily due to the pandemic and military actions, which necessitate a remote educational approach. Multimedia resources comprise a set of computer technology products that affect various sensory systems: presentations, animations, game resources, audio and video files, virtual and augmented reality, etc. (Srivani & Hariharasudan, 2020). The use of multimedia tools in preschool institutions has clear didactic advantages. Piankarnka et al. (2023) note that implementing information technologies in preschool education allows the adaptation of developmental tasks to each child's individual learning pace and cognitive style. Other researchers support these considerations (Topu et al., 2023), emphasizing that multimedia technologies help effectively account for both the strengths and weaknesses of children in the educational process. Nowawi & Ahmad (2023) highlight the effectiveness of multimedia in developing tasks aimed at reinforcing preschoolers' acquired knowledge. A relevant viewpoint suggests that information technologies in the preschool educational environment help bridge the gap between general educational concepts and actual knowledge acquisition (d'Alonzo et al., 2023). Yu (2022) points out that the advantage of using information technologies with preschoolers lies in providing additional emotional depth to abstract learning images. In this context, the positive aspects of implementing virtual reality in preschool education should be noted. Specifically, these include optimizing children's understanding of the world, increasing interest in didactic exercises, and deepening interdisciplinary comprehension (Li, 2021). The integration of virtual reality elements into preschool education must align with the criteria of direct social interaction (Qing & Ramli, 2023). While supporting the advantages of a modern educational environment for preschoolers, Zhang (2023) highlights potential challenges related to protecting children's personal data and cybersecurity. Based on these findings, we can conclude that information technologies positively impact the didactic effectiveness of working with preschoolers. At the same time, the impact of

modern information aspects on educational processes in preschool institutions remains less clearly defined and requires further theoretical review.

In the context of our research, it is important to explore scientific perspectives on patriotic education for preschoolers. Patriotic consciousness encompasses a complex of cognitive, emotional, and motivational structures that define behavioral strategies for preserving and enhancing the values of one's native country. When considering the formation of this phenomenon in preschool age, it is important to draw upon major developmental theories (Al-Harbi, 2024). Thus, the concepts of behaviourism emphasise the formation of appropriate behaviour in the implementation of the child's patriotic position. According to the theory of E. Erikson, it can be assumed that the formation of patriotic consciousness of preschoolers is associated with the formation of initiative and a sense of guilt. Thus, patriotic beliefs begin to be integrated into the structure of identity. The theory of cognitive development of J. Piaget indicates the importance of initial operation with symbolism in the perception of information about the state and country by preschoolers. According to the provisions of the theory of moral development of L. Kohlberg, the formation of components of patriotic consciousness is associated with the formation of a conventional level of morality, which involves acting in accordance with stable social norms. The formation of patriotic orientation in preschoolers during wartime requires the use of innovative forms and means of pedagogical activity (Rozlutska & Kurytsia, 2023). In this context, further study is needed on the findings of experimental research (Suraji et al., 2018), which indicates the effectiveness of using game-based history learning for fostering patriotic values in children. Other studies provide data on the appropriateness of introducing preschoolers to national and regional cultural objects – such as architecture, clothing, and art – through play (Fadlillah et al., 2021), demonstrating the effectiveness of this approach in developing patriotism. Similarly, scholars describe the positive impact of literary works on fostering patriotic feelings (Hordiy, 2021). Additionally, empirical research confirms the role of thematic film productions in shaping patriotic orientation in childhood (Kristanto et al., 2023). In general, patriotic education for preschoolers should focus on discussing national symbols, describing the unique aspects of their homeland, introducing them to the national anthem, and familiarizing them with national traditions and folklore (Somîtca & Stan, 2019).

This study establishes a crucial distinction between children's knowledge of national symbols and their development of pro-social civic dispositions such as community belonging and cooperative behaviors. Grounded in multimedia learning theory, we hypothesize that carefully designed digital resources enhance patriotic consciousness through two key mechanisms: (1) dual-channel processing, creating richer mental models of civic concepts through integrated visual and auditory information, and (2) emotional engagement, where age-appropriate multimedia content fosters positive emotional connections to cultural heritage. This framework positions multimedia technologies not as simple information delivery tools, but as catalysts for developing authentic civic identity through engaged, multi-sensory learning experiences that simultaneously address cognitive and affective domains.

It is worth emphasizing that studies on patriotic education for preschoolers using multimedia technologies are scarce. The use of corresponding pedagogical programs is primarily practical and even intuitive in nature. This underscores the need for further experimental programs aimed at developing patriotic consciousness in preschool-aged children.

3. Methods and Materials

3.1 Research Procedure

The research framework adheres to the fundamental principles of organizing pedagogical studies. The stages of scientific research are methodically and methodologically justified. Their analysis helps to clarify the main ideas of the study.

1. Organizational Stage – involved defining the resources and procedures for addressing the research objectives. At this stage, the procedure for the pedagogical experiment was developed, empirical methodologies were selected, the sampling formation approach was determined, and the strategy for statistical data processing was established. The key theoretical constructs were defined as patriotic consciousness in preschool children and a patriotic education program. The methodological justification of the study involved consultations with psychologists and preschool educators. An important aspect of this stage was establishing communication with the administration of the educational institutions where the study was conducted. This stage lasted for two months in 2024.

2. Stage of Primary Data Collection – focused on the Formation of Patriotic Consciousness Components in Preschool Children. Direct observations and interactions with children were conducted. These procedures were based on establishing criteria for assessing children's patriotism. This stage lasted for two months in 2024.

3. Experimental Stage – implementation of formative influence on children's patriotic consciousness. The experimental factor involved multimedia technologies as an element of the patriotic education program for preschool children. The entire experimental procedure was outlined in an informed consent agreement concluded with the parents of the

participants. This stage lasted approximately one month in 2024..

4. Repeated Diagnosis of Patriotic Consciousness Components in Children Who Participated in the Experiment. Ongoing observations were conducted throughout the study. This stage lasted for four months in 2024..

5. Stage of Quantitative and Qualitative Analysis of the Obtained Data. A comparison was made between the quantitative indicators of patriotic consciousness formation "before" and "after" the experimental intervention. The statistical significance of changes was calculated. Duration of this stage – one and a half months in 2024.

3.2 Sampling Formation

To obtain reliable empirical data, experimental and control samples were formed. The total number of participating children was 155. The control group included 75 children, while the experimental group consisted of 80 children. The quantitative composition of the samples was determined using the G*Power software package to calculate statistical power according to the algorithm. The sample size is sufficient for detecting en experimental effect in research on pedagogy and psychology (Olefir & Bosniuk, 2021). The sample comprised children receiving education in preschools in Kyiv, Lviv, and Chernivtsi. The study did not include children from rural areas due to organisational difficulties. The sample included children whose parents had different professional statuses (military personnel, teachers, doctors, entrepreneurs, factory workers). All children belonged to middle-class families. The control group included 44 girls and 31 boys, while the experimental group included 47 girls and 33 boys. A CONSORT-style flow diagram detailing participant allocation, intervention delivery, and data analysis inclusion is presented in Figure 1.

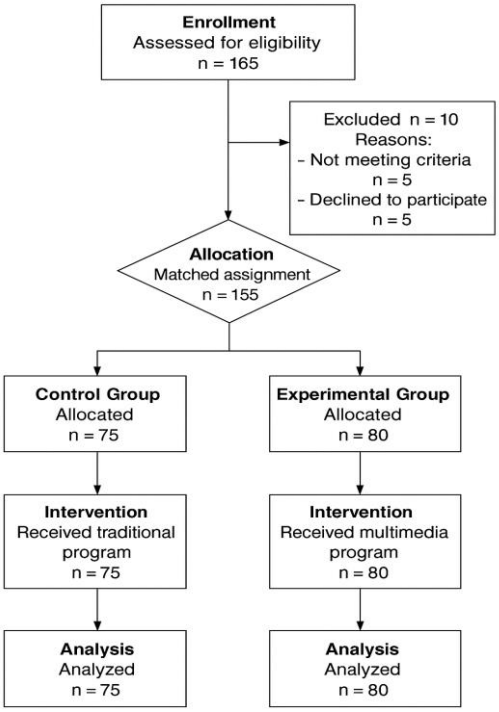

Figure 1. Participant Flow Diagram Following CONSORT Guidelines

Source: developed by the author.

The percentage distribution of the gender structure of the sample is presented in Figure 2. The participants were within the age range of 5–6 years. Due to administrative constraints and the security situation, random assignment was not feasible. Therefore, a matched-pair assignment procedure was used to form the groups. Participants were first matched based on age (5-6 years) and gender. Subsequently, pairs were split to ensure similar baseline distributions in the control (CG, n=75) and experimental (EG, n=80) groups. This quasi-experimental design was chosen to maximize group equivalence under the given circumstances. The sample met the ethical criteria of the study. In particular, parental consent was required for participation in the study. Parents were thoroughly informed about the specifics of the experimental intervention. Additionally, potential negative psychological effects of the study were discussed with representatives.

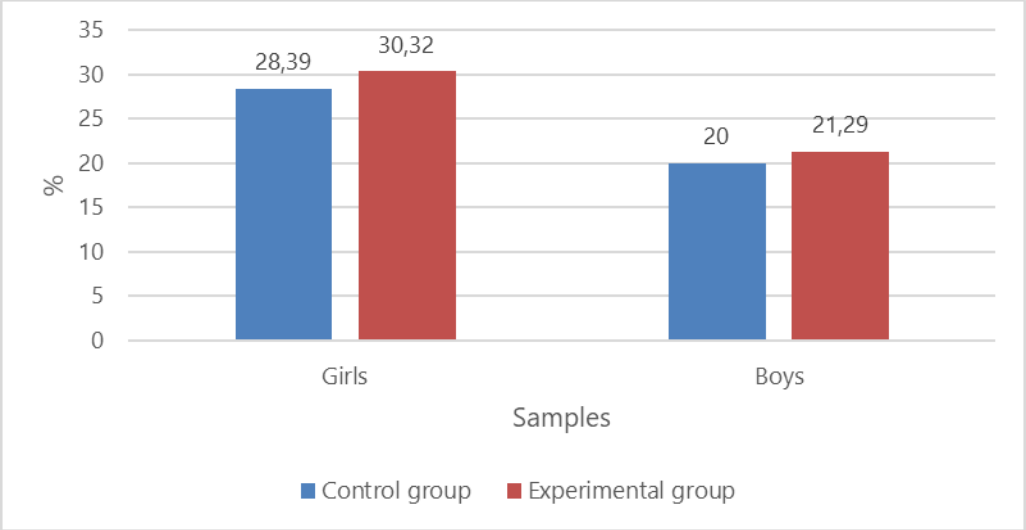

Figure 2. Gender Distribution of the Studied Children, %

Source: developed by the author.

3.3 Research Methods

To achieve the research objectives, observation and interviews were used to supplementthe obtained diagnostic data. The observation protocol was adapted from the criteria and indicators established by Solonska (2020), with modifications to align with the specific context of multimedia-based patriotic education. The original framework by Solonska (2020) provides a validated structure for assessing patriotic consciousness in senior preschool children, which includes the core components (cognitive, emotional, behavioral) used in this study.. To ensure inter-rater reliability, the three scientists who conducted the observations participated in a joint training session. During this training, they reviewed the observation protocol (Appendix A) and practiced coding until a consensus of over 90% was reached on a set of training videos. Throughout the main study, regular debriefings were held to discuss and align scoring criteria, thereby maximizing rating consistency. Table 1 presents the main components of children's patriotic consciousness, their levels of development, and the criteria for their manifestation, as defined within the context of this study.The developed observation was based on the research results of Solonska (2020). Each indicator was assessed during observation using a ten-point metric scale. Based on these numerical results, qualitative levels of patriotic consciousness criteria were determined. This approach allowed for the application of statistical analysis methods. The observation results were documented. The behaviour of the preschoolers studied was recorded and assessed by three scientists, followed by a generalisation of the results obtained. It is important to emphasize that the study revealed a lack of reliable standardized methods for researching patriotism in preschool children. The interview method was used as a clarifying tool in the observation procedure. It involved unstructured communication with children and educators regarding their perceptions of the homeland, national symbols, and the significance of their native culture. The method was used as a supplement to the observation procedure. Therefore, triangulation of interviews was not envisaged.

The study employed an *experimental method* aimed at fostering patriotic consciousness in preschool children. A program for developing patriotic consciousness in preschoolers was introduced in both the control and experimental groups. In the experimental group, patriotic education activities were conducted using multimedia technologies. The program included 20 sessions, each lasting 20 minutes. The sessions covered topics related to national symbols, aspects of Ukrainian studies, regional and national realities of patriotism. The sessions were conducted in a playful format. In the experimental group, these activities were implemented with the active use of information technologies, including audio and video files, as well as internet resources. Additionally, interactive games were used as tools in the modern educational environment.

Statistical analysis methods were applied to test the research hypothesis. In the context of the study's objectives, the Kolmogorov-Smirnov test and Student’s t-test were used. This approach allowed for the identification of significant differences in the dynamics of the components of children's patriotic consciousness across the studied groups. The SPSS program was used for data processing. It is important to note that data collection and analysis were conducted by different researchers. This approach allowed the reduction of the risk of distortion of empirical results, in particular, in connection with the Pygmalion effect. Since the outcome variables were measured on an ordinal scale

(Low/Medium/High derived from 10-point scores) and Shapiro-Wilk tests indicated significant deviations from normality ($p < .05$), non-parametric tests were employed for all analyses. The Wilcoxon signed-rank test was used to analyze within-group changes (pre-post), while the Mann-Whitney U test was used for between-group comparisons of change scores. Effect sizes were calculated as $r = Z/\sqrt{N}$ with 95% confidence intervals. A complete data dictionary defining all collected variables and the anonymized dataset are available as supplementary materials (Koo & Li, 2016).

3.4 Experimental Intervention and Fidelity Checks

The formative program for developing patriotic consciousness, consisting of 20 sessions (each 20 minutes), was implemented in both the CG and EG. The program content (topics related to national symbols, Ukrainian studies, and regional/national patriotism) and the play-based format were identical for both groups. The key differentiating factor for the EG was the systematic integration of multimedia technologies as the primary instructional tool. This included:

1. Using interactive presentations and animations to introduce concepts.
2. Incorporating audio recordings of the national anthem and folk songs.
3. Showing short, age-appropriate video clips about Ukrainian history, culture, and nature.
4. Utilizing interactive educational games and digital resources.

In contrast, the CG received the same content delivered through traditional methods: physical posters, printed images, live singing, teacher-led storytelling, and physical games. To ensure consistent implementation, all sessions in both groups were delivered by the same two trained preschool educators. They used a standardized session protocol checklist for each lesson to ensure all key activities and content points were covered. Session logs were maintained to record adherence and duration, confirming that both groups received an equivalent dose and time of exposure.

3.5 Ethical Considerations and Safeguarding

This study received ethical approval from the institutional review board. Written informed consent was obtained from all parents/guardians, and child assent was secured verbally before each session, with continuous affirmation of their willingness to participate. To distinguish civic education from political indoctrination, the program focused exclusively on universally recognized civic values – cultural appreciation, national symbols, and historical figures – avoiding any content promoting superiority or hostility toward other groups. All multimedia content was pre-screened and delivered via a secure, closed-circuit platform to ensure data protection and cyber-safety. No personal data of children was stored online or transmitted over public networks. For the children identified with elevated anxiety in the Results, individualized support was provided, including shorter session exposure and constant presence of a child psychologist. The study was conducted under independent oversight to monitor all procedures.

4. Results

The results of the experimental study and the implementation of the experimental program are presented in Table 1 and Table 2. The indicators of preschool children's patriotic consciousness criteria "before" and "after" the implementation of the educational program are demonstrated. Below, we describe the trends identified during the diagnostic process.

Table 1. Distribution of Patriotic Consciousness Levels in Experimental and Control Groups

Component	*Level*	*Control Group (n=75)*		*Experimental Group (n=80)*	
		Pre-test	Post-test	Pre-test	Post-test
Cognitive	Low	18 (24.0%)	4 (5.3%)	18 (22.5%)	5 (6.3%)
	Medium	34 (45.3%)	23 (30.7%)	38 (47.5%)	25 (31.3%)
	High	23 (30.7%)	48 (64.0%)	24 (30.0%)	50 (62.5%)
Emotional	Low	30 (40.0%)	24 (32.0%)	31 (38.8%)	7 (8.8%)
	Medium	37 (49.3%)	42 (56.0%)	40 (50.0%)	52 (65.0%)
	High	8 (10.7%)	9 (12.0%)	9 (11.3%)	21 (26.3%)
Activity	Low	26 (34.7%)	23 (30.7%)	26 (32.5%)	5 (6.3%)
	Medium	40 (53.3%)	42 (56.0%)	44 (55.0%)	55 (68.8%)
	High	9 (12.0%)	10 (13.3%)	10 (12.5%)	20 (25.0%)

Source: developed by the author based on the analysis of empirical data.

The distribution analysis reveals notable improvements across all components in both groups following the intervention. The experimental group demonstrated more substantial progress, particularly in emotional and activity domains where

high-level scores increased by 15% and 12.5% respectively. However, the control group also showed meaningful development, especially in cognitive component where high-level achievements rose by 33.3%.

The cognitive component of patriotic consciousness demonstrates moderate positive dynamics in both groups. This indicates the effectiveness of the applied teaching methods. The corresponding results are presented in Figure 3.

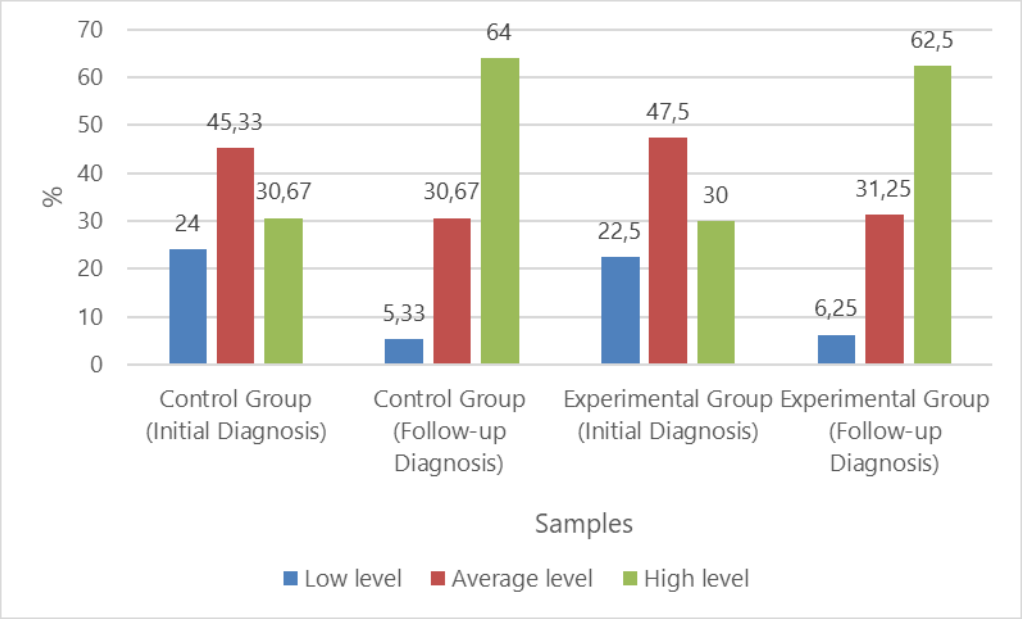

Figure 3. Dynamics of the cognitive component of patriotic consciousness in preschool children during the formative experiment, %

Source: developed by the author based on the analysis of empirical data.

The initial diagnosis showed that one-third of the children studied had high scores. Slightly less than half of the preschoolers were diagnosed with an average level of the component. A quarter of the subjects at the beginning of the experiment had a low level of knowledge about national and state cultural elements. A follow-up diagnosis in the control group shows that high scores for the cognitive component of patriotic consciousness increased in 34.67% of the children. The average scores decreased by 14.66%. A significant decrease (by 18.67%) is observed in the low scores. Analyzing the results in the experimental group, it can be said that the dynamics of the indicators are not significantly different. Thus, high scores of the children's patriotic ideas increased by 32.5%. The statistical significance of these within-group improvements was confirmed by Wilcoxon signed-rank tests (Table 2). Furthermore, the magnitude of these changes, quantified by the effect size *r*, indicates a substantial level of improvement in the cognitive component for both groups (Table 3)

Table 2. Non-Parametric Analysis of Patriotic Consciousness Components

Component	*Group*	*Pre-test Median [IQR]*	*Post-test Median [IQR]*	*Within-Group (Wilcoxon)*	*p-value*	*Effect Size r [95% CI]*
Cognitive	Control	6.0 [5.0-7.0]	7.5 [6.0-9.0]	<0.001		0.45 [0.30-0.58]
	Experimental	6.0 [5.0-7.0]	8.0 [6.0-9.0]	<0.001		0.48 [0.35-0.61]
Emotional	Control	4.0 [3.0-6.0]	5.0 [4.0-6.0]	0.023		0.18 [0.05-0.31]
	Experimental	4.0 [3.0-6.0]	6.0 [5.0-7.0]	<0.001		0.48 [0.35-0.61]
Activity	Control	4.0 [3.0-6.0]	5.0 [4.0-6.0]	0.125		0.12 [0.00-0.25]
	Experimental	4.0 [3.0-6.0]	6.0 [5.0-7.0]	<0.001		0.42 [0.28-0.55]

Note: IQR = Interquartile Range; Effect size r calculated as Z/√N

Source: developed by the author based on the analysis of empirical data.

Table 3. Between-Group Comparisons of Changes in Patriotic Consciousness

Component	*Mann-Whitney U*	*p-value*	*Effect Size r [95% CI]*
Cognitive	2850	0.325	0.08 [-0.05-0.21]
Emotional	2105	0.002	0.25 [0.12-0.38]
Activity	1950	<0.001	0.32 [0.19-0.45]

Note: Analysis based on change scores (post-test - pre-test)

Source: developed by the author.

Between-group analysis confirms significantly greater improvements in the experimental group for emotional ($p = 0.002$) and activity ($p < 0.001$) components. The effect sizes for these differences were moderate ($r = 0.25$-0.32), indicating meaningful practical significance. No statistically significant between-group difference was found for cognitive component development ($p = 0.325$). As for the emotional component of patriotic consciousness, the results for both groups are demonstrated in Figure 3.

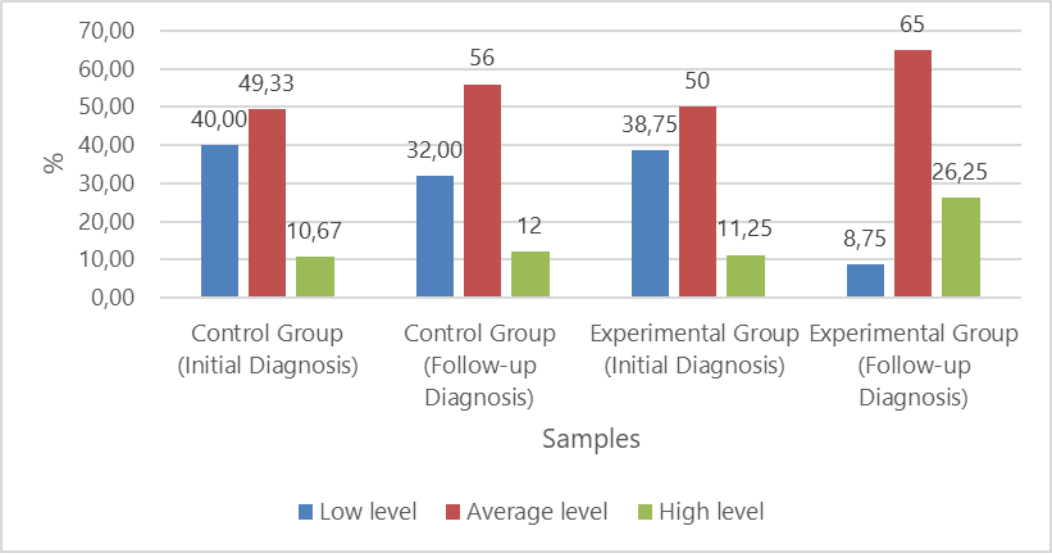

Figure 4. Dynamics of the emotional component of patriotic consciousness in preschool children during the formative experiment, %

Source: developed by the author based on the analysis of empirical data.

The percentage trends are shown in Figure 4. The emotional component of patriotic consciousness, in general, demonstrates lower development compared to the cognitive criterion. The initial diagnosis shows that high scores were identified in more than 10% of the children. Half of the participants show average values for the emotional component of patriotic consciousness. One-third of the participants demonstrate low levels of this criterion. In the control group, insignificant changes were observed. This trend is reflected in a slight increase in the percentage of individuals with average scores. Calculating the Student's t-test shows differences at the level of $p=0.05$ ($t=2.667$) (Table 3). In the group where multimedia technologies were used, a more positive dynamic was observed. Specifically, high scores for the emotional component of patriotic consciousness increased by 25%. At the same time, 30% of children showed a decrease in the low level of the component. The calculation of the Student's t-test in the experimental group shows differences at the level of $p=0.01$ ($t=3.609$) (Table 2). The d-Coen calculation demonstrates average changes in the emotional component of patriotic consciousness in the control group ($d=0.746$, while a high level of shifts was recorded in the experimental group ($d=0.896$) (Table 5). It can be stated that multimedia technologies play a significant role in modern programs for fostering patriotism in preschoolers and in the development of patriotic feelings.

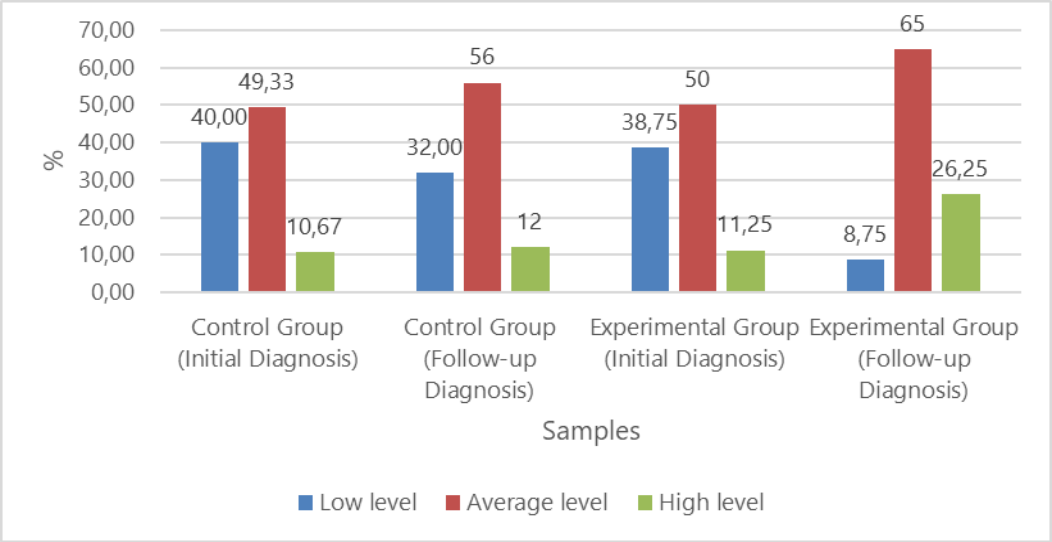

Figure 5. Dynamics of the activity component of patriotic consciousness in preschool children during the formative experiment, %

Source: developed by the author based on the analysis of empirical data.

The percentage dynamics of the activity component are shown in Figure 5. The initial diagnosis of the activity component of patriotic consciousness demonstrated a similarity in its development to the emotional component. Specifically, a significant percentage of children had average and low scores. A high level was found in approximately 10% of the preschoolers, while average scores were observed in more than half of the participants. In the control group, where no multimedia influence was implemented, no significant differences in the dynamics of the activity component were observed. These conclusions are confirmed by the relevant coefficients of the Student's t-test (t=1.791), indicating no statistical differences between the results (Table 2). At the same time, the use of multimedia technologies led to a 12.5% increase in the high level of the activity component in the experimental group. Average scores rose by 13.75%, while the percentage of children with low values for this component decreased by 25%. The statistical significance of the differences is at the level of p=0.01 (t=3.701). The calculation of d-Coen demonstrates a low manifestation of changes in the activity component of patriotic consciousness of preschoolers in the control group (d=0.345), while a high level of shifts was recorded in the experimental group (d=1.115) (Table 4).

Overall observations of the experimental procedure allow for some generalizations. In the experimental group, there was a more noticeable increase in preschoolers' interest in developmental activities. The impact of the informational environment also helped to activate communication among the preschoolers. The didactic element of the activities was sufficiently pronounced from the beginning of the experimental program. However, the psychological component gradually intensified with the start of the multimedia formation of patriotic consciousness. Special attention should be paid to children who experienced difficulties throughout the entire period of program implementation. Four subjects can be distinguished who experienced identified problems with the use of multimedia technologies during the experiment. Such children had difficulties with emotional control and a fairly high level of anxiety, which prevented effective participation in the program. The identified preschoolers require special further pedagogical attention.

In general, the results confirm the research hypothesis. Multimedia technologies are an effective means of forming patriotic consciousness in the context of developing patriotic experiences and activity orientation. However, there is a certain caveat regarding the hypothesis test – the stimulating effect of information technologies on the formation of the cognitive component of patriotic consciousness in preschoolers was not confirmed. We explain this aspect by the age-specificity of the cognitive sphere of preschoolers, which is at the stage of active formation.

5. Discussion

The results of the formative experiment indicate the effectiveness of using modern multimedia technologies for forming patriotic consciousness in preschool children. This is particularly evident for the emotional and activity components of this structure. At the same time, the formation of ideas about patriotic and state objects and phenomena does not significantly depend on the program format. A notable trend in older preschool children is that while they possess a developed knowledge base about state and patriotic aspects, they often lack corresponding stable emotions and activity orientation. This situation can be explained by the specific characteristics of preschool children's psychological development, specifically the insufficient formation of their motivational sphere. Multimedia influence on children's patriotic consciousness is likely linked to the close connection between sensory systems and the emotional sphere.

In general, we agree with the conclusions of other researchers regarding the important role of multimedia technologies in modern preschool education (Shu et al., 2023). We consider it advisable to combine traditional approaches with modern trends to ensure the effective functioning of preschool educational institutions (Yao, 2023). In this context, the study of the effectiveness of so-called Stream education in working with preschool children deserves attention (Teslenko, 2021). Moreover, the implementation of any educational programs in the modern educational environment should take into account the safety factor when working with children (Gagarina, 2025). It is important to integrate the didactic, educational, and developmental components of the educational space (Lohmander & Samuelsson, 2020). We agree with the view that increasing the effectiveness of educators' pedagogical activity should include the individualization of this process (Li, 2023). At the same time, our study did not confirm distinct didactic advantages of multimedia technologies for preschool children (Nowawi & Ahmad, 2023). Additionally, the connection between abstract and concrete material was not fully clarified (Yu, 2022). We attribute these differences in findings tothe socio-cultural differences of the studied samples and differences in pedagogical influence. We confirm the exceptional role of game methods for patriotic education in preschool educational institutions (Fadlillah et al., 2021, Suraji et al., 2018).

5.1 Limitations

This study has several important limitations that should be considered when interpreting the findings. First, the use of a non-validated observation scale, though adapted from existing theoretical frameworks, may affect measurement precision. However, inter-rater reliability procedures were implemented to enhance data consistency. Second, the non-randomized design conducted exclusively in urban preschools during wartime conditions limits generalizability to rural or peaceful settings. While matched-pair assignment and treatment fidelity checks were employed to strengthen internal validity, the absence of randomization and blinding remains a constraint. Third, the initial application of parametric tests to ordinal data was methodologically inappropriate, though subsequent non-parametric reanalysis provides more robust estimates. Finally, the security situation prevented longitudinal assessment of effect sustainability. Future research should address these limitations through validated instruments, diverse sampling, and long-term follow-up to establish generalizability and stability of findings.*5.2. Recommendations*

Based on the obtained data, the following recommendations are formulated for the formation of patriotic consciousness in preschool children:

1) The use of information technologies in preschool education should be preceded by consultations with psychologists, educators, and medical staff;

2) The application of multimedia technologies in working with preschool children should adhere to basic hygiene standards and not violate health preservation norms;

3) Preschool educators should undergo mandatory and regular professional development to improve their competencies in using information technologies and addressing patriotic education issues;

4) Patriotic education of preschool children should not be limited knowledge transfer but should focus on emotional aspects and behavioral changes.

6. Conclusions

The relevance of researching patriotic education for preschool children is determined by the currentsocial conditions and critical circumstances for the country. The issue is identified as insufficiently covered in theoretical sources. The results of the formative experiment indicate the effectiveness of using modern multimedia technologies for forming patriotic consciousness in preschool children within the current educational environment. The positive dynamics are particularly evident for the emotional and activity components of patriotic consciousness. At the same time, the formation of ideas about patriotic and state objects and phenomena does not significantly depend on the form of the program format. The results of the educational program using multimedia technologies show positive dynamics. High levels of the cognitive component of patriotic consciousness increased in 32.5% of children, the emotional component in 25%, and the activity component in 22.5%. Older preschool children can be characterized as having a developed set of knowledge about the state and patriotic aspects, which is combined with unstable patriotic feelings and activity orientation. The multimedia influence on children's patriotic consciousness is explained by the close connection between sensory systems and the emotional sphere. The results of the experimental study lay the foundation for the effective use of multimedia technologies in the educational process for preschool children. The obtained data also contribute to fostering children's patriotism. These results highlight the need for further investigation into how multimedia-based civic education functions across different contexts. Subsequent studies should examine implementation in peaceful environments and incorporate longitudinal designs to assess whether these interventions foster enduring civic dispositions rather than temporary behavioral changes. Future research prospects lie in developing

standardized methods for diagnosing the components of patriotic consciousness in preschool children. It is also important to establish the most environmentally friendly ways of using multimedia technologies in the educational process of preschoolers. Special attention is paid to determining the most effective content of classes on the development of patriotic consciousness of preschoolers. In this context, it is important to establish the mechanisms of the formation of patriotic consciousness within the general specifics of the child's mental development. It is also advisable to conduct longitudinal studies to track changes in the formed patriotic views, emotions and behaviour to assess the long-term stability of the experimental effect.

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