DEVELOPING SOCIAL AND CITIZENSHIP SKILLS THROUGH INTERACTIVE ENGAGEMENT IN SENIOR PRESCHOOLERS

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Abstract: The individual's social and civic education process is a complex, dynamic process of coordinated interaction between the individual, the state, and society. In the preschool years, children form their personality, values, and competencies, which, in synergy, will determine their attitude towards themselves and the surrounding world and will influence their actions and behavioural responses. The primary role of developing an active social and civic stance is to help children to self-identify and function successfully. The article highlights the issues of the formation and development of social and civic competence in senior preschoolers in the context of communicative activities. Various approaches to the definition of social and civic competence in senior preschoolers influencing the transformation of these concepts in the contemporary conditions of social progress has been outlined. Theoretical analytics have been implemented, based on which the essence of the basic categories of the researched problematics has been defined. A pedagogical technology involving interactive teaching methods has been developed to form social and civic competence in communicative activities among senior preschoolers. The effectiveness of training based on the technology above has been evaluated. The research results can be helpful in preschool education institutions, parents, and educators of senior preschoolers.

Keywords: civic competence, citizenship, competence, socialisation, social competence, social and civic competence.

1 Introduction

Social and civic competence is conceptualised as a multifaceted process of an individual's interaction with society and the state. The definition of its essence, goals, and potential unites ethical, value-based, and spiritual orientations with the objective conditions of development of modern society and the state. Ukraine's active European integration and the corresponding modernisation of the national education system actualise developing a competent, conscious future citizen in socialisation and civic stance.

In light of contemporary pedagogical trends in the development of senior preschoolers' personalities, it is imperative to implement in-depth analytics of the influence of their sociocultural environment on the formation and progression of value orientations, life competencies, and moral feelings. In the innovative educational vector "Child in Society" in the State Standard of Preschool Education (2021), social and civic competence is identified as a key competence, the main qualities laid down in the preschool age. In the context of the outlined problems, the formation of civic and social competence of senior preschoolers in the modern socio-cultural environment is considered particularly relevant.

A significant body of contemporary scholarship is dedicated to studying the unique characteristics of forming and developing civic and social competence in children during their developmental period. Some researchers, such as Kosenchuk (2022) and Komashko and Shulha (2023), have emphasised that the effectiveness of the process above directly determines the speed and quality of the formation of national and ethnic identity in the younger generation. Some researchers (Oresheta, 2013) posit that communicative competence is the fundamental principle underlying the formation of the competence under study in preschool children. The general issues about the researched problematics are comprehensively addressed in the works of several contemporary scholars (Tushynska & Rudnytska, 2023; Horban, 2019). The process of forming social and civic competence in preschool children is accompanied by several challenges and risks, which are reflected in the works of Staenna (2012). At the same time, further scientific examination of the practical methods of implementing the concept of forming social and civic competence in preschool children is needed.

This study aims to analyse the specifics of communication activities in forming senior preschoolers' social and civic competence in the modern socio-cultural environment. Within the framework of this goal, the corresponding research objectives were formed:

- 1. To conduct a theoretical analysis of the essence of the main categories of the problem and the degree of its research.
- 2. To conduct a pedagogical experiment, which includes the stating, formative and control stages.
- Based on the data obtained, propose a pedagogical technology for forming senior preschool children's social and civic competence regarding communication activities.
- 4. To experimentally test the effectiveness of the proposed technology.

2 Literature review

Several scientists, educators, philosophers, and administrators have explored the impact of communicative activity on forming social and civic competence in young people. Significant contributions to understanding citizenship in the context of contemporary socio-political transformations include those by Dziubenko (2023) and Matsenko (2020). These publications focus on the essence of citizen education, the ways and methods of its practical implementation, and the challenges it faces.

In the view of Tarabasova (2023), the social and civic stance of the younger generation should be initiated in preschool. Scholars examine issues related to civic education and the formation of civic consciousness of the individual (Rohalska, 2008; Oliinyk, 2022). These scholars pay particular attention to the psychological justification of patriotic education for citizens. The works of Zimakova and Manzhelii (2020) and Davydova (2023) substantially contribute to identifying the essential content of preschoolers' socialisation process in the sociocultural contemporary environment. Research on the formation of value orientations and moral education (Sichkar, 2012), personality-oriented learning (Bobro, 2024), and the phenomenon of civil society and ethnic self-identification (Sukhomlynskyi, 2003) are also significant in the context of the researched problematics.

3 Materials and methods

The research was conducted by the principles of complexity and the systematic nature of scientific investigations. This approach enabled the research object to be analysed as an integral system with various interconnections and interdependencies. Several general scientific research methods were employed to achieve the research objectives, including analysis, synthesis, induction, deduction, and experimentation.

The research involved the application of analytical and synthetic techniques to identify the fundamental aspects, approaches, and critical factors influencing the development of social and civic competence in younger preschool children. The inductive method was employed to establish prospective directions for the evolution of the investigated process. Deductive reasoning was applied to identify the primary direction of developing the definition of social and civic competence, considering Ukraine's integration into the global community.

The experimental studies involved implementing a controlled experiment to evaluate the proposed technology's effectiveness for forming social and civic competence in preschool children and comparing the relevant indicators.

4 Results

The socio-cultural environment represents a set of conditions for the functioning of society and is positioned as the main prerequisite for the harmonious progress of the individual. In its development, the individual is integrated into communication and relationships with the surrounding environment, developing civic and social activity. Cultural and national identification and spiritual values are shaped by the way of life and the surrounding environment, which impacts the upbringing in synergy.

Social and civic competence definitions are included in the conceptual Recommendations of the European Parliament and the Council of Europe "On Key Competencies for Lifelong Learning" (2006). At the same time, the normative-legal basis of the outlined problematics in Ukraine is formed by the Constitution of Ukraine, the Laws of Ukraine "On Preschool Education", "On Education", and the Strategy of National and Patriotic Education (2017) assigns the state the responsibility of creating the necessary conditions for young people to obtain social and civic education.

The State Standard of Preschool Education (2021) stipulates that the outcome of fostering social and civic competence is the child's value attitude towards themselves, their rights and the rights of others, a valuing attitude and respect for the cultural heritage of the Ukrainian people, as well as the presence of ideas about the rules and methods of effective interpersonal interaction. The overarching objective of the "Child in Society" educational programme is to develop social and civic competence.

The foundation of social and civic competence in senior preschoolers is based on the principles of humanism. At the age of 5-6 years, there is intensive development and assimilation by the child of the social experience of the senior generation (Kosenchuk, 2022; Komashko & Shulha, 2023).

In light of the above, it is imperative to emphasise the pivotal educational objectives of fostering social and civic competence in senior preschoolers. These objectives encompass the encouragement and motivation of children to communicate in the state language, the formation of knowledge about the state and folk symbols of Ukraine, the expansion of children's horizons in the domains of traditions, customs, values, authentic everyday life, as well as the development of an interest in their lineage and homeland, a sense of respect and pride for their people. Furthermore, developing social and civic competence in senior preschool children encompasses fostering empathy, independence, creativity, and initiative (Rohalska, 2008; Oliinyk, 2022).

Social and civic competence formation in senior preschool-age children occurs directly in communicative activity. It is provided by knowledge of communication rules and behavioural reactions, skills of concentration and overcoming difficulties, critical thinking, the ability to make decisions, and the demonstration of communicative possibilities and teamwork.

The scientific discourse defines communication as a multifaceted process that establishes and develops interpersonal contacts. This arises from the need for joint activity and information exchange, the formation of common interaction strategies, and the perception and understanding of other individuals (Kosenchuk, 2022; Komashko & Shulha, 2023). Effective communication is predicated on the principles of mutual respect and an awareness of the needs of the interlocutors, which is fundamental for the organisation of joint activities. Successful communication involves establishing personal contact through creating a friendly atmosphere, which is vital for the safe interaction of all parties.

However, in the context of communication among senior preschool-aged children, certain personal qualities of the participants present challenges. These difficulties may include an inability to find adequate words or forms to express one's emotions and problems with active listening and understanding the interlocutor's needs. These communication features are partially attributable to the psychological characteristics of senior preschoolers (Zimakova & Manzhelii, 2020; Davydova, 2023). In order to meet the social and state needs in the upbringing of individuals capable of maintaining tolerant relations and resolving conflicts based on mutual respect and understanding, it is necessary to utilise effective educational models for developing awareness and behaviour in the spirit of tolerance, as well as for developing the ability to tolerate expressing one's emotions and feelings (Tushynska & Rudnytska, 2023; Horban, 2019). The process of developing civic and social competence in senior preschoolers in the context of communication requires educators to carefully plan and implement, based on the specifics of the age group, to ensure a deep understanding and application of the principles of tolerance (Zimakova & Manzhelii, 2020; Davydova, 2023).

The experimental phase of the study was conducted with a group of senior preschool children, which consisted of 32 children. The experiment's methodology involved interactive means, which has been demonstrated to be a practical approach for developing communication skills as a foundation for social and civic competence. Among the interactive technologies used, those most suitable for the studied age group were chosen: virtual games, online platforms, and role-playing games.

At the control stage, final testing, in the form of a children's survey, was conducted following the same plan as the initial questionnaire but in an online game format. The control survey was carried out to identify the difference in results after the implementation of the experiment, that is, the introduction of interactive technologies during the formative stage of the experiment.

After the research, the effectiveness of the implemented pedagogical experiment was evaluated. The results were analysed using mathematical statistics, and a summary was prepared. The results were interpreted to determine the extent to which the studied markers had increased or decreased at all levels of communication skills formation.

In order to facilitate the appropriate organisation of diagnosing the skills of effective communication in senior preschoolers, an orientation was chosen towards the interdependence of such essential components of forming social and civic competence as empathy and national self-identification. A survey method was employed to identify the formation level in the group of senior preschoolers. The results of the survey indicated that the levels of empathy exhibited by the respondents were distributed as follows: 7 children (22%) exhibited a high level of empathy, 16 children (50%) exhibited a medium level of empathy, and nine children (28%) exhibited a low level of empathy. In contrast, the levels of national self-identification exhibited by the respondents were distributed as follows: 10 children (31%) exhibited a high level of national self-identification, 14 children (44%) exhibited a medium level of national self-identification, and eight children (25%) exhibited a low level of national self-identification. The overall result of the diagnostic survey indicates a tendency for children to be selective in their expressions of empathy, with a certain level of ethnic and national-cultural self-identification.

In the descriptive phase of the experiment, a control group and an experimental group were selected to implement the pedagogical experiment. Both groups consisted of the same number of senior preschool children (a total of 32 children). The descriptive experiment aimed to identify the effectiveness of involving the potential of interactive means (within the proposed pedagogical technology) in forming social and civic competence in senior preschoolers in communicative activities. Among the interactive technologies employed, those deemed most suitable for the age group under study were selected: virtual games, online platforms, and role-playing games.

Observation of the representative group of senior preschool children was conducted through simulation-role-playing, recreating various situations in a playful form. The utilisation of the potential of play permitted the creation of an informal situation, which increased interest in the situation. Furthermore, it facilitated a thoughtful application of acquired knowledge and skills in personal practice, which was assimilated at the subconscious level.

The observation concluded that integrating interactive technologies into pedagogical practice to foster social and civic competence in senior preschool children is effective. The effectiveness of this integration was assessed in terms of interaction and self-expression.

The following main results were identified for the representative control group across the differentiated levels: a high level of empathy was observed in 3 children (19%), a medium level in 8 children (50%), and a low level in 5 children (31%); a high level of formation of national self-identification was observed in 8 children (50%), a medium level in 4 children (25%), and a low level in 4 children (25%).

The results of the experimental group of senior preschool-age children who participated in activities regarding the trial of interactive technologies in pedagogical practice indicated that ten children (62%) exhibited a high level of empathy, four children (25%) observed a medium level, and 0 children (0%) recorded a low level. The results are presented in Table 1.

Table 1. Framework of Effectiveness Levels of Involving Interactive Technologies in Pedagogical Practice to Form Social and Civic Competence of Senior Preschoolers in Experimental and Control Groups

Study groups	Indicator	High, persons	Medium, people	Low, persons	Total
EG	Empathy	10	4	2	16
	National self-identification	12	4	0	16
CG	Empathy	3	8	5	16
	National self-identification	8	4	4	16

To evaluate the effectiveness of forming social and civic competence based on the proposed pedagogical technology, the efficiency coefficient (K.eff.) was used as a relative magnitude of the sum of indicators of its actual state to the maximum possible (specified) in the theoretical model (Ostroverkhova, 2014). In this case, the maximum possible indicator is taken as the total number of children in the group, and the indicator of the actual state is the number of children with a high level of the studied indicators:

K.eff. = A1/N1(1)

where K.eff. – efficiency coefficient based on the results of initial control; A1 – a qualitative indicator of learning outcomes; N1 – a maximum possible indicator of the quality of preparation. For the empathy indicator in the experimental group of children, K.eff. = 10/16= 0.625. For the national self-identification indicator in the experimental group of children, K.eff. = 12/16= 0.75.

According to the generally accepted methodology (Ostroverkhova, 2014), values of $0.50 < \text{K.eff.level} \le 0.65$ indicate a nominal level, $0.65 < \text{K.eff.leve} \le 0.85$ is a medium level of efficiency of the pedagogical method. Considering the indicators of the control group (0.19 and 0.5, respectively), we can assert the proven effectiveness of the proposed pedagogical technology.

Integrating interactive technologies into developing social and civic competence in preschool children can significantly enhance the quality and efficacy of this process. An analysis of the outcomes of an experiment conducted through the practical application of interactive approaches in a play-based format revealed notable discrepancies between the baseline indicators of the level of skill development under investigation.

In particular, the representative (control) group demonstrated significantly lower levels of empathy and the formation of national self-identification than the experimental group. It was established that the playful form of interaction with the educator does not cause discomfort in preschool children because the fairness and usefulness of the rules are beyond any doubt. The game rules fulfil the function of painless behaviour management for senior preschoolers. The results indicate the issue's relevance and the appropriateness of using interactive technologies to visualise complex concepts and employ game elements. These technologies make learning more engaging and comprehensible for senior preschoolers. Furthermore, using these technologies affects the formation of social and civic competence and improves communication skills.

5 Discussion

Several scientists and educators have studied the education of the younger generation in the context of developing social and civic competence.

The pedagogical foundational concepts of legal and moral education, as well as the primary means, principles, and methods of forming and developing civic qualities of the personality in the current conditions of modernity, have been developed in the studies of Lebedyk (2020) and Bukhun (2021). The scientists consider civic education to form a sense of belonging to the nation, devotion to the motherland, and prioritising public interests over personal ones.

According to Rudenko and Lianytsia (2023), civic feelings are built based on children's relationships with their immediate surroundings and the example of adults. The scientists posit that the primary objectives of patriotic education for senior preschoolers are acquiring knowledge about state symbols and values, historical facts, traditions, customs, and cultural features of their people. Furthermore, they emphasise the significance of communicative competence in preschoolers as a foundation for developing social and civic competence.

The senior preschool age is the optimal period for actively fostering civic qualities. Researchers (Kuzemko & Kosenchuk, 2021) emphasise the necessity of establishing the foundations of social and civic education during this age. It is worth concurring with the scholars' view that the conceptual foundations of humanism and effective communication constitute the basis for forming civic and social competence. The fundamental elements of this latter concept are fostering spiritual and value orientations within a personality-oriented approach.

In her scientific research, Ponimanska (2006) identifies the critical prerequisites for the successful formation and development of civic and social competence in senior preschoolers. These include social adaptation and orientation and

integrating the individual's social and personal experience. The scholar posits that a child's social and civic competence is an integral characteristic of the personality, comprising emotionalmotivational features, social activity, and a humanistic direction of personal development.

The problems of forming social competence through interactive interaction and its connection with emotional intelligence have been addressed by Zimakova and Manzhelii (2020), Davydova (2023), and Bobro (2024). The scientists reflect on the role of practical communication principles, which are the basis of social interaction. In particular, Bobro (2024) emphasises the necessity to develop humanitarian, axiological, and ethical aspects of the digital transformation of educational systems. The researcher posits that the effectiveness of educational projects is contingent upon their creative potential, encompassing the utilisation of unconventional solutions that, on the one hand, facilitate the introduction of "educational" novelty and, on the other, present interest for participants in the educational process.

Furthermore, Tushynska and Rudnytska (2023) identify the organisational and pedagogical conditions for developing social and civic competence in senior preschool children through local history studies. The conditions identified by the authors include, in particular, the use of games and exercises that will activate the child's needs in developing social and civic competence. The researchers posit that using didactic games, play activities, and methodologies facilitates the enhancement of children's learning material assimilation, diversification of their educational activities, and the creation of more engaging learning environments.

The analysis of the sources above indicates that the skills of nonviolent communication can be developed through the utilisation of interactive technologies. Consequently, studies about the specific characteristics of utilising interactive technologies within the educational context (research conducted by Bida, Komar, Osadchenko, Pyrozhenko, Pometun, Piekhota, and other scholars) are worthy of particular attention.

6 Conclusion

The formation of social and civic competence in senior preschool children is an essential component of the contemporary educational process. Contemporary research provides compelling evidence of the necessity of shaping child development's emotional and social spheres, as social and civic competence is actively formed in preschoolers through interpersonal contact with the surrounding socio-cultural environment.

The research demonstrated that the implementation of interactive technologies in forming social and civic competence in senior preschoolers can significantly improve the quality and efficiency of the process. The experiment results, conducted through the practical application of interactive approaches in a play-based format, revealed substantial differences between the primary indicators of the level of formation of the skills under investigation. In particular, the representative (control) group exhibited significantly lower empathy indicators and national self-identification formation than the experimental group. The obtained results not only attest to the relevance of the issue but also to the appropriateness of using interactive technologies for visualising complex concepts and employing game elements, which makes learning more engaging and comprehensible for senior preschoolers and also impacts the level of formation of social and civic competence and the improvement of communication skills.

The research presented here needs to exhaust the full range of factors influencing the development of social and civic competence in senior preschoolers during communicative activities. There is a clear need for further investigation into the interactional aspects of social and civic education within the preschool and primary education systems.

Literature:

1. Bobro, N. S.: Digital transformation of educational systems. *Efficient economy*, 2024, 1, 36-41. https://doi.org/10.32702/2 307-2105.2024.1.36

2. Bukhun, A. H.: Civic education of Ukrainian youth: normative principles and continuity of development. *Pedagogy of Formation of Creative Personality in Higher and General Education Schools*, 2021, 74, 66-71. https://doi.org/10.3284 0/1992-5786.2021.74-1.12

3. Davydova, M. O. Introducing art pedagogical techniques in the process of socialisation of preschoolers. *Preschool education in the modern educational space: topical issues, experience, innovations [Electronic edition]: materials of the participants of the VIII scientific and practical conference,* 21 April, 2023, 22-23. https://dspace.hnpu.edu.ua/handle/123456789/14278

4. Decree of the President of Ukraine: On the Strategy of National and Patriotic Education, 18.05.2019, No. 286. https://zakon.rada.gov.ua/laws/show/286/2019#Text

5. Dziubenko, I.: Citizenship through the prism of European values. *Bulletin of Science and Education*, 2023, 12(18), 431-444.

 Horban, O. V.: The concept of civil society in the context of modern civilisational development. *Scientific Journal of the National Pedagogical Dragomanov University. Series 7: Religious Studies. Culturology. Philosophy*, 2019, 41(54), 64-74.
Komashko, K., & Shulha, L.: Scientific-theoretical principles of the problem of forming social and civic competence of children of senior preschool age through ICT. Young Scientist, 2023, 11(123), 62-68. https://doi.org/10.32839/2304-5809/2023-11-123-26

8. Kosenchuk, O. H.: The formation of social and civic competence of senior preschool age. *Pedagogical education: theory and practice*, 2022, 32, 138-155. https://doi.org/10.32626/2309-9763.2022-32-138-155

9. Kuzemko, L. V., & Kosenchuk, O. H.: Educating a socially competent citizen through play. *Preschool teacher-methodologist*, 2021, 6, 9-13. https://elibrary.kubg.edu.ua/id/epr int/36698/1/L_Kuzemko_O_Kosenchuk_VMDZ_6_IS_IPSP.pdf 10. Law of Ukraine "On Education" of 05.09.2017, No. 2145-VIII. https://zakon.rada.gov.ua/laws/show/2145-19#Text

11. Lebedyk, L.: Forming the civic culture of the individual through the quality of the democratic environment of the educational institution. *Monographs (NNIDO PSN)*, 2020. http://dspace.puet.edu.ua/handle/123456789/8838

12. Matsenko, V.: The concept of "citizenship": a modern understanding. *Science, education, youth,* 2020, 1(53), 148-150. https://library.udpu.edu.ua/library_files/stud_konferenzia/2020/1/53.pdf

13. Oliinyk, D. S.: The essence of forming children's social and civic competence in the conditions of preschool education. *Implementing modern technologies to ensure quality training of future specialists in preschool education: a collection of scientific papers*, 2022, 232-238. http://surl.li/thkgb

14. Order of the Ministry of Education and Science of Ukraine "On Approval of the Basic Component of Preschool Education (State Standard of Preschool Education)", New edition of 12.01.2021, 33. https://mon.gov.ua/ua/npa/pro-zatverdzhennyabazovogo-komponenta-doshkilnoyi-osviti-derzhavnogo-

standartu-doshkilnoyi-osviti-nova-redakciya

15. Oresheta, Yu. V.: Personality and socio-cultural environment. *Social Work Problems*, 2013, 1(2), 187-191. http://ir.stu.cn.ua/bitstream/handle/123456789/11514/AIE1_2-187-191.pdf?sequence=1&isAllowed=y3

16. Ostroverkhova, N. M.: The organisational subsystem of the lesson and the technology of analysing its effectiveness. *Education and development of a gifted personality*, 2014, 6, 5-14. http://nbuv.gov.ua/UJRN/Otros_2014_6_3

17. Ponimanska, T. I.: *Preschool pedagogy*: a textbook. Akademvydav, 2006.

18. Recommendation 2006/962/EU of the European Parliament and of the Council on core competencies for lifelong learning of 18 December 2006: International Document of 18 December 2006, No 2006/962/EU. https://zakon.rada.gov.ua/laws/show /994_975#Text 19. Rohalska, I. P.: Socialisation of personality in preschool childhood: essence, specificity, support: a monograph. Millennium, 2008.

20. Rudenko, N., & Lianytsia, B. I.: Forming preschool children's social and civic competence through role-playing games. *Scientific Collection "InterConf"*, 2023, 154, 176-179.

21. Sichkar, A.: Sofia Rusova and Ksenia Mayevska on forming moral values in preschool children: ideas of the activity approach. *Preschool education*, 2012, 12, 11-12.

22. Staenna, O.: Civil education of preschool age children as pedagogical problem. *Bulletin of Luhansk Taras Shevchenko National University. Pedagogical Sciences*, 2012, 22(4), 73-83. http://nbuv.gov.ua/UJRN/vlup_2012_22(4)__13

23. Sukhomlynskyi, V. O.: The concept of civic education of the individual in the context of the development of Ukrainian statehood. *Preschool education*, 2003, 3.

24. Tarabasova, L. H.: We raise a socially competent preschooler: methodical recommendations. Dnipropetrovsk, 2023. https://archive.interconf.center/index.php/conference-proc eeding/article/download/3322/3355/2639

25. Tushynska, O. O., & Rudnytska, N. Yu.: Organisational and pedagogical conditions for forming social and civic competence of senior preschool children using local history. *Actual problems of primary education: theory and practice: a collection of materials of the All-Ukrainian scientific and practical conference with international participation*, 2023, 138-141. http://eprints.zu.edu.ua/38421/7/%D0%A2%D1%83%D1%88%D0%B8%D0%BD%D1%81%D1%8C%D0%BA%D0%B0.pdf

26. Zimakova, L. V., & Manzhelii, N. M.: Socialisation of preschool children through playful activities. *Integración de las ciencias fundamentales y aplicadas en el paradigma de la sociedad post-industrial: Colección de documentos científicos «ΛΟΓΟΣ» con actas de la Conferencia Internacional Cienífica y Práctica, 2020, 4, 112-114. http://surl.li/ujixd*

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