

# FORMATION OF FINANCIAL LITERACY IN PRIMARY SCHOOL STUDENTS

Iryna Kuzma<sup>1</sup>✉  
 Hanna Chaikovska<sup>2</sup>  
 Iryna Levchyk<sup>2</sup>  
 Oleksandra Yankovych<sup>2</sup>

<sup>1</sup>Ternopil Regional Municipal Institute of Postgraduate Pedagogical Education, Department of Pedagogy, Psychology and Inclusive Education, Ukraine

<sup>2</sup>Ternopil Volodymyr Hnatiuk National Pedagogical University, Ukraine

✉ [yankov@tnpu.edu.ua](mailto:yankov@tnpu.edu.ua)

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## ABSTRACT

The innovative methodology of the financial literacy formation in primary school students has been theoretically substantiated, the research has been carried out on the basis of education for success in life (integration of media education, financial education and education for sustainable development) and the relationship between the pedagogy of success and the pedagogy of heart.

The structure of financial literacy has been determined. The model of the methodology of formation of financial literacy in primary school students has been developed, the key components of the suggested methodology include aim, content (structure of financial literacy, theoretical and methodical foundations of its formation, expected results of educational programs) components; algorithm of the arranged activities of students, parents and teachers on the basis of partnership pedagogy; the selected forms, methods, means of formation of financial competencies, diagnostic tools and the expected result.

The experimental methodology resulted in a significant increase in the growth of financial literacy indicators in EG. The efficiency of the formation of financial literacy in primary school students has been proved with the help of the main findings of the research.

## KEYWORDS

Financial literacy, media education, primary school pupils

## HOW TO CITE

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## Highlights

- The innovative methodology of formation of financial literacy in primary school students via education for success in life.
- Significant increase of indicators of all criteria of financial literacy in EG.
- Detailed structure of the designed model of the methodology of formation of financial literacy in primary school students.

## INTRODUCTION

In the XXI century mankind faced a number of global problems, namely, increasing total debt, unemployment, income inequality that caused such social issues like poverty, crime, discrimination, unequal access to resources, a decrease of spiritual and moral values, etc. Financial education of children and youth is considered to be one of the ways to solve the current social issues.

Resolution of the problem requires starting educative work with the youngest – primary school students. The urgency of this concern is evidenced in a number of normative, conceptual documents for public schools in the EU and other countries that share European integration aspirations. The entrepreneurship competences have been identified as the core ones in the recommendations of the European Parliament and the Council of Europe. Formation of financial literacy in primary school students is the initial stage of the process of reformation in

order to improve the economic culture of citizens in society, promoting a prosperous happy life.

Financial education has been paid considerable attention in the schools of the European Union, in particular, the Netherlands has launched the International Program “Aflatoun”, which aims to develop financial literacy in children. The word “Aflatoun” is translated from Arabic as “researcher” (Lusardi, 2015). The key topics of the basic financial education (e.g. saving, investment, budgeting, financial risks and being a smart consumer) have been included in school curricula in primary and secondary education in Spain following the recommendations of the OECD, the European Commission and other international organizations. A number of courses like «Aula virtual” (Ikawa, 2016) have been developed to provide primary school teachers with the necessary knowledge, skills and qualifications to feel confident teaching financial literacy in their classes, no matter what their prior expertise in the subject.

The European integration processes encouraged the Ukrainian educators to follow the introduction of financial education in foreign countries and implement the positive experience in the educational sector of Ukraine. According to the statistics data in the research paper by Kikinedzhi (2015: 58), the Ukrainian society consists predominantly of poor families – about 70%, middle class covers about 25–29% and, respectively, the rich – up to 5%. Furthermore, according to the study “Financial Literacy, Financial Inclusion and Financial Well-Being in Ukraine” (2019) conducted within the USAID Financial Sector Transformation Project, the Ukrainians have the lowest level of financial literacy compared to other countries – 11.6 out of 21 points. The current state of formation of financial literacy is considered to be a solid reason for the profound exploration of the scientific sources on financial education, in search of approaches to improve the effectiveness of the designed program.

The problem of financial literacy of children and youth has been the subject of numerous studies. It has been the object of scientific research by Andriichuk (2021), Potrich, Vieira and Mendes-Da-Silva (2016), Vieira, Moreira Júnior and Potrich (2020), Bongini, Colombo and Iwanicz-Drozowska (2015), Knehans-Olejniak (2014), Swiecka (2018), Dare et al. (2020) and others. The relevance of financial education, its economic and social significance have been revealed in the studies by De Beckker, De Witte and Van Campenhout (2020), González Castro, Enríquez-Díaz and García, (2021), Sánchez Santos (2020) and others. The scientific investigations by Amagir et al. (2018), Carpena et al. (2017), Hastings, Madrian and Skimmyhorn (2013), Kaiser and Menkhoff (2020), Lusardi and Mitchell (2011) resulted in literature reviews, programs and research data analysis related to financial education.

Polish scholar Swiecka (2018) argued about the continuous feature of financial education as a necessary condition of its effectiveness. Also, emphasis has been made on the necessity of teacher training and high quality of textbooks (Swiecka, 2018: 15). Similarly, De Beckker et al. (2019) paid attention in their research to the role of teachers in the process of financial education. The implementation of national strategy on the level of secondary school education, which exists in many countries, would enhance the effects of financial education. According to Tezel (2015), this strategy involves the organization and systematization of activities in the field of financial education, as well as lifelong learning (Tezel, 2015: 16). The younger generation is considered to face greater financial risks and more complex financial products than their parents. In addition, young people get acquainted with financial services at young age via mobile phones, bank accounts, credit cards. Therefore, financial education should be provided at least in primary school age.

Additionally, the concern for early financial education has been stated in studies by Batty et al. (2020), Grohmann, Kouwenberg and Menkhoff (2015), Jayaraman, Jambunathan and Adesanya (2021), Scheinholtz, Holden and Kalish (2011) and others. Panos and Wilson (2020) argued about the rapid implementation of the modern financial technologies in our everyday lives (e.g. mobile payments, robot counselling,

application-based investment platforms, online banking, etc.) and strongly recommended to develop financial literacy from an early age, after all, differences in financial knowledge acquired at an early stage of life can determine a significant part of financial and other spheres of well-being in adult life.

The number of countries that are involved in the implementation of the financial literacy programs is growing every year, in particular, according to study by Andriichuk (2021), in Europe, there are more than 180 similar programs. The analyses of the international experience of teaching financial literacy in primary school revealed the importance of inclusion of financial literacy into the educational process in primary school on the example of Czech Republic, USA, Great Britain, the Netherlands, Turkey and other countries. Introduction of financial literacy courses in the primary and secondary school curricula in the Czech Republic was considered to be one of the possible ways of prevention of unhealthy debt burdens for adults, avoidance of potential bankruptcy of individuals or households due to lack of financial awareness, inability to assess financial risks, create or use one’s own financial reserves (Andriichuk, 2021: 84). The importance of entrepreneurial education is argued by Pech, Řehoř and Slabová (2021) to be increasing in the Czech Republic nowadays. Preparation of students to start their own business is considered significant due to changes in the market and environment. The researchers admit that new intentions from the Czech Republic’s state politics positively influence and support early business, that consequently can motivate more beginning young entrepreneurs.

The interconnection between the low level of financial literacy and the emergence of debt has been revealed in the works of Artavanis and Karra (2020), Carlander and Hauff (2019) and others. High level of financial literacy, as argued by De Beckker, De Witte and Van Campenhout (2021), Xiao and O’Neill (2016) and others, contributes to the increase in quality financial activity.

Furthermore, a strong link between the financial education of a child and its behaviour being grown-up has been proven in a number of scientific studies (Alekan, Salleh and Mokhtar, 2018; Batty, Collins and Odders-White, 2015; Fernandes, Lynch and Netemeyer, 2014; Gerth et al., 2021; Kaiser et al., 2021; Mandell and Klein, 2009 and others). Along those lines, Kalwij et al. (2019) reflected the results of an experiment on the impact of a 45-minute financial education program on children’s financial literacy and savings behaviour in Dutch primary schools. Dare et al. (2020) has also focused on the impact of a large-scale national financial education program on the knowledge and skills of primary school students about responsible spending and effective implementation transactions. Teaching methodology has been explored in a study by Amagir et al. (2018), who considered “learning by doing” to be a promising method of teaching financial literacy to children and adolescents in primary and secondary school. Additionally, Batty, Collins and Odders-White (2015) reported the effectiveness of children’s financial education in shaping a positive attitude towards personal finance and the ability to save. This aspect has been reflected in works by Babiarczyk and Robb (2014), Barbic (2020), Buccioli and Veronesi (2013), De Witte, Holz and De Beckker (2020),

Hastings and Mitchell (2020), Kalwij et al. (2019), Te'eni-Harari (2016), Tonsing and Ghoh (2019), Yeh (2020), Lieber (2016) and others. Multiple researches re-emphasized the interconnection between financial literacy and the ability to save.

Among the forms, methods, and means of formation of students' financial literacy, Plekhanova et al. (2020) stressed the key ways of promoting the formation of financial literacy in high school students: family, school, and personal experience of earning, that factors were considered to facilitate children to learn the value of money, get matured, construct their social image in future.

The importance of the parents' role in the process of financial education has been proven in the works by Gudmunson and Danes (2011), Hanson and Olson (2018), Maldonado, De Witte and Declercq (2022), Moreno-Herrero, Salas-Velasco and Sánchez-Campillo (2018), Riitsalu and Pöder (2016). The significant influence of non-formal parental education (providing pocket money and discussing money issues) has been substantiated by Coda Moscarola and Kalwij (2021). Ming and Jais (2021) studied parents' perceptions on the importance of financial education for children in the context of the COVID-19 pandemic. Grinstein-Weiss et al. (2011, 2012), Kardash, Coleman-Tempel and Ecker-Lyster (2021), Oggero and Rossi (2016), Spader and Yeo (2011) and others found out to what extent the parents' financial education affects the children's achievements in different areas (education, finance). We came across several thought-provoking studies of gender aspects of financial education that had been revealed in works by Tinghög et al. (2021), Bucher-Koenen et al. (2016), Grohmann et al. (2021), Mahdavi and Horton (2014), Mittelstaedt and Wiepecke (2014), Aguiar-Díaz and Zagalaz (2021) and others. Overall, the generalized findings of the analyzed studies, in particular, Migheli and Coda Moscarola (2017), encouraged the authors of the research to reflect on gender neutrality in financial education programs.

The research findings of De Beckker, De Witte and Van Campenhout (2020) drew the attention of scholars to the influence of the national culture phenomenon on financial literacy. Therefore, it is important to consider cultural dimensions into future international studies of financial literacy. Besides, the issue of international aspects of financial literacy has been explored by Cupák et al. (2021) – the role of individual characteristics and institutions has been determined across countries.

At the same time, there are no works that substantiate the innovative method of financial literacy with an emphasis on the integration of three current issues of the educational process of primary schools: financial education, media education (economic aspects of media education, creating media on money and advertising), education for sustainable development (economical disposal of resources, development of spirituality and moral guide).

The analysis of the scientific works has shown the necessity to develop innovative ways of the formation of financial literacy of primary school students, implementing the content integrated approach to education and to address the current social problems in Ukraine.

The **objective** of the research is to substantiate the innovative methodology of formation of financial literacy in primary school students on the basis of the comprehensive analysis of the content, forms, methods of financial education, media education and education for sustainable development; to test the efficiency of the designed methodology empirically.

Research **hypothesis** implies that the process of formation of financial literacy in primary school students will be effective if it is integrated into the educational process of education for success in life (media education, financial education and education for sustainable development).

## Financial literacy

The content of the concept of financial literacy is usually defined by researchers as a set of knowledge and skills to construct a reasonable attitude towards personal finances and contribute to rational decision-making relatively to the economic sphere of human activity. However, there are different variations of the definition.

To begin with Mundy's (2012) interpretation of financial literacy as knowledge, understanding, skills and confidence, the focus is given to the ability to make reasonable financial decisions and act according to specific circumstances. Development of financial literacy in Mundy's opinion aims at having influence on people's patterns of behaviour, not only providing them with knowledge, skills and abilities. A deep understanding of the structure of financial competencies has been described in works by Swiecka (2018). Financial competencies have been structured into knowledge in the field of personal finances (the principles of spending money, saving and budgeting) and financial skills (account creation, payment by mobile phone, cash payments through an ATM, etc.). Hence, the structure of financial competencies implies certain knowledge and skills, besides, Swiecka (2018) divided the competencies into *hard* and *soft* ones. The hard ones include knowledge in the field of loans, forms of savings, the ability to create a digital account, card payments and other. Soft skills are related to psychophysical characteristics and social skills (Swiecka, 2018: 4).

Besides, financial literacy, according to the research analysis, includes high motivation for its development, awareness of the feasibility of self-improvement in the financial sphere, the need to help those in need, because charity encourages higher earnings, as well as reasonable disposition of the earned money.

Thus, taking into account these aspects, financial literacy is defined as a set of knowledge and skills to manage individual funds in profitable ways, ensure financial independence and participate in charity events.

However, the meaning of "*financial literacy of a primary school student*" differs from the definition of "*financial literacy of a high school student or an adult*". The peculiarities of formation of financial literacy of an elementary school student have been reflected in the program results of study, where in particular it is stated that students are expected to know how to plan a budget, rules of saving; think about wise management of pocket money, etc. Actually, elementary school students are already aware of the connections between

career achievement and hard work; schooling, opportunities for success, overcoming difficulties in life, material prosperity. The authors of this study interpret the notion of financial literacy in primary school students on the basis of the profound analysis of the scientific sources, conceptual documents, educational standards, as a set of knowledge, skills, values, defined in the program documents for primary school, which construct the patterns of behaviour determined with reasonable attitude to personal money, ability to use means of payment, economical approach to consumption, critical use of media for self-development in the field of finance, in regard with the prospects of self-education to achieve in future financial independence. This definition, as it includes the value aspect, suggests the use of the terms “financial literacy” and “financial competence” as synonymous.

Taking into account the approaches to understanding the structure and content of the concept of financial literacy in the previously discussed studies the authors of the current research have identified the following components of financial literacy: *goal-motivational* (motivation for financial education, value beliefs), *cognitive* (set of knowledge, awareness of media on finance and their critical analysis), *praxeological* (set of skills, behaviour of reasonable attitude to personal money, economical approach to consumption, creation of media products), *productive and analytical* (determination of prospects for self-education to achieve financial independence in the future). In addition, according to the classification by Swiecka (2018), in the structure of financial literacy we distinguish between *hard* and *soft competencies* (a special place among soft competencies is occupied by motivation for media education, the ability to reflect) as displayed at the Figure 1.

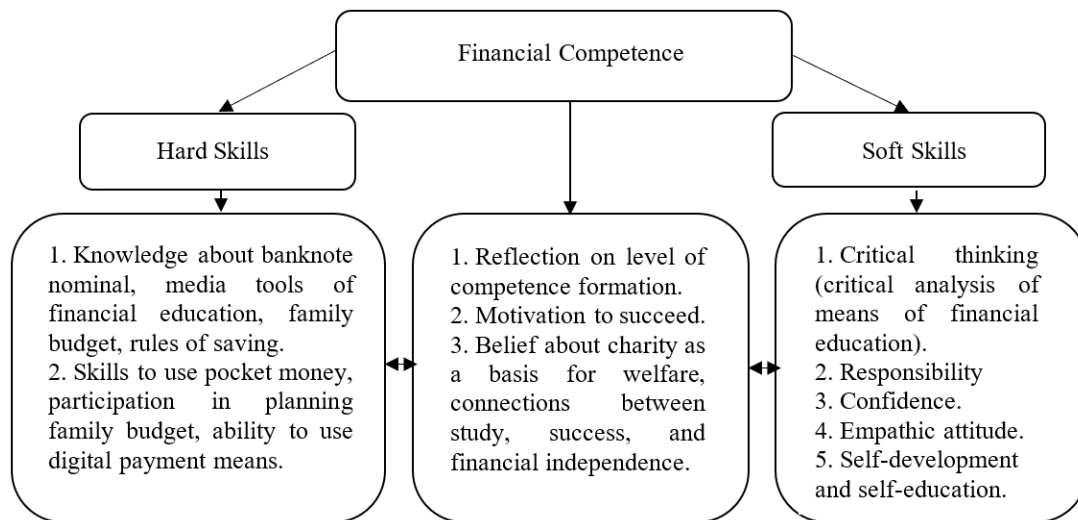


Figure 1: Structure of financial literacy, 2020–2021 (source: own research)

The formation of financial literacy is considered to be in close relationship with the formation of media literacy (economic aspects of media, critical analysis of advertising products, earning money with the help of creation of media products, reasonable attitude to finances) and sustainability competencies (social, economic and environmental aspects: saving natural

resources, responsibility for one’s own actions, identifying ways to overcome poverty as a combination of education, work, charity). The process of integration of financial education with media education and education for sustainable development is defined by the authors of the study as education for success in life. It is presented in the Figure 2.

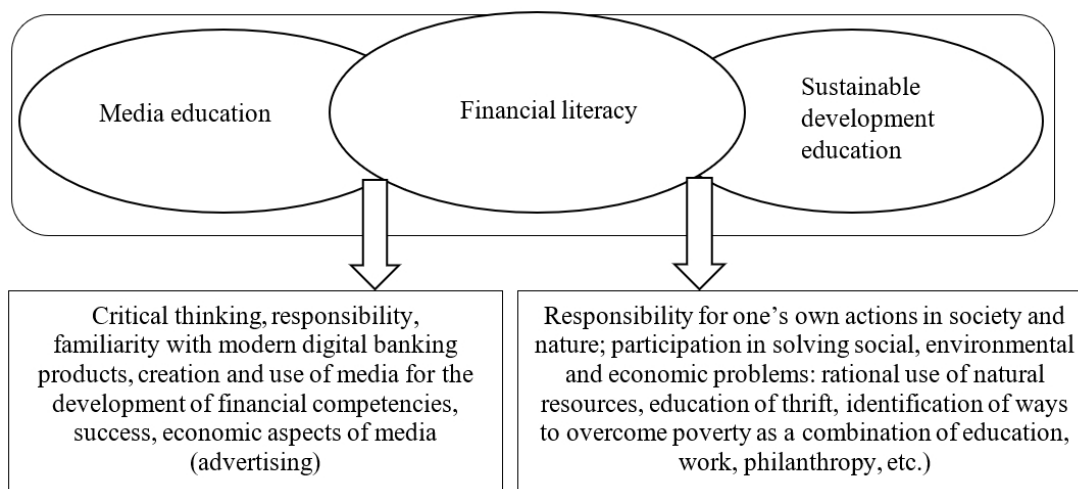


Figure 2: Education for success in life, 2020–2021 (source: own research)

## MATERIALS AND METHODS

### Research participants

The experimental survey involved 209 pupils of 3 secondary general education establishments from three administrative regions of Ukraine – Ternopil, L'viv and Zakarpattia. The experimental study lasted from 2020 until 2021 academic year. The participants were divided into control group (CG) and experimental group (EG).

### Research stages

The initial stage of the research implied the discovery and theoretical study of the issue. A number of methods have been used: *search and bibliographic*, which was used to search and systematize the references, namely the printed sources, the materials of the Internet on the problems of economic education and financial education of children and the youth; *interpretive-analytical*, *comparative-pedagogical* analysis of scientific, educational-methodical works and information resources. The obtained theoretical data allowed us to define the task of the experimental investigation.

The ascertaining stage of the research presupposed the assessment of the levels of financial literacy formation in primary school children by means of the *analysis of the products of children's activity* (school project "How to overcome poverty?"), *interviews* and *expert assessment method* (experts were the authors of the study, primary school teachers) and the *questionnaire*.

The questionnaire form presented 12 questions correlated with the 12 indicators of financial literacy. Every confirmative answer scored 1 point to a respondent, therefore, according to the interpretation scale, a high level of financial literacy corresponded to 10–12 points; sufficient level – to 7–9 points; satisfactory level – to 4–6 points; low level – to 0–3 points.

The applied questionnaire included the following items to define the level of financial literacy in primary school children:

1. *Is it necessary to provide financial education in the preschool and primary school establishments?*
2. *Do you agree that a rich person both earns more money and makes more charity? (donates to the poor)?*
3. *Do you understand the notion of financial literacy?*
4. *Are you interested in books, web-sites, TV programs on topic of money and ways how to spend them properly?*
5. *Do you know any ways to save money?*
6. *Do you understand what is family budget and how to plan it?*
7. *Do you take part in planning of family budget?*
8. *Do you have any experience of shopping, other ways of spending money?*
9. *Have you ever scrimped and saved?*
10. *Do you have a bank card? How often do you use it?*
11. *Can you be called a financially literate student?*
12. *Have you ever considered that it is necessary to start doing something already at primary school in order to become a happy and wealthy person in an adult life?*

The questions were designed in order to reflect the development of the indicators and criteria of financial literacy in primary school children. Due to the analysis of the scientific sources, exploration of the structure of financial literacy, interpretation of the results of interviews with teachers and parents there have been established specific criteria to every structural component. In particular, the *target-motivational component* corresponds to the *inductive-valuable criterion*; *cognitive* – to *informational-semantic*; *praxeological* – to *procedural-personal*, and finally, *evaluative-reflexive* – to *productive-analytical*. The structure, criteria of financial literacy and the appropriate indicators are presented in the Table 1.

The main structural components	Criteria	Indicators
Target-motivational	Inductive-valuable	<ol style="list-style-type: none"> <li>1. Ability to realize the need to properly manage money; to acquire financial literacy.</li> <li>2. Ability to find connections between financial education and financial behaviour, wealth and charity; financial education, diligence and success in life. (Explains the importance of knowledge of financial education, hard work and thrift for success).</li> </ol>
Cognitive	Informational-semantic	<ol style="list-style-type: none"> <li>1. Ability to explain what financial literacy is.</li> <li>2. Knowledge of the rules of saving.</li> <li>3. Knowledge how to plan a budget. Considers how to properly manage pocket money.</li> <li>4. Knowledge of traditional and innovative media of financial education, their content.</li> </ol>
Praxeological	Procedural-personal	<ol style="list-style-type: none"> <li>1. Skills of participation in family budget planning.</li> <li>2. Skills to save resources (thrift, love of nature).</li> <li>3. Experience in competent handling of pocket money, makes small purchases.</li> <li>4. Skills to use modern means of payment and disposes of them.</li> </ol>
Productive-analytical	Evaluative-reflexive	<ol style="list-style-type: none"> <li>1. Ability to assess their level of financial literacy.</li> <li>2. Ability to discuss opportunities (to define prospects for the future).</li> </ol>

Table 1: Criteria and indicators of levels of formation of financial literacy in primary school students, 2021 (source: own calculation)

## The model of the methodology of formation of financial literacy in primary school children

The designed model of the methodology of formation of financial literacy is based on the integration of media education, financial education and education for sustainable development (education for success in life). Besides, the authors' attention was paid to the innovations, explored in the earlier studies (Tereshchuk et al., 2018; Chaikovska et al., 2021) and the traditional effective ways of work with primary school students, in particular, reading thematic literature for children and discussing the main points.

The experimental methodology is an open system based on *education for success in life* (integration of media education, financial education and education for sustainable development); *pedagogy of success* and *pedagogy of heart*. It combines *goals*, *content* (structure of financial literacy, theoretical and methodological principles of its formation); *algorithm* of arranged activities for students, parents and teachers on the basis of partnership pedagogy; *forms, methods, means of formation* of financial literacy; *diagnostic tools* and *result*. The peculiarities of the methodology are, in addition to education for life success, the relationship between the problems of study, work, success and prosperity; earnings and charity; pedagogy of success and pedagogy of the heart; cooperation, mutual support of people in achieving financial success. Emphasis is also placed on restoring school traditions: reading educative literature for children on topics of money and financial management; individual creation of media products on education for success in life. Taking into account the recommendations of the Japanese teacher Suzuki and Kyoko (1982), who developed a philosophy of educating people of different ages and abilities, the experimental methodology provides that reading books and creating elementary media products is supposed to be a common hobby of the whole family.

A number of existing ESD school methodologies in Ukraine can not meet the needs of primary school students because they are restricted to a 45-minute school course. The distinctive features of the designed methodology, in contrast to others, include participation in the international financial literacy programs, e.g. "Aflatoun", integrated learning, group work, e.g. project "Children – millionaires", inspiring case studies and success stories.

Thus, the purpose of the experimental methodology is the multifaceted formation of financial literacy in primary school students. Realization of the purpose implies the organization of work (under condition of partnership of pupils, teachers and parents) according to the structure of financial literacy defined in the programmed results of study. The content, based on pedagogics of the heart and pedagogics of success in life, is supposed to comprise the core theoretical and methodological framework for financial literacy formation.

The algorithm of actions consists of the *target-motivational* stage (definition of the purposes and motivation for

their realization), *cognitive* (acquisition of knowledge on subjects of monetary units, ways, rules of savings), *ethical-pragmatic* (management of the family budget during integrated lessons, holidays, project activity) and *productive* (making small purchases, economical use of resources at home and school, reflection on the level of formation of financial competencies and determining the prospects for self-development and self-improvement).

The innovative *form* of study in the experimental method is the production of media works "Interview with Aflatoun" aimed at common reflections on ways of overcoming poverty. Possible options may include successful study, hard work, high earnings, frugality in the use of resources at home and charity, which involves warm and kind attitude towards people in need. Possible questions to Aflatoun include: "How can a student make money?", "Do you really need to study hard in order to earn high in the future?", "Is there a connection between earnings and charity?".

Besides, reader conference has been proved to be an effective *form* of group work. At forums students had opportunity to discuss books "A Dog Called Money or the ABC of Money" by Schäfer (2019), "Economics. What Adults won't Tell you" by Janiszewski (2019); meanwhile, parents were recommended to read a manual "Open Family Studios: "Financial Wisdom of Family Pedagogy" by Kikinedzhi et al. (2015). "Praxeological Tales" by Kuzma (2019). A number of successful students and entrepreneurs were invited to such conferences, drawing attention of students to the necessity to read books, improve themselves, and invest in education. Meetings with bright students of Ternopil Volodymyr Hnatiuk National Pedagogical University, e.g. the developer of thematic cartoons of educational character about life success, were an effective form of work in experimental groups. A contest for the best fairy tale on life success among the participants of experimental study resulted in selection of a plot for a new cartoon.

One of the effective *methods* of education was exercise "Which advertisement can be trusted?" Children were offered advertisements of various brands of juice (they had to decide which one to choose), chips and potatoes, and so on. In addition, they had to choose from a list of food packages those that need to be bought to cook healthy meals (the choice was made in favour of buckwheat, butter, bread, fruit, children rejected packages with popular pop drink, candy, instant noodles and chips). A number of separate meetings was hold to discuss with students their level of financial literacy before and after the experiment. The components of the experimental methodology also include a set of *diagnostic tools* – criteria and indicators of the levels of financial competence and the *result* – formation of financial literacy at high and sufficient levels. The model of methods of formation of financial literacy of pupils of primary school age is presented at the Figure 3.

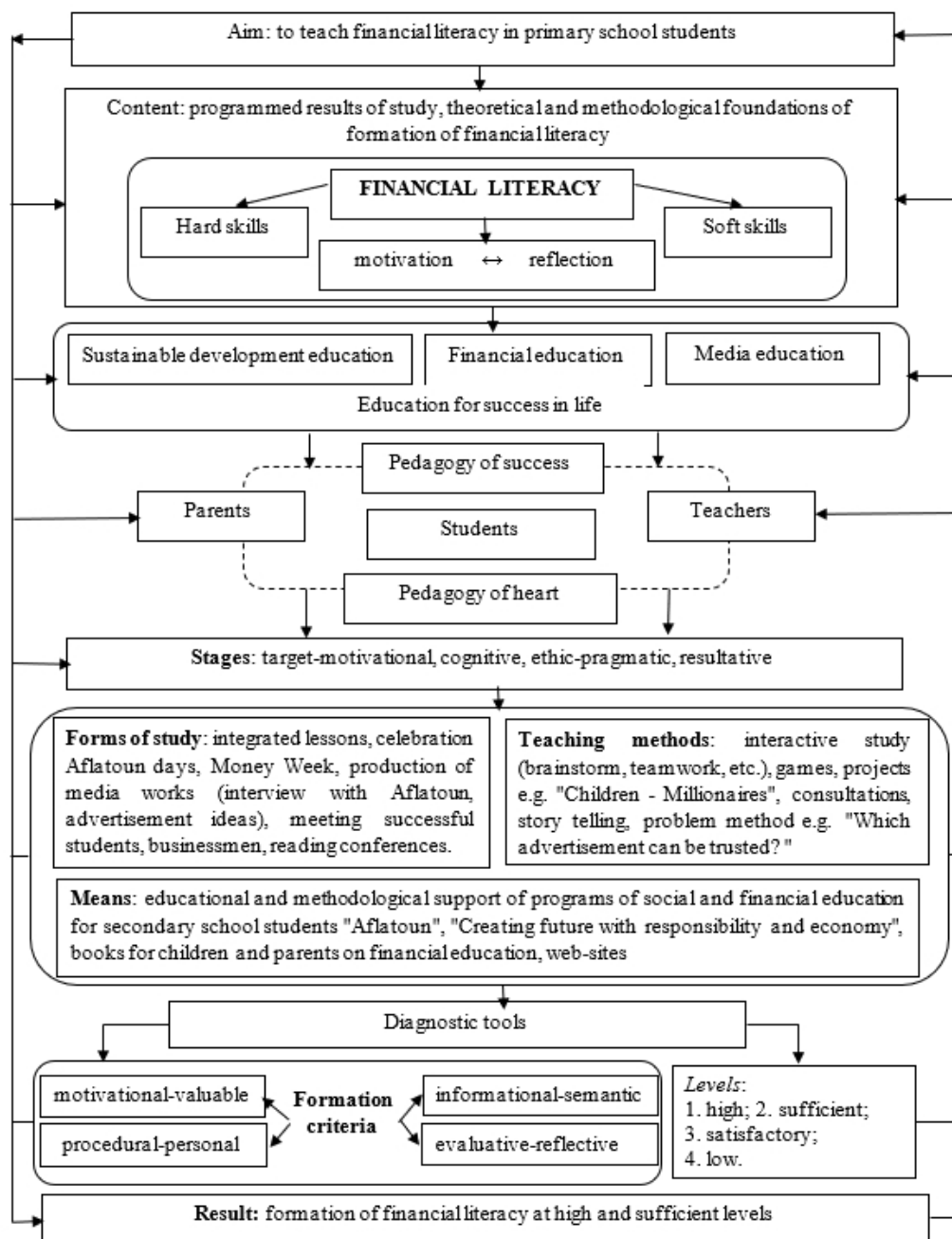


Figure 3: The model of methodology of formation of financial literacy in primary school students, 2020–2021(source: own research)

## Research procedure

The experimental survey aimed at assessment of the levels of formation of financial literacy in primary school students and degree of influence of the authors' methodology on the dynamics of its indicators' change. The methods of the mathematical statistics were applied to identify the qualitative and quantitative parameters of the obtained data and to establish the differences between the results demonstrated in CG and EG.

At the main stage of the research, the experimental study has been conducted in EG with the application of the innovative methodologies. Meanwhile, the students in CG were taught in the traditional way.

At the final stage of the experiment, the conclusions were made after the survey had been conducted repeatedly in order to test the effectiveness of the applied methodology; the

qualitative and quantitative analysis was made; the degree of efficiency of the teaching approaches used in formation of financial literacy in primary school children was estimated. The validity of the conclusions about the efficiency of the experimental study is proved by means of the comparative analysis of the questionnaire results obtained in CG and EG at the ascertaining stage of the research and from the second survey at the final stage.

The progress in the development of every criterion of the financial literacy formation was tracked by means of the Student's *t*-test in order to confirm the significance of the changes that took place in CG and EG. The statistics calculations were performed by means of the package of computer software of universal spreadsheet application of data processing IBM SPSS Statistics 21.

## RESULTS

At the initial stage of the experiment no significant differences had been reported in the indicators of CG and EG respondents. Besides, the findings of the survey at the ascertaining stage of the research revealed that majority of pupils have satisfactory (37.5% in CG and 36.36% in EG) and low level (31.25% in

CG and 33.33% in EG). A high level of formation of financial literacy had been estimated only in 6.25% in CG and 3.04% in EG.

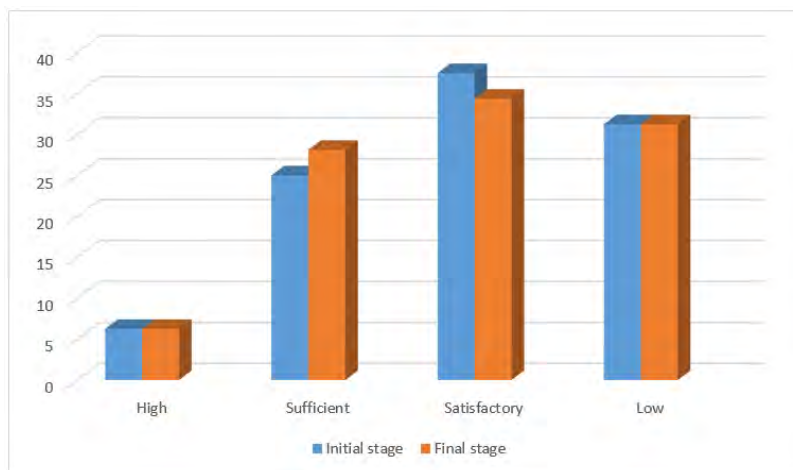
Results of the experimental survey on the methodology of formation of financial literacy in primary school children are presented in the Table 2.

Level	Control group		Experimental group	
	initial stage	final stage	initial stage	final stage
high	6/ 6.25%	6/ 6.25%	3/ 3.04%	22/ 21.22%
sufficient	26/ 25%	30/ 28.13%	29/ 27.27%	39/ 36.36%
satisfactory	39/ 37.5%	35/ 34.38%	39/ 36.36%	32/ 30.30%
low	32/ 31.25%	32/ 31.25%	35/ 33.33%	13/ 12.12%

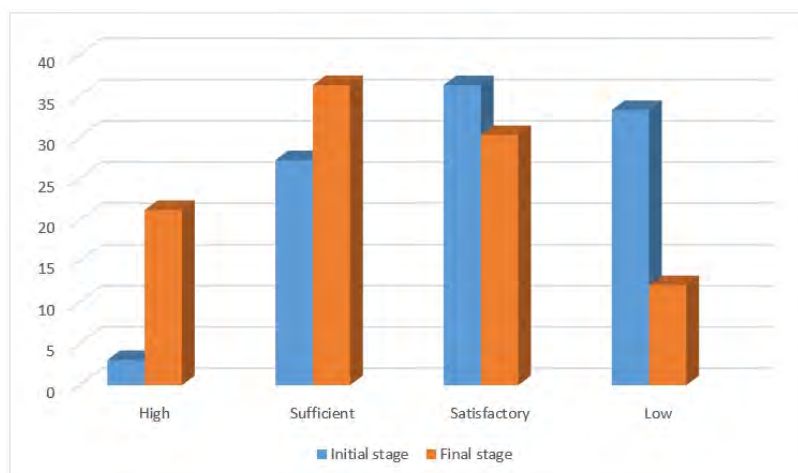
**Table 2: Comparative analysis of the data obtained in CG and EG at the initial and final stages of survey, 2020–2021 (source: own calculations)**

The research findings evidenced the significance and necessity of introduction into school environment the author’s methodology, that has been incorporated in the experimental classes. The validity of conclusions on the efficiency of the theoretically substantiated methodology and the practical experiment is based on the comparative analysis of data obtained in CG and EG at the initial and final surveys.

The final stage of the experimental research has revealed the increase of high (in 18.8%) and sufficient (in 8.66%) levels of financial literacy in the EG. Besides, there has been estimated the decrease in the number of pupils with low (in 21.21%) and satisfactory levels of financial literacy. There has not been reported any significant changes in the indicators of the financial literacy formation in CG at the final stage of the experimental research.



**Figure 4: Comparison of the indicators of financial literacy in the control group at the initial and final stages of the experimental survey, 2020–2021(source: own research)**



**Figure 5: Comparison of the indicators of financial literacy in the experimental group at the initial and final stages of the experimental survey, 2020–2021(source: own research)**



The detailed analysis of the indicators and criteria of the financial literacy formation (*motivational-valuable, informational-semantic, procedural-personal and evaluative-reflexive*) has evidenced the noteworthy differences in the EG. It has been proved with help of the indicators of the Student's *t*-test, after the experimental

study in EG, as compared with CG, all the criteria underwent significant changes: *motivational-valuable* (MV) ( $t = 4.373$ ), *informational-semantic* (INS) ( $t = 8.866$ ), *procedural-personal* (PP) ( $t = 5.603$ ) and *evaluative-reflexive* (ER) ( $t = 9.243$ ). The discussed statistics data is available at the Table 3 and Table 4.

Indicators	Final stage survey	N	Mean	Standard deviation	Standard Error Mean
MV	CG	103	37.62	30.892	3.044
	EG	106	55.19	27.106	2.633
INS	CG	103	47.33	19.776	1.949
	EG	106	70.75	18.411	1.788
PP	CG	103	35.44	25.371	2.500
	EG	106	54.95	24.981	2.426
ER	CG	103	16.99	20.476	2.018
	EG	106	48.82	28.532	2.771

**Table 3: Statistics of criteria of financial literacy formation in CG and EG after the experimental study, 2020–2021 (source: own calculations)**

		Levene's test of equal variances		t-test for Equality of Means						
		F	Sig.	t	df.	Significance (2-tailed)	SD	SE M	95% confidence interval of the differences	
									lower	upper
MV	Equal variance assumed	3.059	.082	<b>4.373</b>	207	< .001	17.567	4.017	25.487	9.648
	Equal variance not assumed			4.365	201.920	< .001	17.567	4.025	25.503	9.632
INS	Equal variance assumed	.171	.680	<b>8.866</b>	207	< .001	23.425	2.642	28.633	18.216
	Equal variance not assumed			8.857	204.943	< .001	23.425	2.645	28.639	18.210
PP	Equal variance assumed	.002	.963	<b>5.603</b>	207	< .001	19.516	3.483	26.383	12.649
	Equal variance not assumed			5.602	206.594	< .001	19.516	3.484	26.384	12.648
ER	Equal variance assumed	5.793	.517	<b>9.243</b>	207	< .001	31.830	3.444	38.620	25.041
	Equal variance not assumed			9.286	190.666	< .001	31.830	3.428	38.592	25.069

**Table 4: Criteria for the independent samples of CG and EG. 2020–2021 (source: own calculations)**

The effectiveness of the experimental study has been evidenced by the statistical values of the indicators of the experimental group (EG) before and after the experiment. In particular, statistically significant changes have been observed for all the indicators: *motivational-valuable* ( $t = 5.476$ ), *informational-*

*semantic* ( $t = 10.402$ ), *procedural-personal* ( $t = 5.983$ ) and *evaluative-reflexive* ( $t = 9.675$ ). Information is presented in the Table 5: and Table 6).

Thus, statistical analysis of the results of the study confirmed the reliability of the results.

Indicators	Survey in EG	N	Mean	Standard deviation	Standard Error Mean
MV_e	initial stage	106	33.73	29.889	2.903
	final stage	106	55.19	27.106	2.633
INS_e	initial stage	106	43.63	19.537	1.898
	final stage	106	70.75	18.411	1.788
PP_e	initial stage	106	33.96	26.092	2.534
	final stage	106	54.95	24.981	2.426
ER_e	initial stage	106	15.80	20.507	1.992
	final stage	106	48.82	28.532	2.771

**Table 5: Statistics of criteria of the financial literacy formation in EG before and after the experimental study, 2020–2021 (source: own calculations)**

		Levene's test of equal variances		t-test for Equality of Means						
		F	Sig.	t	df.	Significance (2-tailed)	SD	SE M	95% confidence interval of the differences	
									lower	upper
MV_e	Equal variance assumed	2.551	.112	<b>5.476</b>	210	< .001	21.462	3.919	29.188	13.736
	Equal variance not assumed			5.476	208.025	< .001	21.462	3.919	26.189	13.736
INS_e	Equal variance assumed	1.180	.279	<b>10.402</b>	210	< .001	27.123	2.607	32.263	21.983
	Equal variance not assumed			10.402	209.264	< .001	27.123	2.607	32.263	21.983
PP_e	Equal variance assumed	.089	.766	<b>5.983</b>	210	< .001	20.991	3.509	27.907	14.074
	Equal variance not assumed			5.983	209.603	< .001	20.991	3.509	27.907	14.074
ER_e	Equal variance assumed	5.833	.16	<b>9.675</b>	210	< .001	33.019	3.413	39.747	26.291
	Equal variance not assumed			9.675	190.632	< .001	33.019	3.413	39.751	26.287

**Table 6: Criteria for the independent samples of EG before and after the experimental study, 2020–2021 (source: own calculations)**

## DISCUSSION

The procedure of improvement of the level of financial literacy in primary school students implies a long-term work with students, parents and teachers. The application of a small-scaled experimental course may not be sufficiently conducive to resolution of the problem. We believe that the introduction of a special subject “Financial Literacy” is an extensive way to implement financial education. A more effective way is to implement the methodology based on the integrated approach. At the initial stage of the experimental work, it was found out that students were not sufficiently familiar with the term of “financial literacy”, despite the fact that it is one of the key competencies in primary school. The findings of our research suggested that the majority of students (almost 60%) did not use any educative media resources on financial literacy. One of the most urgent problems we came across in the course of our scientific research was pupils’ low motivation for financial education, intention to participate in family budget planning. The survey reported the insufficient level of this criteria among the respondents of our investigation. At the same time, such character traits as responsibility, independence and critical thinking were named as necessary ones for a person with financial literacy.

We were interested in the fact that students owning a bank card turned out to be respondents with sufficient and satisfactory levels of financial literacy. Therefore, having a bank card does not necessarily mean having a high level of financial literacy. During the analysis of the data from the questionnaires, there was a need for additional conversations with students, whose answers were contradictory or incomplete. For example, they wrote that they used media that contributed development of reasonable attitude to money, but they did not specify which media. Popular topic of discussions held with students was “How to Overcome Poverty?” However, students had a tendency to choose the variant with financial or material support, e.g. offer used clothes, and so on, as the only way to overcome poverty. Their point of view was predisposed to

the idea that the rich ought to share with the poor. It raises the question of whether the level of development of a society where a child receives education influences the formation of financial literacy. Group of scientists believe that the peculiarities of the country (Grohmann et al., 2021), national culture (De Beckker, De Witte, Van Campenhout, 2020) affect the formation of financial literacy. However, such differences in the cultural features of social environment of a student are worth in-depth scientific research in order to be addressed when implementing foreign programs of financial education.

Only few participants of the research admitted that they read educative books for children on the subject of money and appropriate ways to earn, spend, save, lend or borrow. In primary school this problem is considered to have little effect on everyday life of a personality, however, in future, the particularly low interest in resources (educative literature, web-sites) on financial literacy may result in risky transactions with money, poverty as a social problem. We concluded that in the age of digital technologies, increasing (digital) financial integration and threats arising from cases of (online) financial fraud, financial education is necessary for the modern young generation. The idea is supported by findings of work by Panos and Wilson (2020), who developed the issue of financial responsibility in the financial technologies era. As an integral part of our methodology, media education addresses the challenges of digital financial integration.

The introduction of the author’s approach in the experimental class helped to increase the level of all criteria of financial literacy. All the indicators increased through the integration of media education, financial education and education for sustainable development, resulting in education for success in life. The experience of integration of media education and education for sustainable development (Chaikovska et al., 2021) allows the authors of the study to view the current research as the next step in the experimental technology in the context of integration in education.

The most significant growth has been reported in the indicators

of *informational-semantic* criterion due to focus on the theoretical and practical aspects of financial literacy formation in the experimental learning. Children were explained the definition of financial literacy in regard to its role in achieving success in life. Much attention was paid the detailed study of family budget distribution, recommended ways of saving, some features of lending and borrowing. In this part, our results corroborate earlier findings of Buccioli and Veronesi (2013), Tonsing and Ghoh (2019), Lučić, Barbic and Erceg (2020), etc. proving the idea that the ability to save affects the level of financial literacy. And this is, perhaps, the most important thing for future life – to learn to manage one’s financial resources. However, due to their young age and lack of experience with financial operations, primary school students need the proper guidance of parents, and recommendations of financial education teachers, e.g. savings should not limit child’s needs. The ability to save should not turn into avarice. That is why the methodological basis of the experimental technology includes the partnership of parents, teachers and students on the basis of a pedagogy of heart and pedagogy of success. The previous studies have reflected positive results of such a partnership (Tereshchuk et al., 2018). We came to the conclusion that the role of parents in the formation of financial literacy is undoubtedly important, as it has been evidenced in studies by Grinstein-Weiss et al. (2011), Hanson and Olson (2018), Moreno-Herrero, Salas-Velasco and Sánchez-Campillo (2018), Coda Moscarola and Kalwij (2021), etc. It suggests a new direction of further research – to develop a methodology providing financial literacy of parents as agents of influence on their children’s financial awareness.

Besides, regarding the young age of primary school students, in our study, we believe in the feasibility of the early financial education, which has also been highlighted in the works by Scheinholtz, Holden and Kalish (2011), Grohmann, Kouwenberg and Menkhoff (2015), Jayaraman, Jambunathan and Adesanya (2021), etc. The suggestion to start the educative work with children of the pre-school age to provide higher efficiency in primary school deserves the attention of scientists and methodologists.

In the course of the research, the opinion of whether the child’s gender affects the level of financial literacy and the ways of its formation was left disputable. We did not notice such a pattern of behavior. And this idea coincides with the studies of Grohmann et al. (2021). At the same time, it is contradictory to the findings of Mittelstaedt and Wiepcke (2014), who noticed gender differences, also Bucher-Koenen et al. (2016), who argued in their study that males tend to be more financially literate. However, we believe that nowadays young generation is able to change the lowered expectations to female students. We agree with Migheli and Coda Moscarola (2017), who admit the need in gender-neutral programs and environment.

Besides, significant growth has been admitted in the indicators of the *evaluation-reflexive* criterion. Students were encouraged to reflect on their level of financial literacy, realizing that it affects their future financial security. The level of financial awareness affects financial behaviour: it has been proved in a number of works (Batty, Collins and Odders-White, 2015; Kalwij et al., 2019; Lusardi, 2015; Tezel, 2015 and others).

The combination of education for sustainable development with financial and media education into education for success in life is considered as a key factor in personal self-development of a primary school student. The eclectic approach contributes to reinforcement and optimisation of the educative influence of every separate element in their unity on pupils. It gives primary school students an opportunity to achieve in adult life harmony of success, happiness, and sufficient material security; as a way to keep in balance spiritual and moral values. Clearly, the development of a citizen’s personality contributes to the development of a state. The findings of the research revealed the positive dynamics of the levels of financial literacy in primary school children. In the experimental groups, the number of representatives with high level of financial literacy has increased, meanwhile the number of students with low level has significantly decreased. However, it is necessary to scientifically substantiate the postulate that the level of financial literacy is not only the result of financial education but also the development of soft-skills, which are genetically determined, as well as family traditions of money management, family values.

Finally, students of the experimental class have been reported to have the tendency to donate, to link charity with success, this aspect of study relates to our effort to humanize the society of the 21-st century that is becoming increasingly pragmatic. Therefore, the formation of financial literacy is seen not only as a way to achieve the material well-being of every citizen, but also it leads to the economic prosperity of the state and the establishment of spiritual and moral values in it.

The possible limitations of the research methodology are caused with a comparatively small sample of participants (n=209), on the other hand, the whole Western region of Ukraine has been represented in the study due to the involvement of schools from three different administrative regions in the pedagogical experiment. Besides, the participants of our research are mostly city dwellers without representatives of countryside schools. However, due to the significant expansion of distance learning opportunities, these issues will be taken to account in selection of the research sample of the further explorations of financial literacy formation.

## CONCLUSIONS

The formation of financial literacy is a complex, multifaceted problem; its solution requires a combination of traditional and innovative ways. One of them is the method of formation of financial literacy as an open system, which is based on education for life success (integration of media education, financial education and education for sustainable development); pedagogy of success and pedagogy of heart. The key components of the developed methodology include *aim*, *content components* (structure of financial literacy, theoretical and methodological principles of its formation, the effects of educational programs); *algorithm* of arranged activity of students, parents and teachers on the basis of partnership pedagogy; *procedural components* (e.g. integrated lessons, celebrations of Aflatoun days, Money Week, production of media works, interviews with Aflatoun, advertising products, meetings with successful pupils, students, entrepreneurs,

reading conferences), *methods* (interactive learning, brainstorm, work in groups, games, projects, conversations, story-telling, problem method, e.g. “Which advertisement can be trusted?”), *means of formation* of financial competencies (educational and methodological support of programs on socio-financial education and upbringing for students of secondary schools “Creating future with responsibly and economy”, “Aflatoun”, books for children and parents on financial education, websites), *diagnostic tools* (criteria and levels) of formation of financial literacy and the expected *result*.

The main findings of the experimental methodology demonstrate a significant increase in the number of the primary school students with the high level of financial

literacy – from 3.03% to 21.22% in the EG. Respondents with low level of formation of financial literacy demonstrated positive dynamics in the growth of their indicators after the experimental study: their proportion dropped from 33.33% to 12.12%. The percentage of representatives with the sufficient level of financial literacy formation has increased: from 27.27% to 36.36%.

The prospects for further research imply the identification of cultural features and gender differences in the formation of financial competencies; development of the methodology to provide financial literacy of parents as agents of influence on their children’s financial awareness; efficiency of forms and methods of education for success in life.

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