World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 37, August, 2024
ISSN: 2749-3628,

FORMATION OF FINANCIAL LITERACY OF STUDENTS OF FUTURE MATHEMATICS TEACHERS BY SOLVING KEYS

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Article history:

Received: 28th May 2024
Accepted: 26th June 2024

Abstract:

In modern conditions, financial literacy can be formed on the basis of the idea of interdisciplinary integration. Interdisciplinary integration can be defined as one aspect of educational activity that connects general education and professional Sciences to a single complex. A distinctive feature of this complex is the formation in the student of a qualitatively new system of holistic knowledge and skills, which, in contrast to the components included in the system, are assigned to new integral features. Consequently, the presence of elements that shape positive financial behavior in students is necessary in the structure of educational activities of educational organizations. It is relevant for students of higher educational institutions to form skills for the practical application of fundamental and special knowledge in making economic decisions (in personal, family, Professional, Scientific and social activities)

Keywords: Professional, Scientific and social activities

INTRODUCTION. Currently, financial literacy is recognized as the main authority, which not only allows each person to manage personal finances and provide more protection from fraudulent actions, but is also a way to increase the financial well-being and stability of the entire state. The problems of the formation of financial literacy are relevant at different levels of the educational system. The issue of forming financial literacy for university students-future mathematics teachers and increasing its level-is not only of a personal nature, but also becomes the key to its future professional activity, since it is the teachers who create the basis for the formation of financial culture for their students.

Based on the context of the proposed work, the components of financial literacy as a description of the main and main competencies were identified. The implementation of the work implies the implementation of a certain plan, which can be considered as an algorithm carried out according to didactic principles. The results of the work can be used in the educational process of higher educational institutions implementing pedagogical programs.

Everyone is faced with some kind of financial activity almost every day, as a result of which he has to make reasonable decisions: buying in a store, transferring money, obtaining a loan, renting real estate, placing funds in a Bank, Doing Business, and so on, we can say.

The combination of knowledge, skills and behavioral models necessary to make successful financial decisions is the basis for determining financial literacy.

In the study of the problems of the formation of financial literacy, young people are divided into a separate group, for which it is especially important to deepen knowledge and develop practical skills in the field of personal finance management.

Most of the work related to the formation of financial literacy can be divided into two groups:

1) Formation through the implementation of additional educational programs or the organization and conduct of educational and popularization activities;

2) Formation of specialized courses by introducing different levels of education into educational programs. A number of researchers define the general approaches, strategies and goals of educational activities of universities in the field of formation of financial literacy.

As one of the main modern approaches, it is proposed to include special subjects in the curricula of Higher Education.

However, the implementation of this approach reveals certain types of problems.

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First, the motivation of students to study the proposed subject is insufficient.

Secondly, the allocation of hours to a special subject for the formation of financial literacy leads to a decrease in hours in the curriculum allocated for the study of other, equally important subjects.

Thirdly, it is necessary to distinguish between the content of the subject recommended for students of technical, natural and humanitarian Sciences.

Fourth, the content of the course requires constant updating, since financial instruments are constantly updated, taking into account the fact that the legislation of the Republic of Uzbekistan is changing.

It is proposed to use active and interactive teaching methods, including information technology, to solve the problems of encouraging students. To improve the quality of training-the gradual introduction of complex tasks with complex materials, the connection of digital technologies and the use of practice-oriented tasks, including cases.

To implement a practice-oriented approach, methods are proposed to divide the problem into blocks, introduce cycles of transition from an economic problem to a mathematical model, and vice versa.

Many years of research by Hungarian scholars have shown a high level of financial literacy of teachers, unlike other professions, about the financial knowledge, attitudes and behavior of teachers teaching different subjects. Consequently, in the training of future teachers, primarily mathematics teachers, special attention should be paid to the formation of financial literacy and increasing its level, since teachers mainly create the basis for the formation of a financial culture for their students, which determines the relevance of this work.

It should also be noted that among university students in different fields, students of the mathematical direction are classified into a special category, which, due to their mathematical and Reading Literacy, have a high financial literacy.

However, the mathematical apparatus used to solve them is very simple for students of mathematical specialties, and therefore they lose interest in learning.

This prompted the authors of this work to conduct research on the development of special works related to the use of a more complex mathematical apparatus for the formation of the financial literacy of future mathematics teachers.

The purpose of this study became relevant to determine the possibility of using practical work to form the financial literacy of future mathematics teachers in the process of studying mathematical sciences.

The results of the work can be used in the educational process of higher educational institutions that carry out educational programs for the training of future mathematics teachers.

Research methodology and methods. The methodological basis of the study is a practice-oriented approach.

Research methods: theoretical (comparative analysis of pedagogical and scientific-methodological literature, study and generalization of domestic and foreign advanced pedagogical experiments); empirical (observation, conversation).

Research results and their discussion. The formation of financial literacy is a continuous process that accompanies every person almost from an early age to old age. It can be expressed as a closed cyclic process (see Figure). Stages" a"," B " and " C " are repeated from time to time, thanks to which a certain level of financial literacy is achieved.

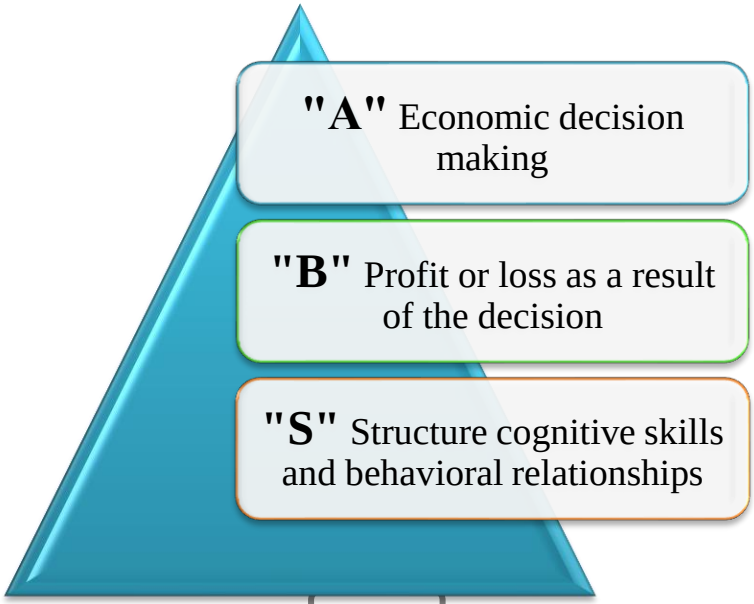

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Figure 1 the cyclical process of forming financial literacy

In the study of various simulated situations comparable to Stages" A "and" B", there is a need to simulate these stages in the learning process. Imitating steps" A "and" B", on the one hand, reduces the risk of loss as a result of improper actions in the event of a real situation, and on the other hand, provides an opportunity to correct the mathematical model and increase its adequacy in order to make effective financial decisions.

For students of higher educational institutions-future mathematics teachers, in addition to the above, the formation of skills for the practical application of mathematical knowledge in making economic decisions (in personal, family, Professional, Scientific and social activities) is relevant.

An additional factor in educational motivation is the opening up opportunities for the use of mathematical knowledge and the scientific type of thinking, which goes beyond arithmetic. The use of deeper knowledge in mathematics should give them certain advantages in managing personal finance.

One of the tools for the formation of financial literacy in the educational process of higher education can be cases that allow you to simulate various situations. Within the framework of the development of the subject" Algebra", let's consider an example that can be offered to university students-future mathematics teachers.

Case study, " mathematics teacher Ivan Ivanovich Ivanov is additionally engaged in business – conducts short paid intensive courses in preparation for the OTM exam. For this, he received the status of self-employment and pays a professional income tax in the amount of 12% of income in accordance with the tax code of the Republic of Uzbekistan.

Training is conducted in a daytime format for a group of ten students. The cost of the course for one student is 300 thousand rubles. Two resources are spent on conducting courses: money and the teacher's personal time. Cash expenses include, rent in the amount of 100 thousand rubles, conducting one course for one group and paying taxes. The cost of personal time: for one course for one group-20 hours, and for communication (conversations with parents, individual tips)-on average 30 minutes per person.

Task 1. In February I. I. Ivanov's net profit was Rs. It is necessary to find: the amount of income, the number of listeners (groups), the number of hours spent by the teacher.

Task 2. Due to the unfavorable epidemiological situation, in March it was decided to transfer all planned courses to a distance format. After the transfer to the remote format, the employment of the groups increased by 20 people, and the rent decreased to 50 thousand rubles. However, due to the change in learning technology, the cost of personal time for both one course and one person increased by 1 percent.

Determine: 1) How many hours the total time spent will decrease; 2) how the number of listeners will change to maintain income in the amount of 500 thousand rubles per month.

Matrix A	**Cash (R)**	**Number of listeners, (person)**	**Number of lecture courses, (PCs)**	**Teacher's personal time (hour)**
Cash (R)	Unit costs in the form of taxes for the payment of 1 sum. Income (value is indicated in sums using decimal)	Har bir tinglovchi uchun mumkin bo'lgan qo'shimcha xarajatlar (masalan, tarqatma materiallar tayyorlash)	Possible additional costs for each listener (for example, the preparation of handouts)	Additional costs that depend linearly on the personal time used (average values for 1 hour of personal time)

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Number of listeners, People	Income-the inverse value of the price of one course for one student	For students who are forced to return money due to an unsuccessful exam (control)-the average value that characterizes the quality of training		
Number of lecture courses, pieces		The proportion of one course corresponding to one listener is the inverse value of the complement of groups		
Teacher's personal time		Number of teacher time spent on one listener	The number of hours of teacher time spent conducting one course	

The properties of mathematical modeling are manifested at all its stages, from the construction of a matrix model of a real situation to the interpretation of the resulting product of matrices, taking into account the field of application of the built model.

The mathematical component of the work in question includes basic concepts related to the topic "matrices and determinants". To solve the case, the student must have the following elements of matrix theory:

- the concept of a matrix and its elements, rows and columns of a matrix;
- types of matrices (square, unit, Inverse for a given matrix);
- basic operations on matrices (addition, multiplication, construction of the inverse Matrix).

Mathematics teacher I. I. Ivanov takes part in the situation presented at work in two roles at once: today an entrepreneur and tomorrow a consumer, so for the problem solver, two contexts are clear: "education and work" and "individual financial solutions".

But any person is considered a member of society, so he makes "public financial decisions (taxes, fees, consumer rights and obligations)".

Based on the context of the work proposed by the OECD International Financial Education Network on the basis of the "basic competence framework of financial literacy for adults", one can distinguish the components of financial literacy (Table 2) acted as descriptors of basic and competencies.

Components of financial literacy associated with solving the proposed case Table 2

Knowledge and understanding	**Skills, skills and behavior**	**Attitude and motivation**
Money: types and purpose of money	- be careful with money; - compares the prices of different educational providers; - keeps an account of the funds spent	makes reliable independent decisions on how to use money to improve your well-being; - encourages to find sufficient sources of income to achieve the desired standard of living; - confidently takes steps that lead to Career Development

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Financial planning and management: ways to control income and financial status, income and expenses	- understands and compares financial information; - organizes a regular budget; - implements plans; - changes financial plans if necessary	- based on the development of strategies for maintaining and increasing financial well-being; - values financial planning as a way to maintain or maintain financial well-being
Risk management: risk management methods	- understands, explains and evaluates various financial situations; - evaluates its own risk; - motivated to reduce risks;	- makes deliberate decisions in a reliable way when the risks are clear; - based on the analysis of available data when considering risks; – the risks associated with them do not allow high incomes to attract themselves before taking into account
Financial environment: rights and obligations of participants in financial relations, understanding of basic economic concepts	- makes effective decisions about financial products; - takes into account the potential cost of educational services in the event of a change in the situation; - takes into account all tax obligations when drawing up a budget	- recognizes the need and importance of fixed tax payments; - encourages changes to individual financial plans, depending on external factors

The implementation of the recommended work involves the implementation of the following plan:

1) analysis of the text of the proposed work with the exact distinction of the conditions and several conclusions reflected in the tasks;

2) analysis as a search for a way to solve the proposed case;

3) drawing up a decision plan;

4) solving a learning problem aimed at determining the methods and methods of solving the proposed work;

5) solving a practical problem, interpreting the result;

6) work Protection.

Note that a university teacher who implements such a practice-oriented approach to the formation of financial literacy should rely on the following classical principles of didactics:

-the principle of differentiated education, taking into account the individual characteristics of students. The individual characteristics of the student (his needs and abilities, the circle of cognitive interests, the way of thinking) should be known to the teacher, at best, before starting to study the relevant mathematical disciplines, and at worst, at the end of the first month of studying this discipline;

-the principle of free choice. In accordance with this principle, the student should be provided with a choice of types and methods for solving mathematical and practical problems;

-visualization principle. The implementation of this principle provides visualization of the process of teaching mathematics (printed products, video and audio materials about the products and activities of certain companies, relevant didactic and reference materials in mathematics);

-the principle of true equilibrium is "theory-problems", in other words "I know-I know", when teaching mathematics without bending towards theory;

-the principle of changing the role of a mathematics teacher from "teacher-source of knowledge" to "coach-teacher", you can always ask for advice;

- the principle of consciousness, activity and independence. This principle effectively stimulates the cognitive activity of the student with the help of modern educational technologies;

-the principle of educational development. This principle aims to further develop the student's strengths. Obviously, the implementation of these principles is small and sometimes undergoes significant changes.

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CONCLUSION. Today, the state-wide emphasis on issues of increasing the financial literacy of the population is also indicated in the relevant documents. In this regard, it is necessary to make adjustments to the educational programs of higher educational institutions for the training of specialists in various directions. First of all, changes should affect the programs for training future mathematics teachers, since they are largely responsible for the development of basic knowledge, skills and relationships in the field of financial culture. One of the options for such corrections and changes is to strengthen the practice-oriented approach to teaching fundamental mathematical sciences when elements of financial literacy are naturally incorporated into the content of mathematical courses. The most effective tool is practical assignments with economic content.

The performance of such tasks, on the one hand, reveals the possibilities of the professional activity of the future mathematics teacher, on the other hand, helps to form the financial literacy of students. The situation presented in this article indicates that the ability to act in economic situations is an effective condition for financial "well-being for yourself".

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