ON THE INFLUENCE OF FINANCIAL EDUCATION AT FINANCIAL LITERACY

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Abstract: *Accepting financial literacy, as one of the key competencies of the modern human, leads us to questions about the efficiency of financial education. The present paper seeks to determine the influence of economic education on university students and movements in their skills in financial education. It is based on a statistical analysis of the results before and after absolving the course. The research is concerned also in the changes in the attitudes of the course participants to the perception of the importance and self-appreciation of their own financial decision abilities. Particularly, recognizing the importance of being financially literate is determined as the fundamental factor for improving proficiency.*

Keywords: *Financial literacy, financial education, skills.*

1. INTRODUCTION

The turbulent development of the global economy has been markedly marked by the advent of new technologies in the last decade. By introducing them into life, new services, financial operations have emerged and overall complexity of products and services has increased. Their use has given impetus to economic growth, but our life has become more complex. Few people understand the risks we face when making the necessary financial decisions in personal and professional life. There has been a significant increase in financial and investment decision-making, which has highlighted the importance of financial literacy and the merits of financial education in all types of schools. At the turn of the millennium, [1] stated that "Financial literacy is a basic knowledge that people need in order to survive in a modern society".

One of the long-term roles of governments is to invest in human capital in order to make countries more competitive. This issue is closely related to measuring the value of human capital. „The problem is often the quantification of knowledge, abilities, skills, motivation, talent etc." [2]. Forms of increasing the value of human capital are expenditure oriented for example to health, safety, science, research and education. [3].

At present, there is broad support for financial literacy education by national governments on a global scale. If a large part of the population is in financial trouble and fails to pay its financial obligations, it is not just a social problem. It also has a hard impact on the economies of the countries. That is why study programs are being introduced to increase the financial literacy of the young generation, including at universities. The motive is to improve their current and future quality of life by providing financial education. This is not the only reason why to support financial education and thereby increase financial literacy. The low level of financial literacy is associated with poverty, high levels of personal debt, insufficient or no retirement plans, which are manifestations low living standards.

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2. UNIVERSITY EDUCATION AND A GLOBAL PERSPECTIVE ON FINANCIAL LITERACY

In the education system, universities are the bearers of economic progress and there is persistent pressure from the state to increase efficiency and improvement quality. In the future, it is expected "introduce radical changes in the pedagogy of education so as to meet the challenges outlined above by transforming themselves: from hierarchical organizations to participatory ones, from disciplinary to interdisciplinary teaching and research, from immediate needs to short and long-term sustainability, and from reactive to pro-active organizations" [4]. Effective performance of a university teacher involves not just the proper lecturing competence, but the application of the right methodological strategies to meet student's needs [5]. An important tool for improve the quality of university teacher's work and education process can be considered a feedback [6]. Students do not only have to be young people but also, within the framework of lifelong learning, employees who do „turn work hard, upgrade their existing knowledge and contribute in their own way to increase the productivity of their organization" [7]. In this context, it can be stated that „the universities have a crucial role to play in optimizing the way society is managed, in attaining the objective of ensuring major improvements in people's lives" [8].

In the US, UK, and other countries, there is a big burden on young student credits from study time and consumer credit. Young people yearn for a lifestyle that they and their family really do not have, and in their youth, they are creating „dependence" on debt. The survey [9] confirms „validate the fact that recent high school graduates are not knowledgeable about everyday financial matters. It would seem that the appropriate place to resolve this issue would be at the high school level. Or perhaps since this subject matter is so important to a college graduate, perhaps universities should regard financial knowledge as being a component to their general education program and require a course in personal finance of all its students".

Several studies have shown geographical differences in financial literacy [10] - [15]. Research [15] shows that financial literacy is strongly related to sociodemographic characteristics and family financial sophistication. This is confirmed by the [12] study, which found that Financial literacy and schooling attainment have been linked to household wealth accumulation and that investments in financial literacy could have large positive effects on household wealth accumulation. The relationship between financial literacy and selected socio-demographic characteristics is also confirmed by a study [16] carried out in a developing country. The survey was conducted on a sample of undergraduate and postgraduate students from a public university. "The paper found that age and work experience were positively related to financial literacy. Also, mother's education was positively correlated with respondents' financial literacy".

3. METHODS AND DATA

We collected the data for our analysis by the questionnaire survey method. Each of the respondents has been tested twice. The first round of the survey has run at the beginning of the course. The second round of similar test was realized after enclosing the course. In order to effectively map the possible progress in skills and knowledge, the same respondents have been asked in both rounds. By this method, we obtained two samples containing in the size of 106 students.

We have included two types of questions in the questionnaire. One part focused on the investigating of the socio-demographic data and as well as personal characteristics. In this part, we

collected information about the access of the respondents to this problematic, namely the importance they attribute to financial literacy and their self-assessment about financial decision abilities.

The second part contained a set of questions that focused on financial problems. These questions were presented with the multichoice answer options. One of them was correct, two answers were incorrect and the last option was „I don't know" answer. The problems covered more branches of the financial literacy as the time value of the money and inflation, investments and risks associated with investing, savings, and debt management.

The aim of our analysis was to compare the competences of the students before and after absolving the financial education and recognize if there is some progress in their knowledge. Due to the same composition of the group of respondents in both rounds, we have paired the samples, therefore we were able to apply the paired t-test. In order to illustrate the improvement after absolving the course, we have constructed the empirical cumulative distribution function and empirical density of the probability to attain a given score. This approach corresponds with the stochastic dominance rules.

4. RESULTS

The first step in the data analysis is the computing of the essential statistical characteristics of the average scores in both samples. The results are summarized in table 1. Here we can easily observe positive drift in all important statistics and quantiles.

Statistics before education		***Statistics after education***	
Mean	46,08%	Mean	52,83%
Median	46,15%	Median	53,85%
Minimum	15,38%	Minimum	23,08%
Maximum	76,92%	Maximum	84,62%
1-st quartile	38,46%	1-st quartile	46,15%
3-rd quartile	53,85%	3-rd quartile	61,54%

Table 1: Essential statistics of the average scores before and after absolving the financial course. (Source: own elaboration)

The expectations of the improvement, supported by the computed statistics can be further underlined by the empirical density and cumulated distribution functions. Their graphs are presented in figure 1. The significant shift to the right is easily visible in both cases. It means the higher probabilities of attaining the better scores. This statement we can definitely confirm by the paired *t*-test. The results of the test, summarized in table 2 show, that we reject the zero hypothesis with an extremely high confidence level.

If we have once confirmed that education in financial management and financial decision-making has a positive impact on the growth of financial literacy, we can look for other factors affecting this development. We selected two factors from the personal data we have collected in the survey. Specifically, we selected the perception of the importance and self-assessment of the respondents. The results are illustrated as the box plots in figures 2 and 3.

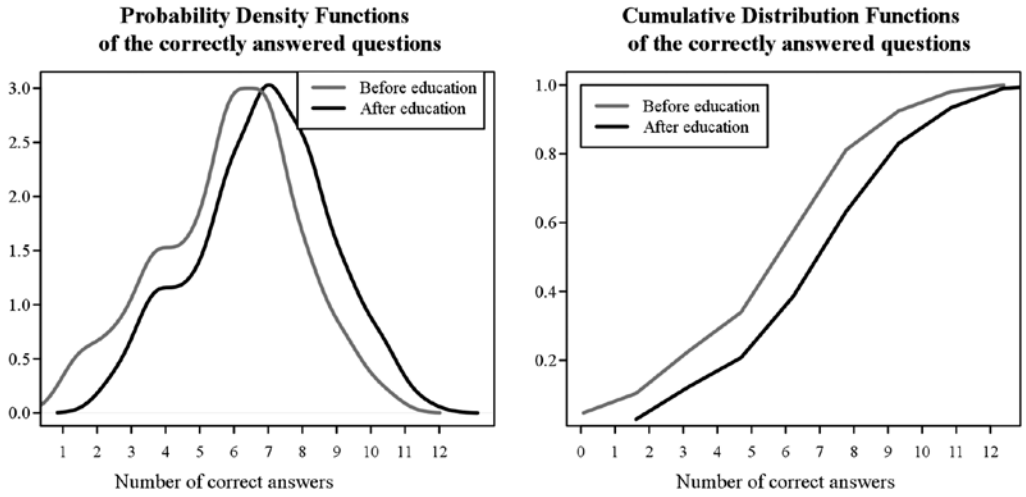

Figure 1: Empirical density function and empirical cumulative distribution functions of the average scores before and after absolving the course. (Source: own elaboration)

When realized	***Mean score***	***t-statistics***	***p-value***
Before course	46,08%	6.6903	$5.579 \cdot 10^{-10}$
After course	52,83%		

Table 2: Results of the paired *t*-test for zero difference of the average scores before and after completing the course. (Source: own elaboration)

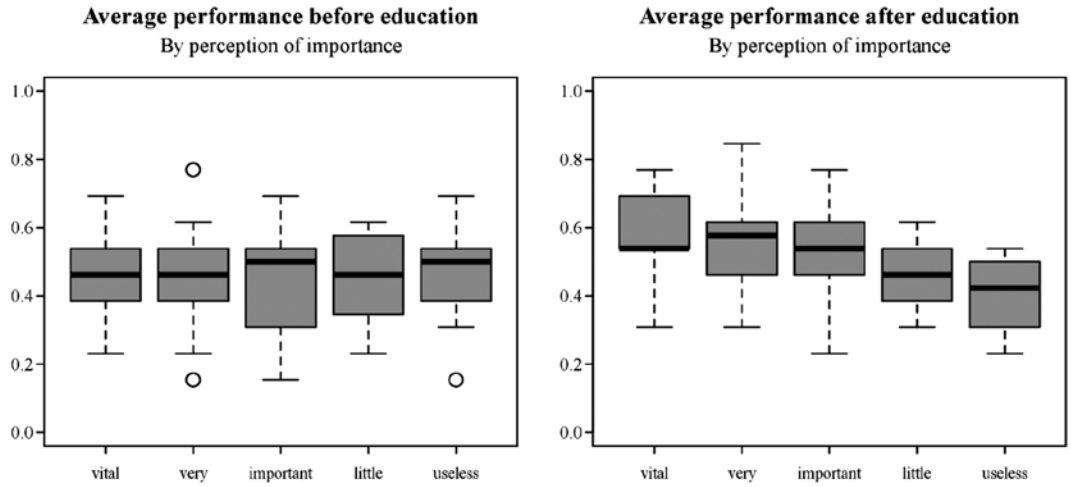

Figure 2: Box plots of the average scores before (left) and after (right) completing the course, categorized by the importance of the financial literacy perception. (Source: own elaboration)

From the graphs in figure 2, it is clear that there is significant growth in the average scores when the respondents attribute adequate importance to financial literacy. On the contrary, even those who underestimate the importance of financial literacy or absolutely do not fully recognize its importance we observe even the decline in the score. The exact numerical values are summarized in table 3. The greatest improvement is visible in the group of the respondents that attribute to the financial literacy vital or very important level. On the other hand, those who attributed only a little importance remains almost unchanged in their score. Respondents, that declared the financial literacy to be a useless produced decline in their results.

When realized	*Importance perception*				
	Vital	*Very important*	*Important*	*Little important*	*Useless*
Before	47,07%	46,15%	45,64%	44,75%	46,15%
After	58,15%	56,49%	50,51%	45,45%	40,38%

Table 3: Changes in the average scores before and after completing the course, categorized by importance level perception. (Source: own elaboration)

Graphs in figure 3 illustrate the changes in the average scores in the groups determined by the self-assessment of the respondents. We immediately see that the changes are not so obvious as in the case of categorization by the importance of financial literacy perception. However, we can conclude that respondents who were more critical in self-assessment achieved a more profound improvement. We can document it by the numerical values, summarized in table 4.

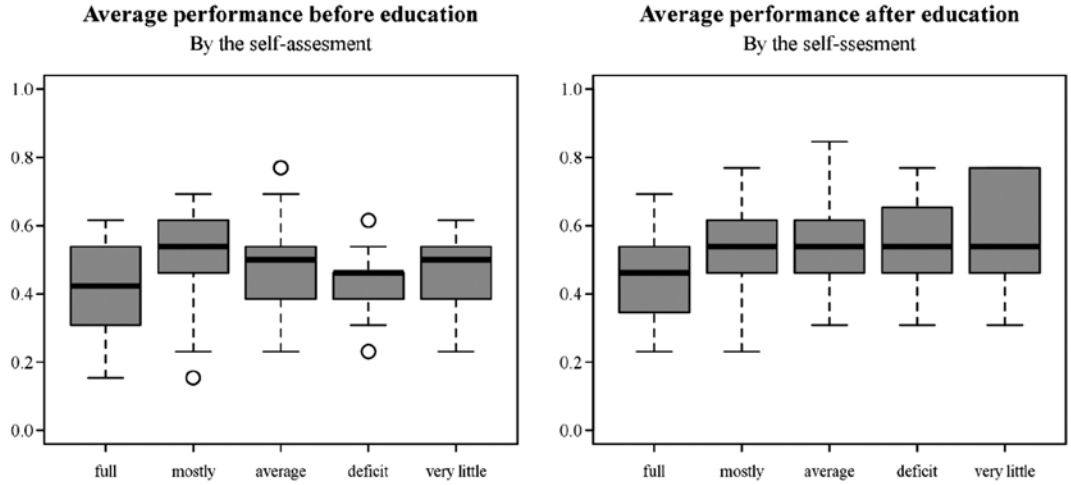

Figure 3: Box plots of the average scores before (left) and after (right) completing the course, categorized by the self-assessment of the respondents. (Source: own elaboration)

When realized	*Self-assessment of literacy level*				
	Full	*Mostly*	*Average*	*Some deficit*	*Not at all*
Before	39,62%	49,18%	48,46%	43,08%	46,15%
After	45,00%	53,61%	55,13%	54,36%	57,69%

Table 4: Changes in the average scores before and after completing the course, categorized by the self-assessment in financial literacy. (Source: own elaboration)

Let us now see the possible causes of this phenomenon. If we compare the groups created by the self-assessment criteria, we can observe, that importance perception is dramatically changed across these groups. Let us look at the self-assessment of the respondents in the groups, according to the importance they attach to financial literacy. We see that their self-esteem and the tendency to overestimate their own abilities go hand in hand with the underestimated importance of financial literacy. These changes are illustrated by diagrams in figures 4-8.

While on figure 4 we can see that none of the participants, that evaluate the financial literacy importance as vital feels fully literate, on figures 5-8 we can observe how this portion increases.

Finally, in figure 8, we see that a big majority of respondents, that find financial literacy to be useless feels to be fully literate. However, the results show that the opposite is true. These disproportions in the distribution by the self-assessment cause that the improvement is not so clear like in the case of the importance perception.

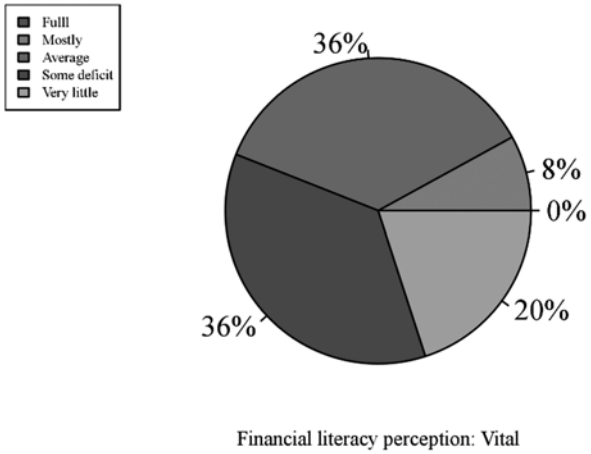

Figure 4: Self-assessment of the respondents who consider the financial literacy importance to be vital. (Source: own elaboration)

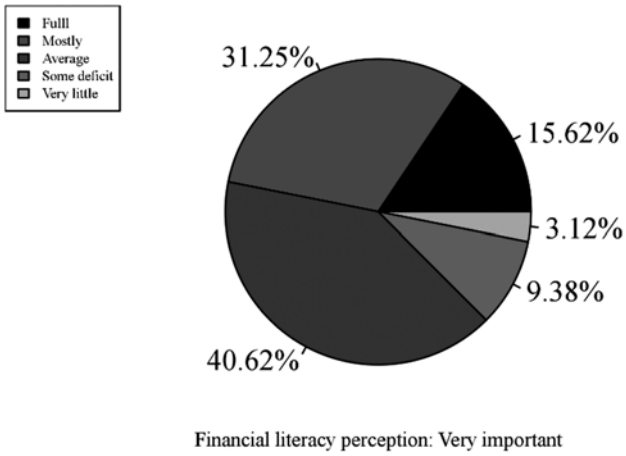

Figure 5: Self-assessment of the respondents who consider the financial literacy importance to be very important. (Source: own elaboration)

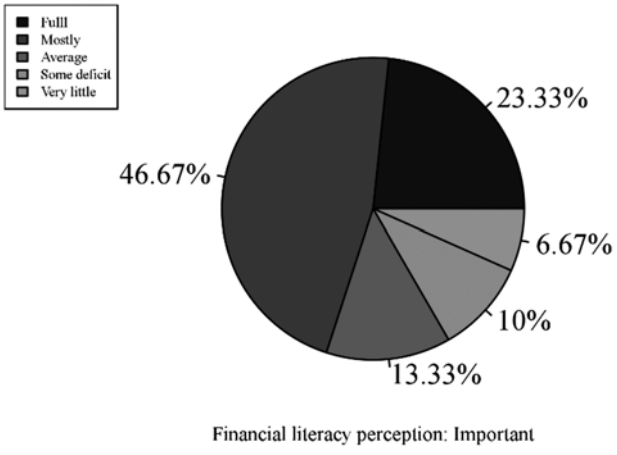

Figure 6: Self-assessment of the respondents who consider the financial literacy importance to be important. (Source: own elaboration)

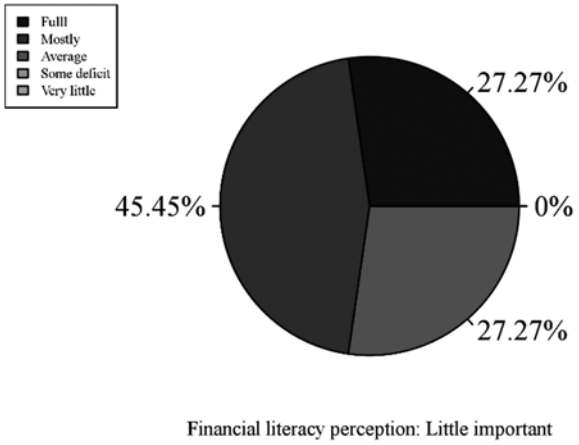

Figure 7: Self-assessment of the respondents who consider the financial literacy importance to be little important. (Source: own elaboration)

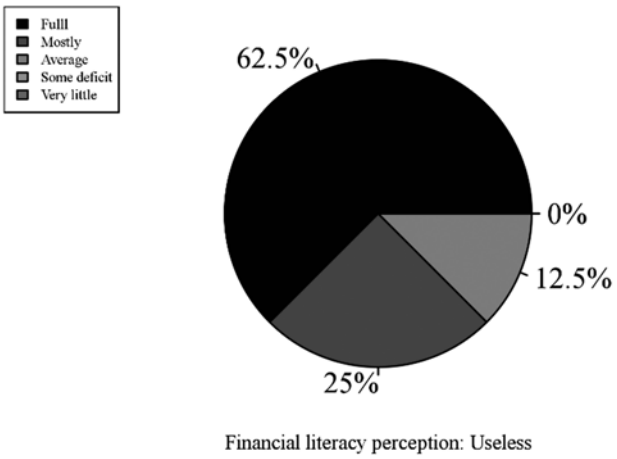

Figure 8: Self-assessment of the respondents who consider the financial literacy importance to be useless. (Source: own elaboration)

5. CONCLUSION

Our research has confirmed several important facts. Like the first, it confirmed, that students coming at the university after finishing high school have under average financial competences. This result corresponds with [9]. As the second fact, we have proved the positive influence of financial education on the growth of the abilities. Further, we have seen that the most important factor supporting the improvement in financial literacy level is comprehending its enormous importance. Moreover, underestimating of the importance leads to dangerous overestimation of own abilities. This is in accordance with findings published in [17]. The authors stated here, that "Here prevails some unhealthy self-confidence and overestimating of their real abilities. Respondents who feel full or predominantly financially literate do not achieve better results than others." All these facts together show the needy of inclusion of a similar subject in the training program. It should primarily address real decision-making problems in order to clarify the importance of orientation in the world of finance. Only in the second place is the acquisition and expansion of knowledge itself.

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