

ON THE IMPACT OF PRACTICAL EXPERIENCE ON THE FINANCIAL LITERACY OF THE UNIVERSITY STUDENTS

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Abstract: *The financial literacy belongs to the key competencies of the modern society members and its importance grows every day. This paper presents results of the financial literacy research among the university students of the different fields of study. The survey covers both forms of study, means the full-time study and as well the part-time study. We obtained the data through a questionnaire survey conducted simultaneously at five universities in Czech Republic and Slovakia. In this survey, we have found out some of the personality characteristics of the participants, and further, they solved common problems in the area of the financial decision making. The aim of the research was to verify whether the everyday practical experience of part-time students has a positive impact on their financial literacy when compared with the full-time students. In this context, we have also distinguished between economic and technical studies. Applying the statistical analysis methods, we have not only confirmed our expectations, but this analysis also revealed several remarkable findings.*

Keywords: *Financial literacy, questionnaire survey, personality characteristics*

1. INTRODUCTION

It is one of the characteristic features of life in such a world that we are exposed to rapid and dynamic changes. Nearly everyone is aware of the impact of modern technology but people also need to understand that almost daily their lives are becoming more closely linked to complex financial markets. Financial literacy is, therefore one of the key components of education for living in a modern society. The importance of financial literacy arises from the need to respond to the increased complexity of the financial world and it grows every day.

In the literature, one can find more definitions of the financial literacy. For example [1] define the financial literacy as the ability to understand how money works in the world: how someone manages to earn or make it, how that person manages it, how he/she invests it (turn it into more) and how that person donates it to help others. Mandell in [7] defines, that financial literacy is "the ability to evaluate the new and complex financial instruments and make informed judgments about both: choices of instruments and extent of use that would be in their own best long-run interests". A pilot OECD/INFE study [8] refers to financial literacy as "a combination of understanding, knowledge, skills, attitudes and behavioral patterns necessary to make the right financial decisions and, ultimately, to achieve personal financial well-being". For the purpose of the present paper, let us define a financially literate person according to [3] as "someone who uses their ability to make a qualified judgment on the basis of their knowledge, skills, and experience to maintain balanced financial security throughout life." This requires

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planning of financial flows, which leads to “more uniform consumption throughout life, depending on the stage of the life cycle”.

In this article we focus on the financial literacy of the full-time and part-time university students. The aim of the research was to confirm the hypothesis, that practical experiences of the part-time students have positive impact on their abilities in the financial decision making. The research was conducted on five universities, on faculties with similar study programs. During our research, assumptions regarding the perception of the importance and self-assessment of financial literacy have been acknowledged. How we will see, significantly better results were achieved by students who consider financial literacy to be “vital” or “very important”.

2. DATA AND METHODS

This article presents the extension of the investigations presented in [2]. Data for the present research was collected using a questionnaire survey method at five universities located in the Slovak Republic and, in the Czech Republic. Besides the managerial fields of study, we extended the research as well on the technical fields, especially on the informatics and machinery.

We obtained a sample of 1092 usable, completely filled questionnaires, from a total of 1400 that were distributed. The corresponding response rate is 78%. The sample included 885 full-time students and 207 part-time students. This ratio matches the ratio of full-time and part-time students in the whole population. The proportion of women was 448 against 644 men. This disbalance was caused by the structure of the technical study fields population, where men usually dominate. The age structure corresponds to the ratio between the full-time and part-time students, so we had 891 students younger than 25 years and 201 in the age of 25 years and older. Relevant statistics on the socio-demographic structure of the respondent sample are summarized in Table 1.

Table 1: Structure of the sample (Source: own processing)

<i>Form of study</i>	<i>Number</i>	<i>Age</i>	<i>Number</i>	<i>Gender</i>	<i>Number</i>
Full-time	885	Under 25	891	Women	448
Part-time	207	25 and older	201	Men	644

The questionnaire can be divided in two independent parts. The first part collected some basic information and personal characteristics on the participants. The second part presented a total of thirteen problems concerning daily financial decision making. The areas of financial literacy tested were inspired by the notion of the P-Fin Index, as it is introduced in [6]. We have aggregated these eight areas into four categories covering:

- Time value of the money and inflation perception,
- Annuities and debt repayment,
- Investments and risk,
- Decision making.

All the problems were presented in the form of multiple choice questions with four answer options. Exactly one of the response options was the correct answer, two of them were incorrect answers, and there was also an "I do not know" option.

In order to compare the average percentages between the single categories the statistical tests were applied. As the subsamples have shown different variances, the Welch t-test was applied instead of Students t-test. This kind of the t-test uses the modified test statistics in the form:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2}}}$$

where \bar{X}_1 , s_1^2 and N_1 are the 1st sample mean, sample variance, and sample size, respectively, and \bar{X}_2 , s_2^2 and N_2 denote the 2nd sample mean, sample variance, and sample size respectively. The associated number of degrees of freedom is then given by the formula

$$v \approx \frac{\left(\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2}\right)^2}{\frac{s_1^4}{N_1^2 v_1} + \frac{s_2^4}{N_2^2 v_2}}$$

Here $v_1=N_1-1$ and $v_2=N_2-1$ are the degrees of freedom associated with the first and second sample variance that estimates respectively.

3. RESULTS

Before analyzing the performance of the student groups by various factors' impact on the level of financial literacy, let us briefly evaluate the overall results of our survey. In this study we compare the groups by the form of study, distinguishing the managerial and technical fields of study, the groups by gender and finally the groups by the age.

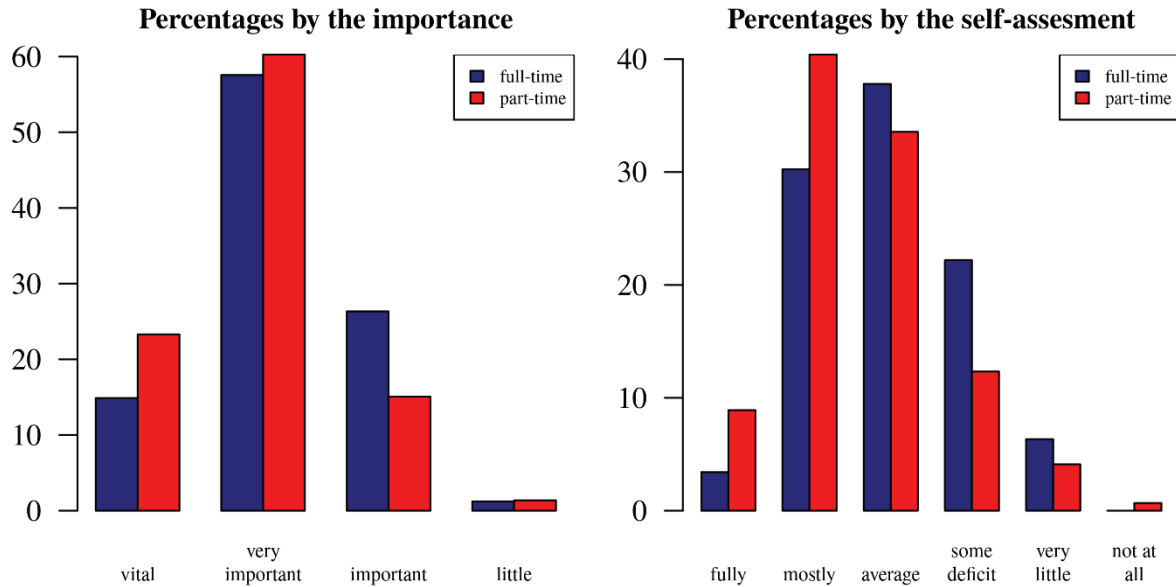
There has been a noticeable shift in perceiving the importance of financial literacy. As can be seen in the left part of Figure 1, the percentage of respondents considering that financial literacy is very important or even vitally important is considerably higher in the part-time mode of study in the managerial study field. The proportion of those who consider financial literacy to be of vital importance approaches a quarter of this group. On the other hand, this is not true for the technical branches. Here is a small shift in the portion that considers the financial literacy to be of vital importance, but the portion in perceiving it as very important decreases. Moreover, the portion of those who perceive it to be a little important decreases. This we can see in the left part of Figure 2. This can be explained by more practical experience of the management students in managing both personal and corporate finance.

In the self-assessment question, we asked respondents how they would rate their own financial literacy, allowing them to choose from six options – fully financially literate, right decisions usually, average, some deficiency, very little and no literacy at all. Response proportions of the management students are illustrated in Fig. 1 on the right and responses of the students of the technical fields in Figure 2. This bar chart shows in both cases the higher self-confidence among those who study part-time.

Similar situation we can observe on Figure 3 that illustrates the importance perceiving and self-assessment by two age groups. This situation is consistent with the fact, that the part-time mode students are mostly as well older than the full-time students. Of course, the older respondents

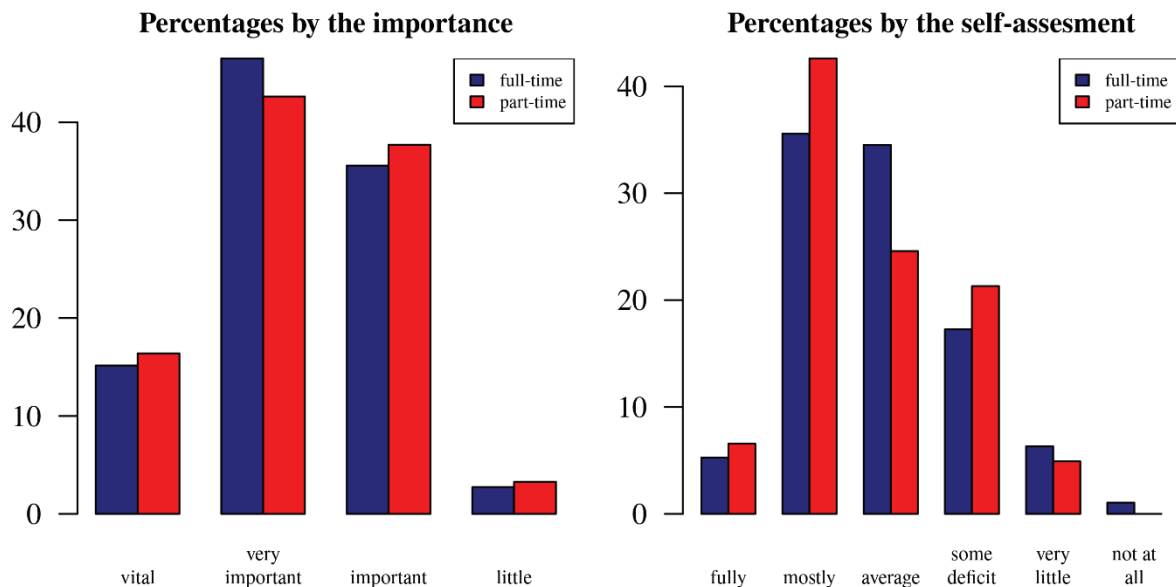
are as well more experienced in financial decision making and have met its importance personally.

Figure 1: Percentages of the respondents from the managerial fields of study according to their personal characteristics.



(Source: Own elaboration)

Figure 2: Percentages of the respondents from the technical fields of study according to their personal characteristics.



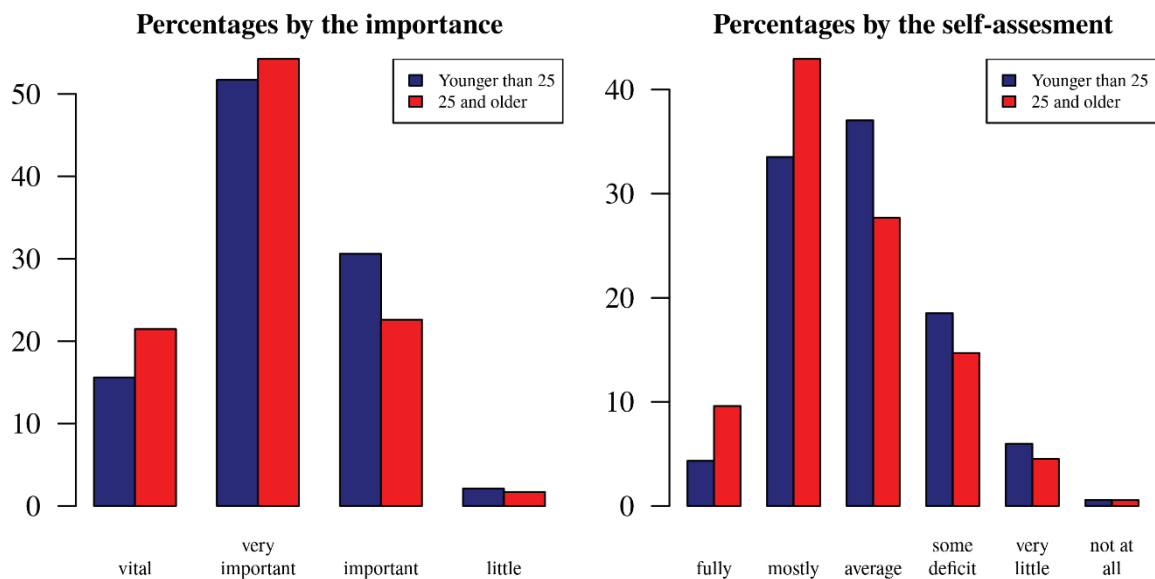
(Source: Own elaboration)

Figure 4 presents comparing the importance perceiving and self-assessment according to the gender. In the left part we can observe, that women perceive very high importance to the

financial literacy, while men have tendency underrate it. On the other side, men are more self-confident and how has the research shown, they overestimate their own abilities.

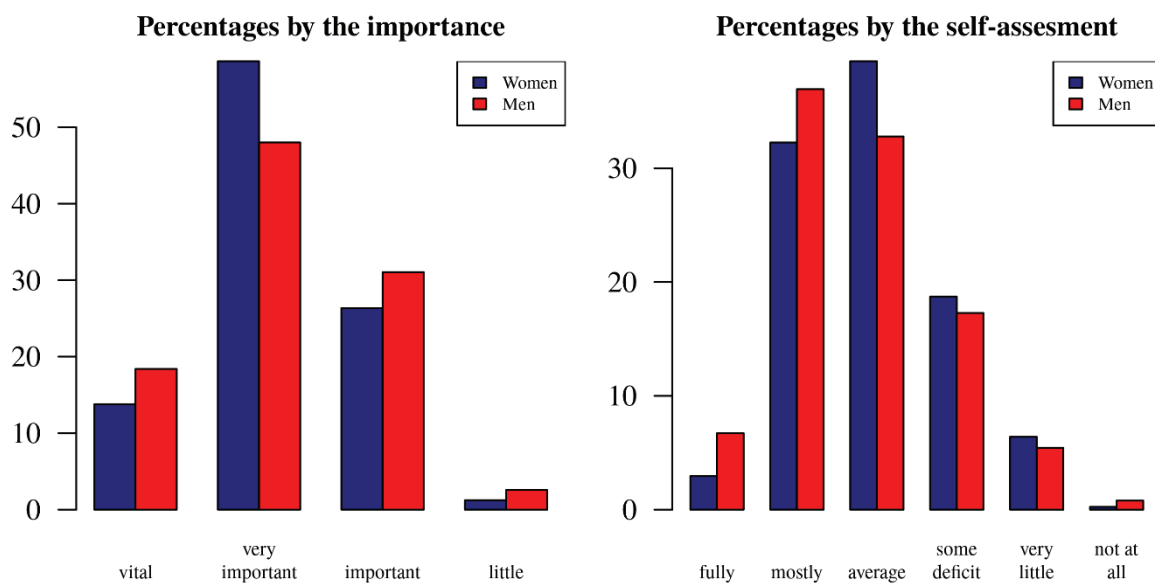
Figure 4 presents comparing the importance perceiving and self-assessment according to the gender. In the left part we can observe, that women perceive very high importance to the financial literacy, while men have tendency underrate it. On the other side, men are more self-confident and how has the research shown, they overestimate their own abilities.

Figure 3: Percentages of the respondents in two age groups according to their personal characteristics.



(Source: Own elaboration)

Figure 4: Percentages of the respondents by the gender according to their personal characteristics.



(Source: Own elaboration)

In the next self-assessment question, the respondents were asked how they would rate their own financial literacy, allowing them to choose from six options – fully financially literate, right decisions usually, average, some deficiency, very little and no literacy at all. Response proportions are illustrated in Figures 1 — 4 on the right. This bar chart shows higher self-confidence among those who study part-time in both study fields. The same is true for the older group of the respondents. When dividing by gender, the higher self-confidence was observed among men, but further research has proven that it is unjustifiably.

Table 2: Numerical characteristics of the performances of the managerial fields of study

<i>Form of study</i>	<i>Mean</i>	<i>St. deviation</i>	<i>Median</i>	<i>Maximum</i>	<i>Minimum</i>
Full-time	49.7%	19.56%	46.1%	92.3%	0%
Part-time	55.4%	15.69%	65.5%	84.6%	0%

(Source: Own elaboration)

Table 3: Numerical characteristics of the performances of the managerial fields of study

<i>Form of study</i>	<i>Mean</i>	<i>St. deviation</i>	<i>Median</i>	<i>Maximum</i>	<i>Minimum</i>
Full-time	43.4%	16.99%	46.1%	92.3%	0%
Part-time	48.9%	13.84%	46.1%	76.9%	23.0%

(Source: Own elaboration)

Table 4: Numerical characteristics of the performances by age groups

<i>Form of study</i>	<i>Mean</i>	<i>St. deviation</i>	<i>Median</i>	<i>Maximum</i>	<i>Minimum</i>
Under 25	46.9%	18.36%	46.1%	92.3%	0%
25 and older	53.6%	16.00%	53.8%	84.6%	0%

(Source: Own elaboration)

Table 5: Numerical characteristics of the performances by gender

<i>Form of study</i>	<i>Mean</i>	<i>St. deviation</i>	<i>Median</i>	<i>Maximum</i>	<i>Minimum</i>
Women	49.9%	18.65%	53.8%	92.3%	0%
Men	46.9%	17.73%	46.1%	92.3%	0%

(Source: Own elaboration.)

The main objective of our research was to verify the hypothesis that part-time students achieve a higher level of financial literacy than their full-time fellow students and older respondents achieve better results than the younger respondent. It confirms in both cases more practical experience increases the level of financial literacy. We also compared the average levels between women and men. The results of all statistical tests are summarized in Tables 6 — 9.

Table 6: Results of the hypothesis testing about the zero difference between the mean percentages for students of the managerial fields

<i>Form of study</i>	<i>Mean percentage</i>	<i>t-statistics</i>	<i>p-value</i>
Full-time	49.7	-3.49	0.0003
Part-time	55.3		

(Source: Own elaboration)

Table 7: Results of the hypothesis testing about the zero difference between the mean percentages for students of the technical fields

<i>Form of study</i>	<i>Mean percentage</i>	<i>t-statistics</i>	<i>p-value</i>
Full-time	43.4	-3.85	0.003
Part-time	58.9		

(Source: Own elaboration)

Table 8: Results of the hypothesis testing about the zero difference between the mean percentages for two age groups

<i>Age group</i>	<i>Mean percentage</i>	<i>t-statistics</i>	<i>p-value</i>
Under25	46.9	-4.90	$8 \cdot 10^{-7}$
25 and older	53.6		

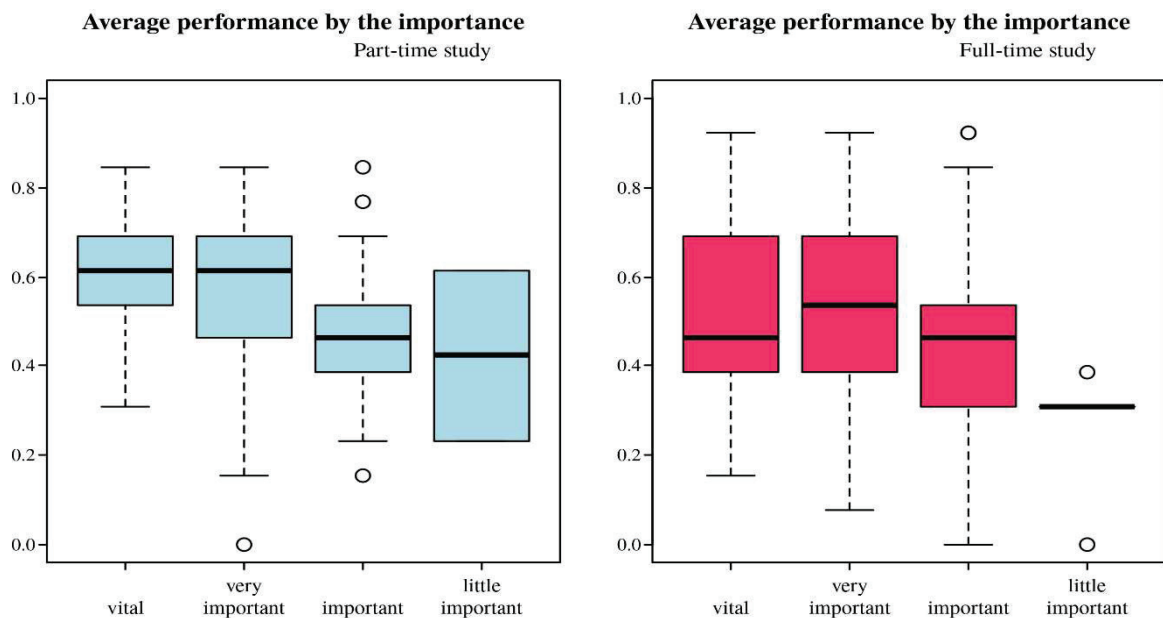
(Source: Own elaboration)

Table 9: Results of the hypothesis testing about the zero difference between the mean percentages for women and men

<i>Gender</i>	<i>Mean percentage</i>	<i>t-statistics</i>	<i>p-value</i>
Women	49.9	2.61	0.004
Men	46.9		

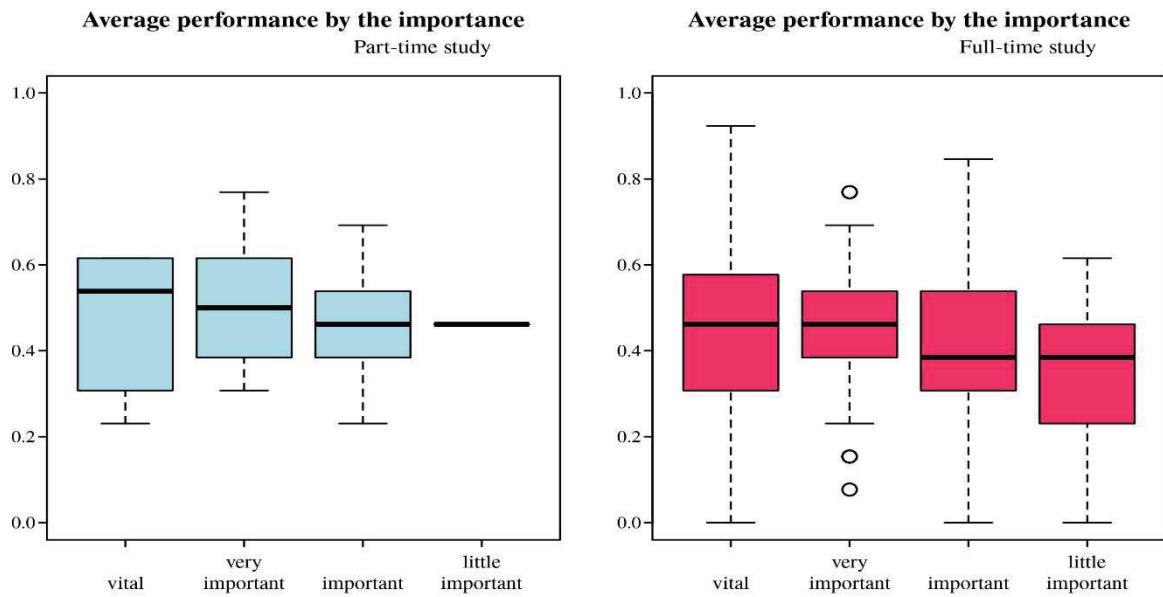
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Figure 5: Average percentages according to the importance attached to the financial literacy by students of management.



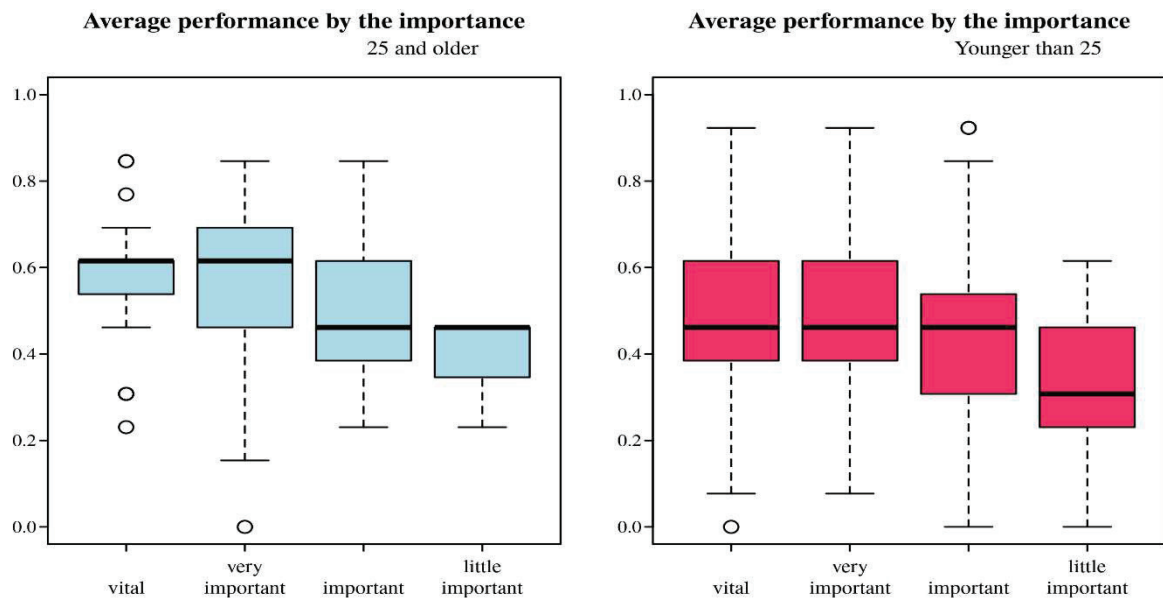
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Figure 6: Average percentages according to the importance attached to the financial literacy by students of technical fields



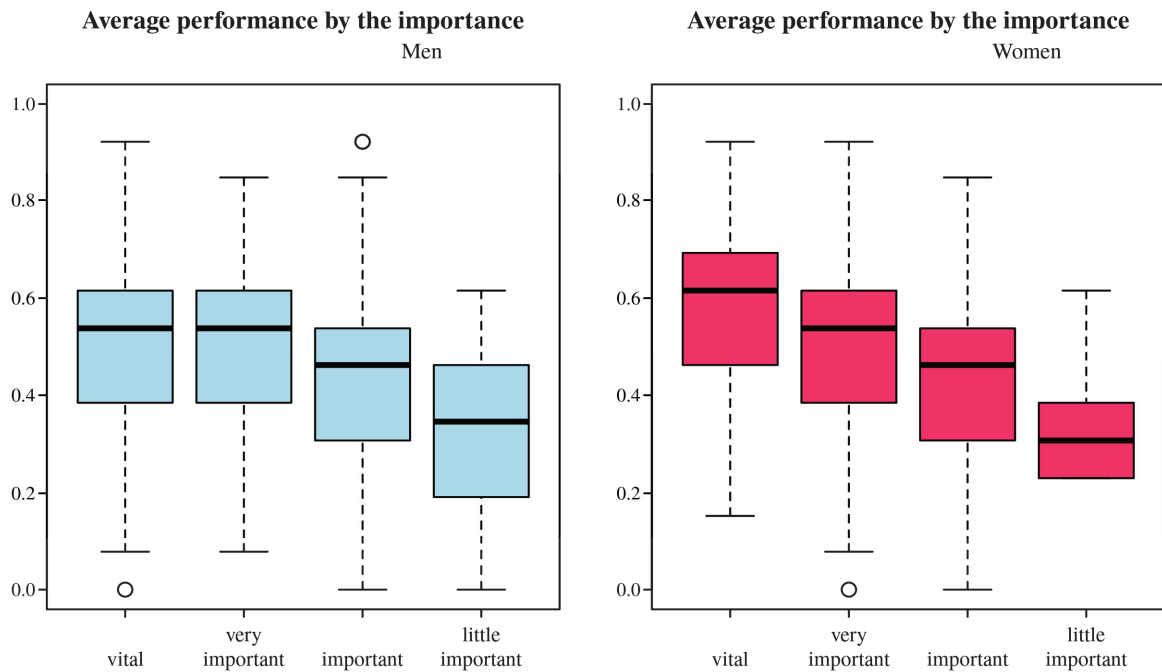
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Figure 7: Average percentages according to the importance attached to the financial literacy by different age groups of students



(Source: Own elaboration)

Figure 8: Average percentages according to the importance attached to the financial literacy by gender



(Source: Own elaboration)

An important question of our investigation was to detect if the importance that students attach to financial literacy has significant impact on their ratings. The results are visible on the box plots illustrated on Figures 5 — 8. It is clear that the median of the knowledge score increases depending on the rising level of the importance attributed to financial literacy. This is evident in all cases that arose according to the single criteria.

Table 10: Results of the hypotheses testing

<i>Category</i>	<i>Criteria</i>	<i>Mean percentage</i>	<i>t-statistics</i>	<i>p-value</i>
Simple and compound interest	Full-time managers	29.2%	-2.823	0.0026
	Part-time managers	35.1%		
	Full-time technical	23.7%	-3.291	0.0008
	Part-time technical	33.6%		
	Under 25	26.9%	-3.432	0.0007
	25 and older	33.2%		
	Women	28.9%	0.981	0.1635
	Men	27.5%		
Annuities and debt amortization	Full-time managers	64,7%	-5.573	2·10 ⁻⁸
	Part-time managers	78.5%	-2.4295	0.008
	Full-time technical	61.2%		
	Part-time technical	69.4%		

	Under 25	63.4%		
	25 and older	77.2%	-6.569	$1 \cdot 10^{-15}$
	Women	66.2%		
	Men	65.6%	0.312	0.378
Basics of investing	Full-time managers	46.2%		
	Part-time managers	43.1%	1.1629	0.8771
	Full-time technical	39.2%		
	Part-time technical	38.3%	0.265	0.604
	Under 25	43.2%		
	25 and older	42.2%	0.471	0.681
	Women	45.2%		
	Men	41.7%	1.829	0.034
Financial decision making	Full-time managers	65.6%		
	Part-time managers	71.5%	-1.965	0.026
	Full-time technical	56.0%		
	Part-time technical	59.6%	-0.847	0.20
	Under 25	60.8%		
	25 and older	68.5%	-2.998	0.0015
	Women	66.6%		
	Men	59.2%	3.868	$5 \cdot 10^{-5}$

(Source: Own elaboration)

We can proceed with the more detailed analyze by comparing the percent level achieved in each of the four categories. For these purposes, we tested for each category the hypotheses where the difference between the mean performances equals zero. The results of these one side alternative tests are summarized in Table 10. It is easily visible that we can reject these hypotheses about equal mean percentages, all on the confidence level exceeding 99%:

- In the category “Simple and compound interest” for full-time and part-time student in both field and also for younger and older participants,
- In the category “Annuities and debt amortization” as well for full-time and part-time student in both field and also for younger and older participants,
- In the category “Basics of investing” only for women and men,
- In the category “Financial decision making” for the groups of younger and older students and for women and men. For the full-time and part-time students of management we can reject the hypothesis on the confidence level about 98% (which is still very high confidence level).

From Table 10 we also see that all groups attained surprisingly low level of the knowledge rate in the category of the simple and compound interest that seems to be the easiest category of all. The tests have also shown unjustifiable self-confidence of the men in the self-assessment. Women has achieved in all four categories higher knowledge score and moreover, in two cases

we can reject the zero hypothesis on the confidence level exceeding 95% in the case of investing and exceeding 99% in the category of financial decision making.

4. CONCLUSIONS

Our research has shown that attaching higher importance to the financial literacy plays crucial role in the increase of the knowledge rate. We have also seen that practical experience of the part-time students and older participants have positive influence on their knowledge rate. These findings are consistent with the results of the oversea study [6]. Full-timers major problem is the reliance they place on short-term memory, focusing on individual exams, unable to see the studied issues proportionally from a long-term perspective as functionally related phenomena. This corresponds to the results presented in two consequential studies [4] and [5] and consists also with findings of [9].

We have also seen that in all groups of students, regardless to the criteria for creating them, the greatest weaknesses are reflected in the very foundations of financial literacy, that is to say, the perception of time as a factor generating value. This message is addressed mainly to pre-university grades of education, since students do not arrive at university as a blank slate, but are expected to have a basic working toolkit of knowledge. The elementary training must cover not just theoretical interpretations and definitions of financial concepts of the type "What is it" but also an understanding of "How does it work".

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