

Teachers' Financial Literacy

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SUMMARY

The aim of the research is to explore the financial knowledge, attitudes, confidence, behaviour and motivations of teachers (N=752) teaching different subjects. The survey is particularly important because their knowledge, attitudes, and behaviours affect the financial awareness of the students they teach. The results indicate a higher level of financial literacy than assumed, revealing that teachers have a higher level of financial literacy than students in higher education. 86% of those surveyed have savings in addition to bank deposits, such as government bonds and other, more complex forms of savings, indicating a high level of financial awareness and inclusion. Teachers highly value their own financial literacy, and similar to those studying in higher education, are risk averse. Their vast majority consider the development of financial literacy in schools important. Financial literacy trainings have a measurably positive effect on the level of knowledge of the participants. Based on the results of the research, it is worthwhile to shape the curricula and the requirements based on the financial awareness and motivation of the teachers.

KEYWORDS: Financial Literacy, Research, Teacher, Comparative Analysis

JEL CODES: A13, D12, G53, I22

DOI: https://doi.org/10.35551/PFQ_2022_1_1

In recent years, financial awareness has become increasingly important in Hungary. Kovács and Terták (2016) drew attention to the fact that the global interconnection of financial markets, the emergence of increasingly complex new and innovative financial products, and associated risks represent new challenges for all participants, on individual, institutional, social, and global levels. Realising this fact, the Government of Hungary adopted a strategy called 'Development of Financial Awareness' in 2017. According to the mission of the strategy, financial proficiency and financial knowledge must be properly acquired as essential skills for making informed, conscious and reasonable decisions about finances. Making optimal or near-optimal financial decisions for a family will provide a stable and predictable vision. To achieve this, general financial literacy needs to be established and then continuously developed and nurtured. Financial education needs to be strengthened in formal education and beyond for a financially conscious generation to grow up.

Financial literacy is a combination of awareness, knowledge, skills, attitudes, and behaviours that are needed in order to make sound financial decisions and ultimately to achieve individual financial well-being (Atkinson, Messy, 2012). Numerous market and scientific researches and practical initiatives along the lines of financial literacy capture the measuring and development of financial literacy, an endeavour that cannot achieve its desired effect without examining – and, if necessary, developing – other factors (Hilgert et al., 2003; Xiao et al., 2004). Financial attitudes, as elements of financial literacy, are factors that may influence consumer behaviour and preferences and, through this, their choice of products and services (Li et al., 2009; Dowling et al., 2009; Zsótér, Nagy, 2012).

Almost all financial literacy surveys measure the financial literacy, behaviour, or attitudes of

a specific group in society (adults, children, students in higher education, entrepreneurs, etc.). However, it is difficult to explain why no comprehensive research can be found in either domestic or international literature on the financial knowledge, attitudes and motivation of teachers, despite the fact that many studies have drawn attention to the inadequacy of relevant training.

The Econventio Roundtable Public Benefit Association, in cooperation with the State Audit Office and the University of Szeged, has been regularly examining the financial literacy of secondary school students since 2011. Kovács et al. (2013) drew attention to the importance of development at schools: more than half (54.6 percent) of the students who rated their own knowledge as average in the research thought that their knowledge should be acquired mainly at school, and only one-sixth of them (16.6 percent) thought that it should rather be acquired from home. Researchers pointed out that those who have learned some financial or economic skills cannot apply them properly in practice (Kovács, Révész, Ország, 2013; Kovács 2016). As the research highlights, at the age of 14, the proportion of students relying on what they have heard at school is 30 percent for students attending some economic training programmes and 9 percent for those attending some non-economic training programmes, and these proportions increase for students approaching graduation and tertiary education: at the age of 18, 48 percent of those attending economic training and 10 percent of those attending non-economic training try to take into account what they have heard at school.

Among the studies of financial literacy, the scientific research titled *Survey on the Financial Literacy of Young People in Higher Education* implemented in wide professional and scientific collaboration in 2013 (Béres

et al., 2013) and in 2020 is of outstanding importance. The research revealed that the level of financial literacy for a studied age group is determined by a number of influencing factors: gender, age, marital status, origin, housing conditions, childbearing, nature and level of education, time spent in education, number of degrees, residence abroad. The fact that no measurable difference was found between the level of knowledge of those who received and those who did not receive training in finance/financial management at secondary school drew attention to the need to strengthen financial literacy training at secondary schools (Béres et al., 2021).

Willis (2008) points out that the ever-changing and increasingly complex financial products require increasingly conscious and educated consumers, whose training is indispensable, but there is little empirical evidence concerning the effectiveness of existing training programmes. For the purpose of our topic, the studies examining the quality and effectiveness of financial training programmes are also important. In addition to formal financial and economic education, many non-public educational organizations have also undertaken to develop financial literacy in Hungary. In 2016 and in 2020, the State Audit Office assessed and evaluated the quality and effectiveness of programmes aimed at developing financial literacy in Hungary (Németh et al., 2020). Results show that significant progress was made between 2016 and 2020: several government and other initiatives were launched; also, the number and volume of training programmes as well as the number of participants increased significantly. However, no significant change took place in the quality assurance of training programmes. In 2020, several longer training programmes were available for adults, but education for school-age individuals remained 1-4 hours long. Four-fifths of the courses had

some defined curriculum and topics, but most of them were non-accredited or not publicly available. About 40 percent of the training programmes measured effectiveness. The trainers had a degree in finance or economics in most of the training programmes. A higher proportion of students in public education were taught by qualified teachers. The results of the research indicate yet again the need to further strengthen professional guarantees for the quality of training programmes.

However, the results of international research show an extremely diverse picture. Several studies established a strong relationship between the level of financial literacy, participation in prior financial education, and financial behaviour. Those who received financial education during their studies were more likely to save and make plans for their years in retirement, and were less likely to borrow money (Bernheim, Garrett, Maki, 2001; Bernheim, Garrett, 2003; Lusardi, Mitchell, 2006, 2007; Hilgert, Hogarth, Beverly, 2003; Stango, Zinman, 2007; Van Rooij, Lusardi, Alessie, 2011). In their study, *Mandell and Klein* (2009) examined grammar school students who had previously participated in financial literacy training. Like the research of *Béres et al.*, *Mandell and Klein* did not find any correlation between the level of financial literacy and financial behaviour, and participation in previous special training programmes. This highlights the low effectiveness of secondary school education. This is in line with the experience gathered in America (*Willis*, 2009).

While research papers on teachers' financial knowledge and attitudes are scarce in literature, research on teachers' attitudes towards new teaching methods is available. Studies examining teaching methods and ways of organizing learning in classrooms draw attention to the fact that the use of innovative methods that support independent learning

is rare in classrooms, both in primary and secondary schools, where mostly traditional teaching methods tend to dominate (Czakó et al., 2017). According to a survey conducted by the National Institute for Public Education in 2005, more than 80 percent of the teachers surveyed had already tried one of the non-frontal methods, but decided to stick to the traditional frontal classroom method (Radnóti, 2006).

Results of the TALIS surveys conducted in OECD countries show that the professional development of teachers has an impact on the teaching methods they use: the more they collaborate with colleagues during training, the better the classroom practice; meanwhile, curriculum-based follow-on training tends to reinforce the use of less cooperative methods (Barrera-Pedemonte, 2016; Czakó et al., 2017).

Research among both secondary and higher education students highlights the importance of assessing the level of knowledge and attitudes of teachers who teach them and uncovering the reasons behind the results of such assessments. However, in the absence of survey results for teachers, one can encounter only statements based on assumptions and common stereotypes. These assumptions often include an underestimation of the financial competencies of teachers, especially for the older generations.

Thus, it is an increasingly important question how to make financial and economic education for younger people more effective and efficient (Hergár, Benáth, 2020). To do this, however, we need to form an understanding of the existing competencies, financial knowledge and motivations of teachers in order for the growing generation to gain useful knowledge of the economic and financial institutions and processes that determine the world economy, the national economy, as well as the businesses and

households [Government Decree 110/2012. (VI. 4.) on the issuance, introduction and implementation of the National Curriculum].

The present research focuses on teachers' financial literacy, behaviour, real and perceived financial knowledge, attitudes and motivation, and on uncovering their relationship to risks. Our aim is to make comparisons between the financial literacy of teachers teaching different subjects and the students in higher education, in particular to explore differences in the level of financial literacy of teachers having attended economic or financial follow-on training and that of teachers without such qualification. This survey is especially important because teachers and trainers have a multiplier effect on the development of financial literacy, and their skills, attitudes and behaviour will significantly influence the financial awareness of the students they teach.

HYPOTHESES

Taking into account results from our previous surveys and review of literature, we can set up the following hypotheses:

H1a: Teachers' financial literacy [value of the Financial Literacy Index (FLI)] varies significantly among different age groups.

H1b: Teachers' financial literacy (average value of FLI) is no better than that of young adults in higher education.

H2a: The financial literacy of teachers who have completed some type of financial or economic follow-on training is significantly better than that of those who have not participated in such training.

H2b: The financial self-awareness of teachers who have completed some type of financial or economic follow-on training is significantly better than that of those who have not participated in such training.

H3: Teachers' financial literacy determines

how satisfied they are with the effectiveness of financial and economic knowledge transferred.

The questionnaire was accessible through the website www.penzugykultura.hu between 15 March 2021 and 17 May 2021.

METHODOLOGY

Target group of the research

The research group selected some teachers and trainers as the target group of the survey. Completion was voluntary and anonymous in all cases, with no incentive system attached to it, which increases the validity of responses provided to questionnaires.

The research group organized processes to access teachers, with significant contribution received from several organizations engaged in the development of financial literacy (State Audit Office, Money Compass Foundation, Budapest Metropolitan University, Gál Ferenc University, Eötvös Loránd University, OTP Fáy András Foundation, Econventio Roundtable Public Benefit Association, Corvinus University of Budapest, University of Szeged).

Questionnaire

To assess teachers' financial literacy, the researchers planning the survey used the methodology developed in 2013 for students in tertiary education and adapted it according to the specifics of the teacher survey. They did not change any indicators characterizing the level of financial literacy in order to make research results comparable, so the main indicators of the financial literacy survey conducted in 2013 and then repeated in 2020 were used in this research, as follows:

- Financial Literacy Index,
- Self-Image Index,
- Risk-Taking Index.

Financial Literacy Index

The FLI¹ measures the level of financial knowledge of respondents. The index contains theoretical and practical questions in equal proportions. Although practical questions also tested the teachers' calculation skills, the questions were designed in such a way that participants with an appropriate sense of reality (financial experience) could give correct answers without making any calculations.

The value of the FLI was calculated by the system based on answers given to 21 questions, in proportion to correct answers. The FLI values range between 0 and 1 (the higher its value, the greater the student's awareness).

Self-Image Index

The Self-Image Index measures how well teachers are aware of their own level of financial knowledge. The index is based on the difference between respondents' self-declarations and their measured level of knowledge.

Teachers with a Self-Image Index value equal to or close to zero can realistically judge their financial knowledge; otherwise, they either underestimate or overestimate it.

Risk-Taking Index

The Risk-Taking Index for teachers can be determined in two ways. On the one hand, risk-taking was assessed on the basis of self-declarations, obtained as the result of their declared knowledge level and declared risk-

taking level; and, on the other hand, their real knowledge level was assessed along their declared willingness to take risk.

Calculation of the Risk-Taking Index:

$$RTI_{self-decl} = \frac{\text{Level of risk-taking based on self-declaration}}{\text{Financial and economic knowledge based on self-declaration}}$$

$$RTI_{real} = \frac{\text{Level of risk-taking based on self-declaration}}{\text{Real financial and economic knowledge}}$$

The index may take values between zero and infinity. Respondents with a value of less than one are risk-averse and those with above one are risk takers. Respondents with an index value of one take a proper degree of risk, so they can be called risk managers. Of course, teachers with values around one also fall into the category of risk managers.

Statistical methods used to evaluate questionnaires

For processing the questionnaires, we used cross-tabulation analysis and variance analysis, in addition to methods of descriptive statistics. Calculations and charts were made using Microsoft Excel and SPSS software applications.

Data cleansing

A total of 752 people started filling in the questionnaire compiled for teachers; however, 705 questionnaires remained in the database to evaluate after we had applied a filtering system to improve data quality and to create validity for results.

We took several factors into consideration collectively for data cleansing. The main filtering factors included:

- time required to complete questionnaire,
- search for key phrases in answers to open-ended questions,
- repeated patterns,
- inconsistent answers to questions.

In addition to carrying out the above filtering, we handled outliers as part of preparing each analysis. In addition, we did not consider it an error when someone provided a seemingly invalid value for sensitive questions (such as monthly income) – they were excluded from the related analyses.

Each variable was reviewed for the purpose of distribution analysis and outlier detection (not for sensitive variables, such as monthly income). For Likert scale responses, we examined patterns suggesting false responses (e.g., a value of 1 everywhere or ascending or descending values one after the other, in a row pattern). For free text variables, we filtered out respondents who did not take the questionnaire seriously as suggested by their responses. Data consistency was examined for related variables.

Transcoding of data

The questionnaire included several open-ended questions. In order to properly include answers to the open-ended questions in our analyses, we had to transcode answers. We used transcoded variables in our analyses; therefore, transcoding categories will appear in our results.

RESULTS

Composition of teachers involved in the survey

The cleansed database of the financial literacy survey conducted among teachers contains 705

records, i.e. this is the number of those having completed the questionnaire in a manner appropriate for assessment. In order to validate results and determine their representativity, we first examined the composition of the sample, using, as reference, data issued by the Central Statistical Office (KSH) for the academic year 2020/2021, and data concerning public education issued by the Hungarian Academy of Sciences (MTA) for 2019.

Two-thirds of the teachers in the research were women (68.4 percent) and one-third (31.6 percent) were men. Among teachers responding to the questionnaires, proportions for men were higher – and for women slightly lower – than the relevant data in the public education database.

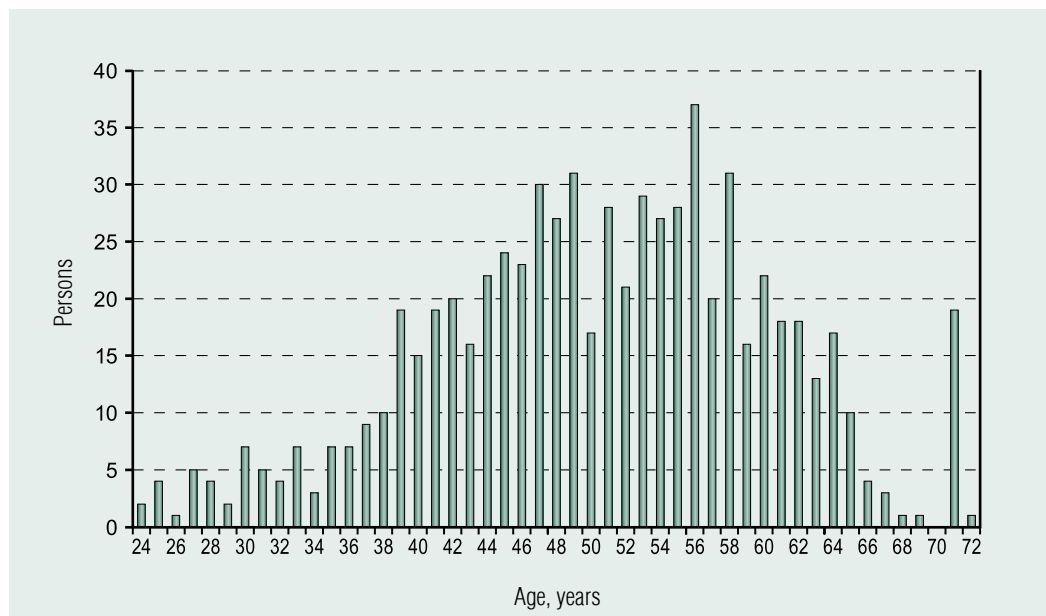
The youngest respondent was 24 years old,

and the oldest was 74 years old (the average age of respondents was 50.5 years). In terms of age distribution, one-third of the respondents (32.2 percent) were 40 to 49 years old, and slightly more than one-third (36 percent) of them were 50 to 59 years old. More than half of the respondents (54.19 percent) were over 50 years old. Those under 30 represented only 2.5 percent of respondents (*Figure 1*).

Compared to the 2019 data of the Hungarian Academy of Sciences, we can see that the sample under-represents the age groups of 20–29 and 30–39 years, while it over-represents the age group over 60 years. In connection with the 40–49-year-old and 50–59-year-old age groups, the teacher questionnaire measured results along data of the Hungarian Academy of Sciences.

Figure 1

AGE DISTRIBUTION OF TEACHERS INVOLVED IN THE FINANCIAL LITERACY RESEARCH



Note: n=705

Source: self-edited

Among responding teachers, those teaching in upper grades and lower grades at primary schools represented 18.16 percent; those teaching in institutions providing general certificates of secondary education represented 60.57 percent; and those teaching in vocational training schools represented 15 percent (*Figure 2*).

There are many options for grouping subjects. In this research, we used 3 + 2 categories as follows: !!Éva!szokásos!!

- ❶ teachers of financial or economic subjects;
- ❷ teachers of natural sciences;
- ❸ teachers of humanities;
- +1) other teachers (for example: special needs teachers, dormitory staff, etc.);
- +2) teachers providing no answer.

The distribution of teachers involved in the survey is shown in *Figure 3*.

Overall, the sample cannot be considered representative, but the large number of respondents (705) provides a sufficient sample size to draw relevant conclusions and to test the hypotheses outlined by the research team.

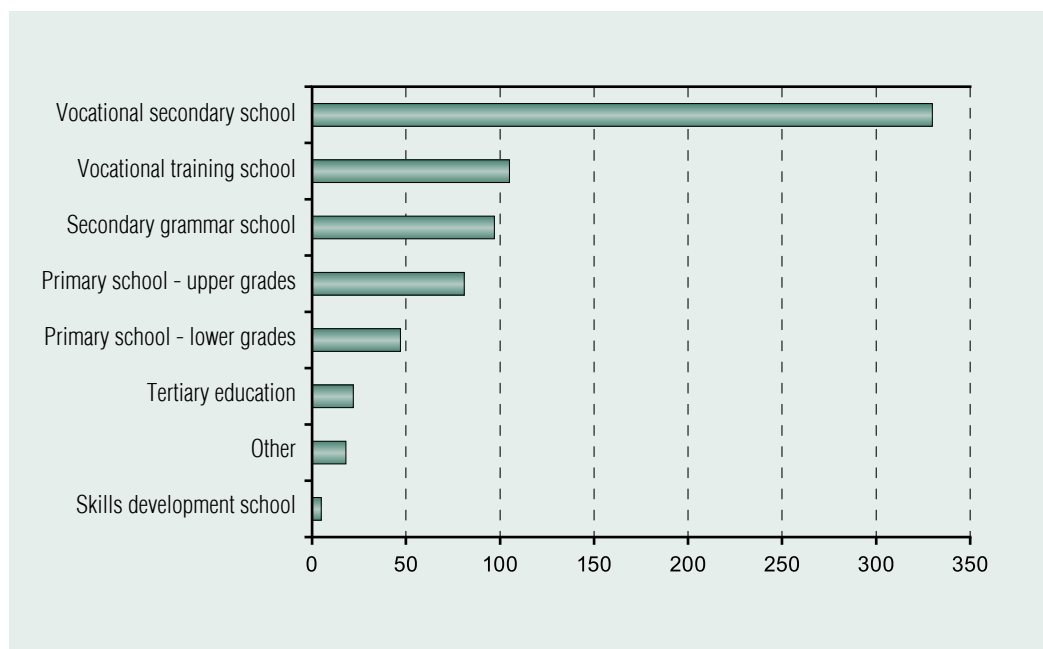
Financial situation and savings of teachers

In order to get a more complex picture of teachers and their financial literacy, it is important to know their financial situation, as this may fundamentally influence their answers to certain questions. In this research, we approached the financial situation of teachers through their possibilities for saving and their saving habits.

Among the teachers surveyed, 86 percent

Figure 2

DISTRIBUTION OF THE SAMPLE BY TYPE OF SCHOOL

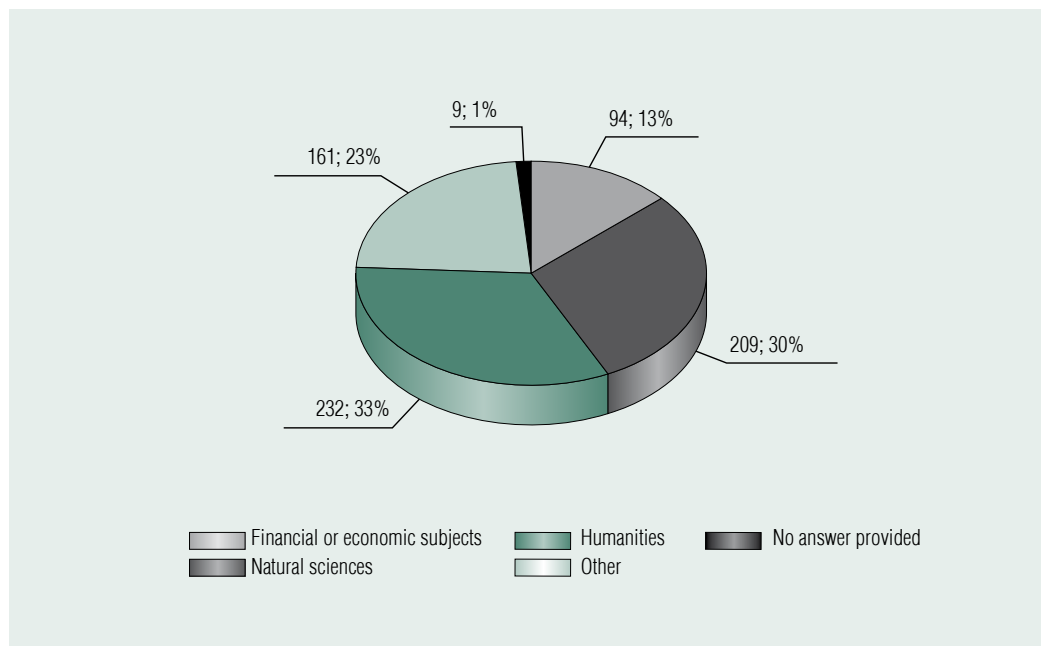


Note: n=705

Source: self-edited

Figure 3

DISTRIBUTION OF SUBJECTS TAUGHT BY TEACHERS INVOLVED IN THE SURVEY



Note: n=705

Source: self-edited

said to have some kind of savings; we consider that proportion to be a good result. Most of the teachers not having any savings cited reasons such as their low income or that, instead of saving, they support their children or even their parents by giving them money.

As for the regularity of savings, three-quarters of the respondents (75.32 percent) can set aside some funds each month. Half of those who can save money on a monthly basis can set aside a different amount each month, while the other half can save nearly the same amount. Among the teachers surveyed, 14 percent can only save on an ad hoc basis (this includes those who do not currently have any savings). The majority of savers (56.6 percent) set aside funds at the beginning of the month, while nearly a third of them at the end of the month, if there are any funds left.

Teachers keep their savings primarily in their current accounts, without making fixed deposits, which is understandable as their salaries are transferred there. However, funds kept in current accounts without fixed deposits will lose value in real terms. The second most popular form of investment is government securities, followed by savings with building societies. Interestingly, some forms of saving that are more complex than banking products (such as investment funds, insurance products) rank higher in popularity than basic banking products (term deposits) – this phenomenon is caused by low rates of return or a lack of available return; but teachers’ awareness is shown by the fact that some of their savings end up directly in the money and capital markets. Last but not least, it is a positive aspect that very few people

keep money at home. Given that teachers are familiar with basic financial products from experience (*financial inclusion*), and also with more complex financial instruments due to a low interest rate environment, they can more efficiently transfer credible information on the matter (*Figure 4*). Additionally, the low interest rate environment has clearly encouraged savers in recent years to get acquainted with more complex forms of financial savings.

The importance of teaching financial and economic skills

Along real processes, money will inevitably appear – as an intermediary instrument – among economic actors, i.e. real processes – apart from barter-type transactions – will always have some financial processes linked

to them. As to the complexity of financial processes, we can state that it will concurrently be adapted to the complexity of real processes, and the knowledge level of users of financial instruments and their confidence in the financial system.

Therefore, in the survey of teachers' financial literacy, we were interested in the teachers' opinion about the importance of teaching financial and economic skills, as they play a significant role in the education and upbringing of our children. Teachers who completed the questionnaire had the opportunity to select the level of importance on a seven-point Likert scale, where a score of 1 meant that they did not consider the teaching of financial or economic skills important, while a score of 7 meant that it was very important.

It is a positive aspect that more than half

Figure 4

SAVINGS PRODUCTS PREFERRED BY RESPONDING TEACHERS



Source: self-edited

of the respondents (56.5 percent) consider financial and economic education to be very important, and 90.9 percent of them consider it rather important (indicating a value of five or higher, see *Figure 5*).

We were also curious to see if there was some pattern or correlation between the perceived importance of financial and economic skills and the respondents' age, the subjects taught by them, and the types of educational institutions employing them.

Results show that the age distribution of respondents is not relevant to their perceived importance of teaching financial and economic skills.

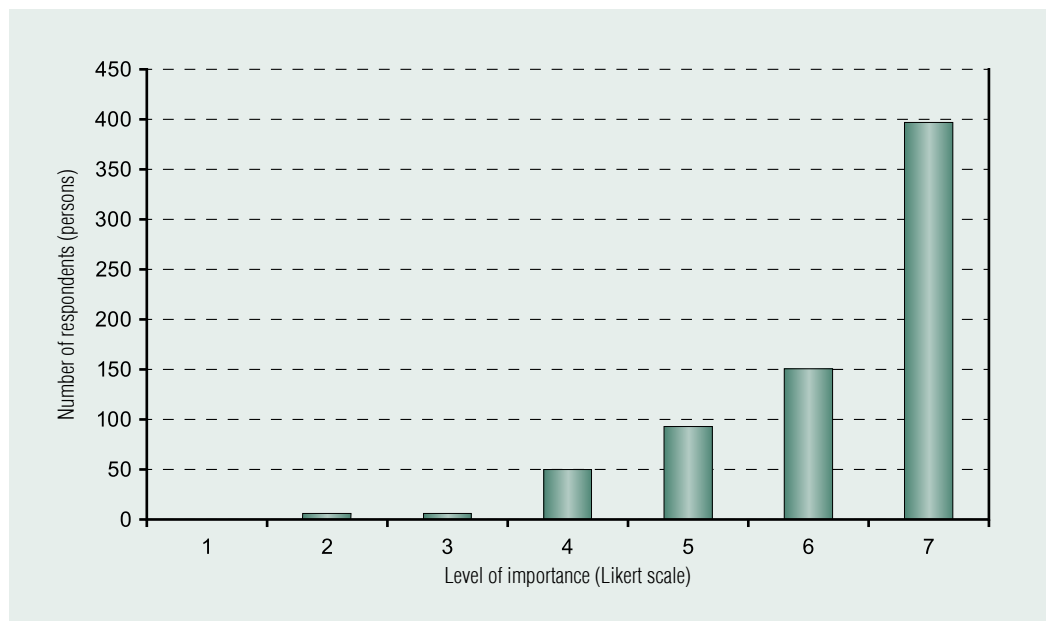
The cross-tabulation analysis showed a very weak relationship relevant to subjects taught and the type of educational institution, i.e. these variables are not influencing factors in

the perceived importance of teaching financial and economic skills either.

Overall, a significant majority of teachers questioned considers the teaching of financial and economic knowledge to be very important. Results of the research suggest that perceived importance depends neither on age, nor subjects taught (natural sciences, humanities, financial-economic, or other), nor the type of institution employing the teachers responding to questionnaires (primary school, secondary grammar school, vocational secondary school, vocational training school, tertiary education, skills development school, other). This good result is nuanced by the fact that, in relation to socially expected responses, more respondents may have indicated a higher value of importance than their real priorities and preferences.

Figure 5

THE IMPORTANCE OF TEACHING FINANCIAL AND ECONOMIC SKILLS ACCORDING TO TEACHERS



Note: n=705

Source: self-edited

Transfer of financial and economic knowledge and development of related skills

Teachers were asked about the types of skills they develop and the attitudes they form when teaching. The majority of respondents who taught financial and economic knowledge opted for entrepreneurship knowledge, and also a high proportion of them selected family/individual and household budgeting. Most of the teachers of natural sciences marked savings as well as family/individual and household budgeting. Teachers of humanities also felt that they were best able to transfer knowledge, and shape students' mindsets, about budgeting (Figure 6).

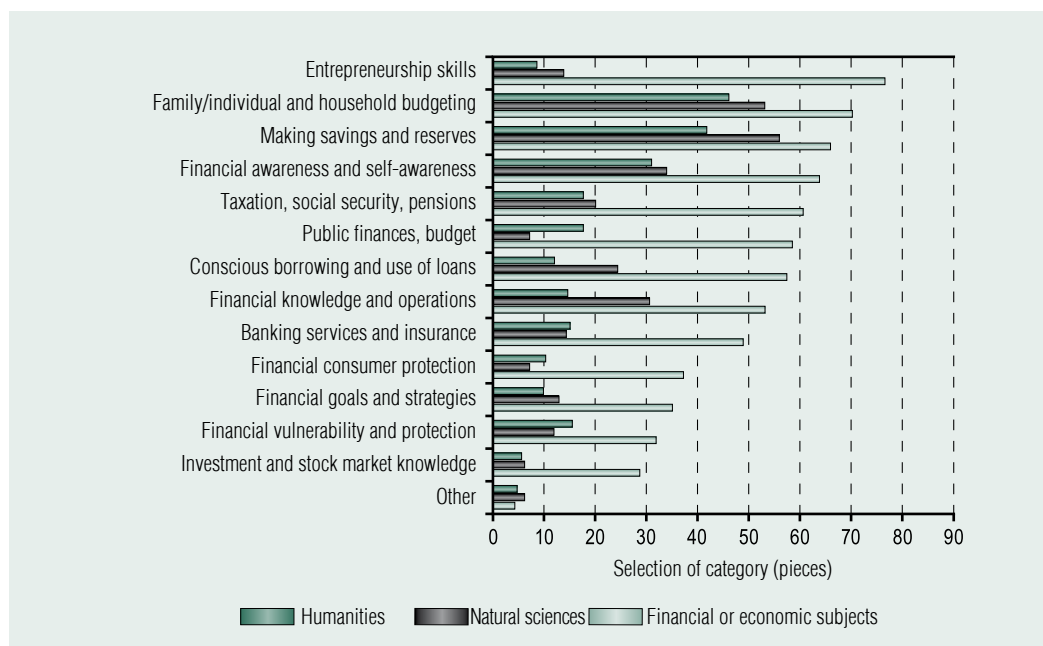
The research also included an examination of teachers' satisfaction with their transferring of financial and economic skills. Items listed

in Table 1 and Figure 7 in the order of their satisfaction show that teachers are most satisfied with the way they raise awareness about borrowing and using credits, as well as about seeking protection against financial vulnerability. Financial consumer protection is also at the top of the list. Interestingly, however, data in the column of proportions, intended to show the proportion of respondents developing a given skill/attitude/knowledge element, are not the highest for these items. Family/individual and household budgeting, as well as making savings and reserves – the areas mentioned in the highest proportion – are generally at the bottom of the list in terms of satisfaction. Therefore, teachers clearly feel less able to transfer the required knowledge in relation to skills that are developed in the highest proportion.

We also asked about two forms of knowledge

Figure 6

SKILLS DEVELOPMENT, KNOWLEDGE TRANSFER AND ATTITUDE SHAPING BY FIELD OF EXPERTISE



Source: self-edited

Table 1

KNOWLEDGE TRANSFER AND SATISFACTION

	Proportion (%)	Satisfaction (marked on a scale of 1–7)
Family/individual and household budgeting	46.1	4.93
Making savings and reserves	41.8	4.81
Financial awareness and self-awareness	31.0	4.73
Taxation, social security, pensions	17.7	5.08
Public finances, budget	17.7	5.15
Financial vulnerability and defence	15.5	5.26
Banking services and insurance	15.1	5.07
Financial knowledge and operations	14.7	4.99
Conscious borrowing and use of loans	12.1	5.33
Financial consumer protection	10.3	5.24
Financial goals and strategies	9.9	5.14
Entrepreneurship skills	8.6	4.96
Investment and stock market knowledge	5.6	4.97
Other	4.7	4.27

Source: self-edited

transfer and their efficiency. We wanted to know the respondents’ opinion on how students were better able to capture financial-economic knowledge. The ratio of answers was about 2/3 to 1/3. Respondents consider it more effective to repeatedly examine financial aspects in connection with each topic (*Figure 7*).

We also looked at what teachers thought about how to improve their effectiveness and efficiency in order to be better able to develop students’ financial awareness. We divided their responses into two groups in terms of satisfaction. The figure also shows the value for the entire sample (*Figure 8*).

Clearly, teachers mostly regard follow-on training and self-development to be the key to success. They selected the involvement of professionals and guest speakers in the

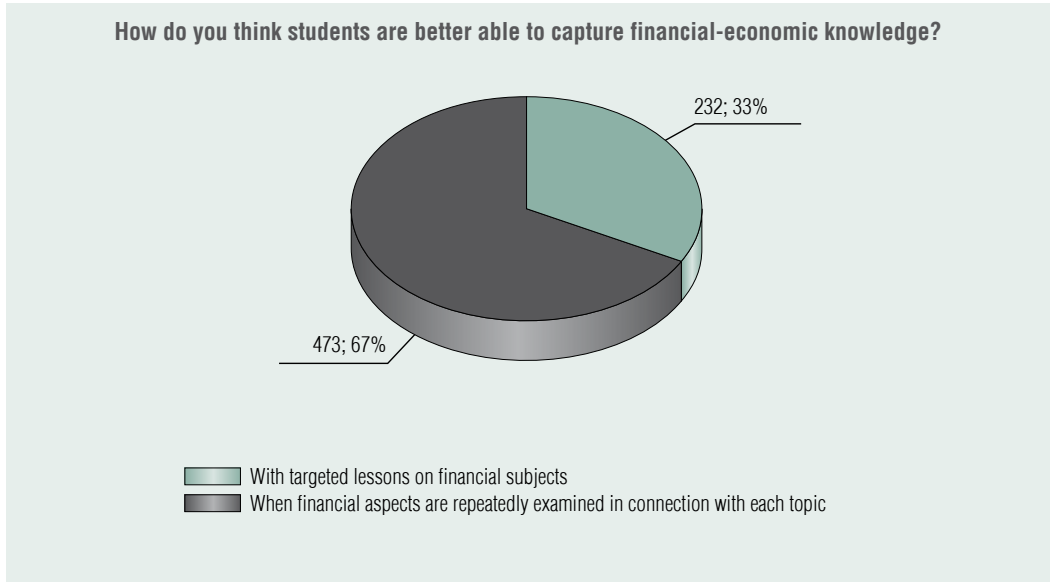
smallest proportion. Higher teacher salaries is selected also in a low proportion, they do not consider it to be the most important factor in the efficiency of knowledge transfer. There is a difference between satisfied and dissatisfied teachers in every aspect. A higher proportion of those who were satisfied chose follow-on training, self-development and the development of teaching materials. Among those dissatisfied, several people chose lifelike examples and the involvement of professionals.

Students’ openness to financial literacy

How successful or satisfied the teachers feel depends, among others, on the motivation

Figure 7

METHOD OF FINANCIAL AND ECONOMIC KNOWLEDGE TRANSFER – EFFICIENCY

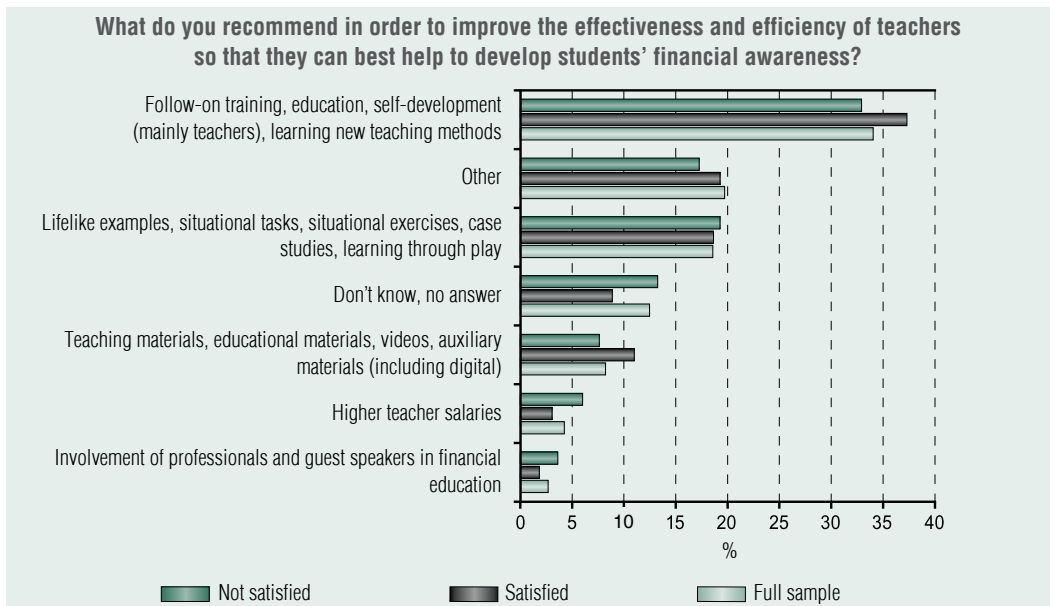


Note: n=705

Source: self-edited

Figure 8

IMPROVING THE EFFICIENCY OF FINANCIAL AND ECONOMIC KNOWLEDGE TRANSFER



Source: self-edited

and reaction of students. It is a back-and-forth process. We asked teachers about what they thought of students' openness to acquiring financial and economic knowledge. As a result, more than half of the teachers (56 percent) said that students were interested and motivated, but a significant proportion (42 percent) of them responded that students were apparently not interested in the topic. There was a negligible proportion (2 percent) who said that students were specifically bored with the topic (*Figure 9*).

We also examined students' openness and motivation according to type of school employing the teachers, and the fields in which teachers are active (*Figure 10*).

The figure clearly shows that the most open and motivated students go to upper primary and secondary grammar schools. The students

who are least open to financial and economic knowledge are students of vocational training schools.

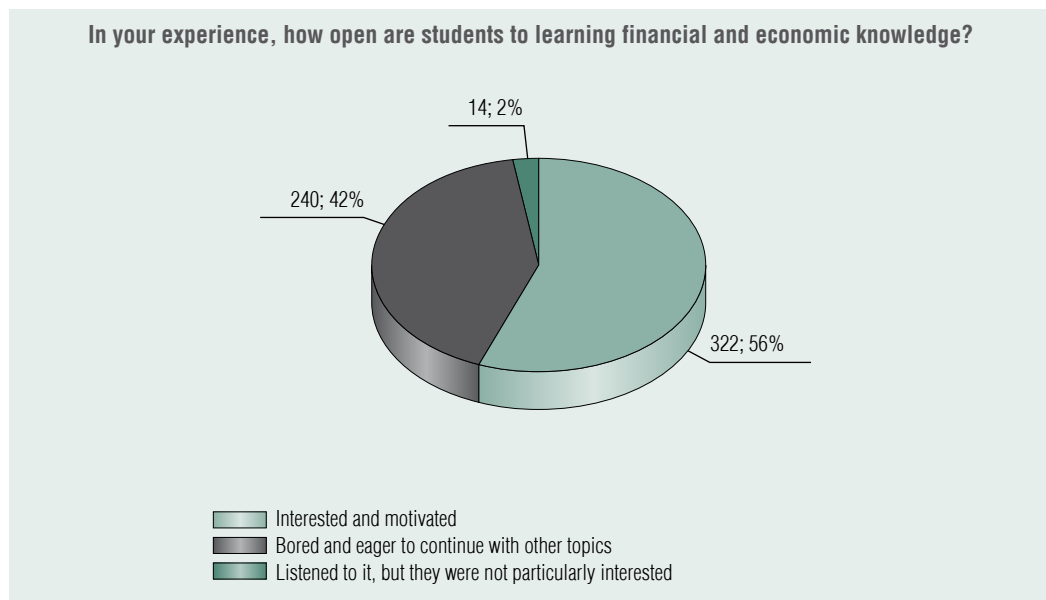
Examining the fields of education, we found that motivated students who were the most interested in the topic attended some financial-economic field, which is not a surprising result. There is no significant difference between the fields of natural sciences and humanities in this respect, with teachers perceiving students to be interested and motivated in nearly similar proportions (*Figure 11*).

Measuring teachers' financial literacy

To measure teachers' financial literacy, we used the FLI described above in the context of methodology (*Figure 12*).

Figure 9

STUDENTS' RESPONSIVENESS TO FINANCIAL AND ECONOMIC KNOWLEDGE

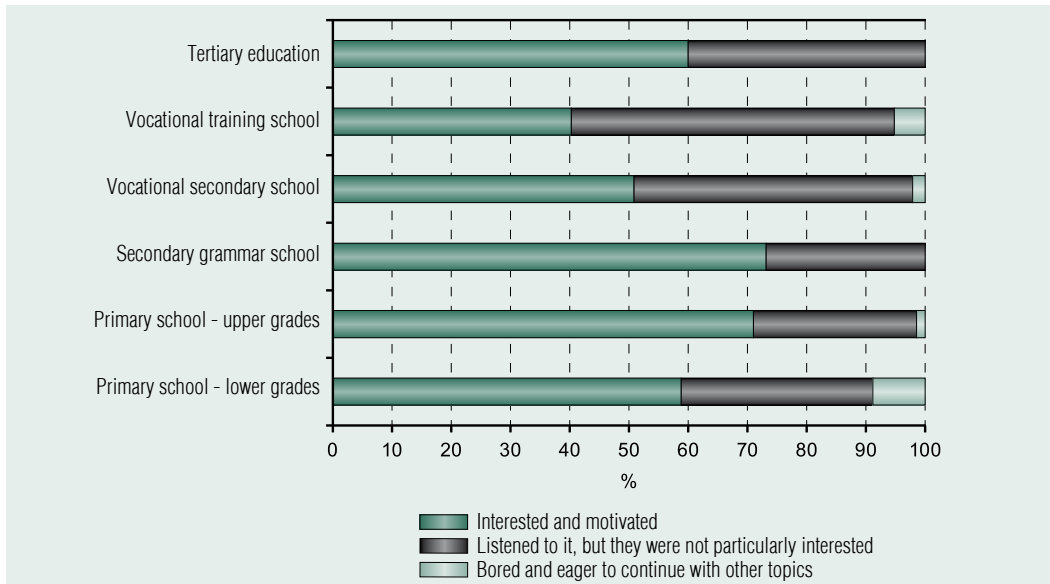


Note: n=576 (there were 576 'yes' answers, negative answers are not shown)

Source: self-edited

Figure 10

OPENNESS OF STUDENTS BY TYPE OF SCHOOL

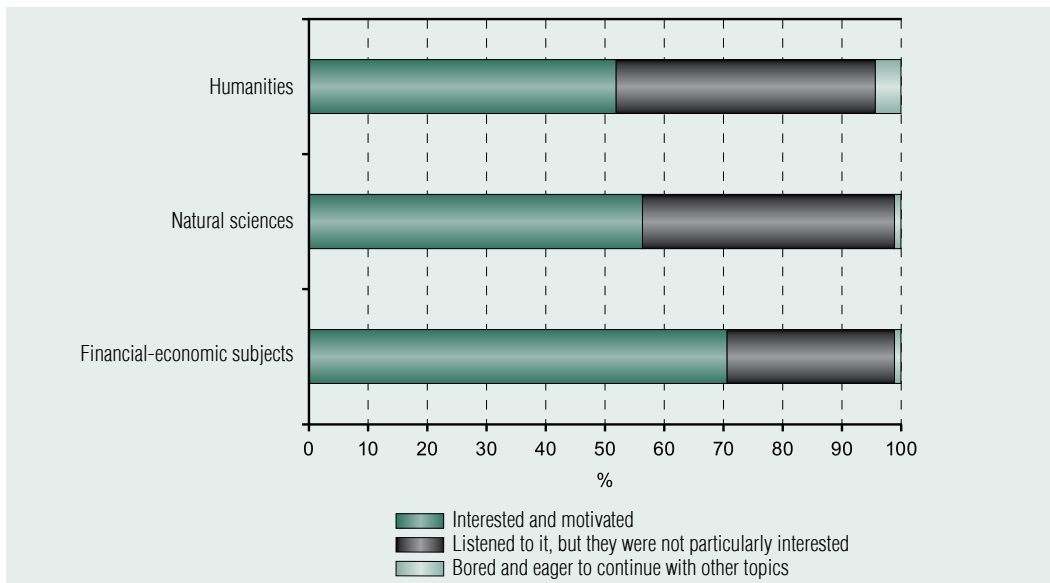


Note: n=705

Source: self-edited

Figure 11

STUDENTS' OPENNESS TO FINANCIAL AND ECONOMIC KNOWLEDGE BY FIELD OF EDUCATION

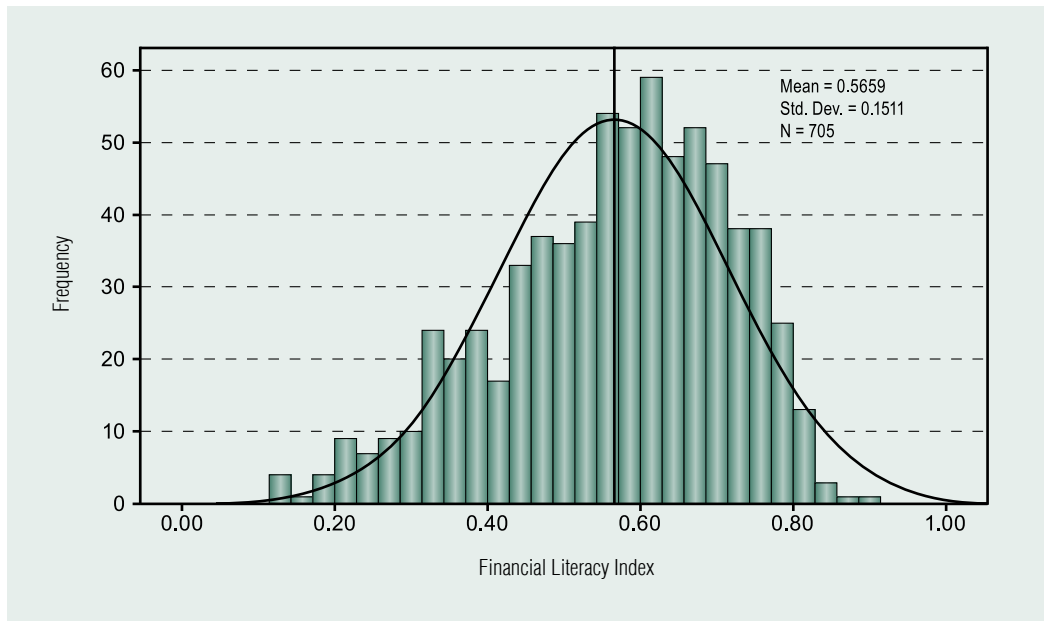


Note: n=705

Source: self-edited

Figure 12

DISTRIBUTION OF TEACHERS ACCORDING TO ACHIEVED FLI VALUES



Source: self-edited

The FLI may take values ranging between 0 and 1; the closer its value is to 1, the better the financial literacy of the given teacher. The average performance of respondents is 0.5659. In comparison, young adults studying in tertiary education (mainly economic study programmes) achieved a lower value according to the research (0.5465 in 2013,² and 0.5191 in 2020). From this we can conclude that the application of financial instruments and solutions in practice significantly contributes to financial literacy; and, on the other hand, we can reject hypothesis *H1b* that teachers' financial literacy is lower than that of young people in tertiary education.

We examined the extent to which the value of the financial literacy indicator varies with age groups and genders. The results show that no clear pattern has emerged, i.e. age and gender are not determining factors

in relation to the level of financial literacy achieved by teachers, thus we can also reject hypothesis *H1a*. However, the subjects taught by teachers is a criterion along which financial literacy provides significantly different values (Figure 13).

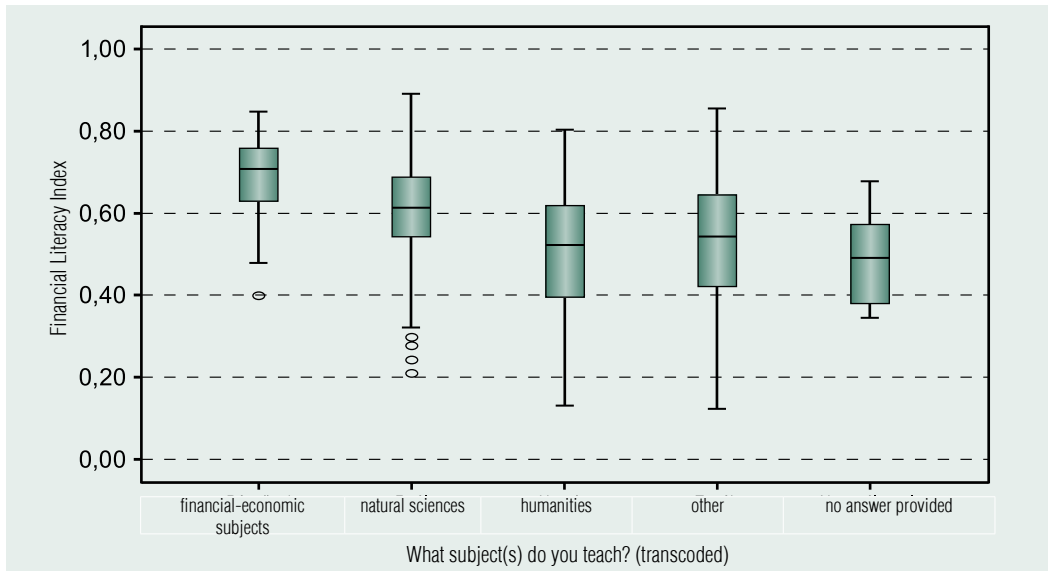
As we expected, the teachers of financial-economic subjects have the best FLI values. They are followed by teachers of natural sciences and teachers of humanities.

As teachers' satisfaction with the knowledge transferred by them may also be affected by their financial literacy, we also examined this issue (Figure 14).

Figure 14 shows that there is some level of correlation between financial literacy and satisfaction with the knowledge transferred, so we performed a cross-tabulation analysis.³ Hypothesis *H3* was neither confirmed nor rejected during the research.

Figure 13

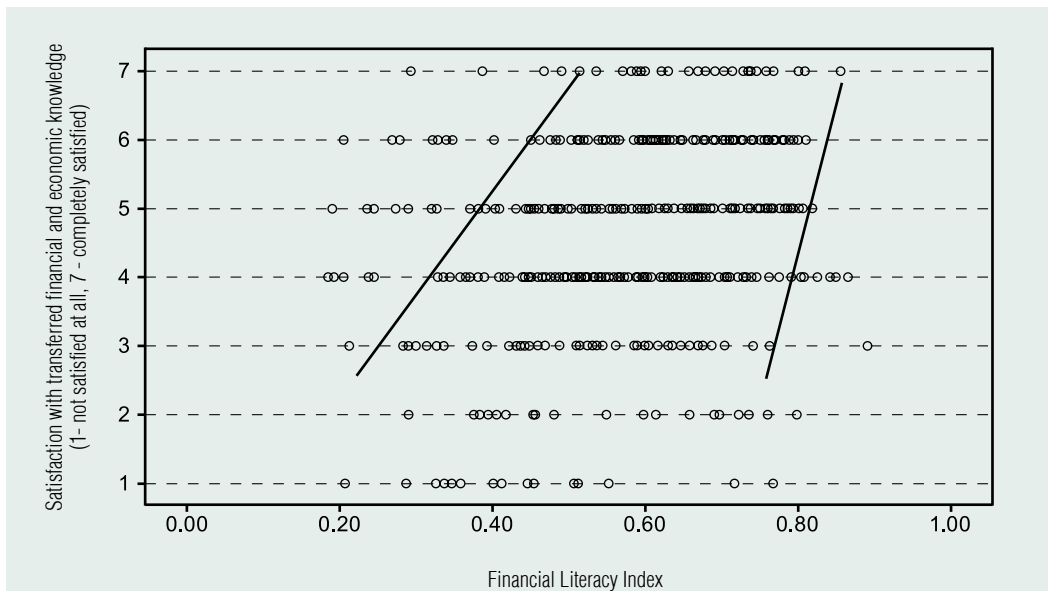
TEACHERS' FINANCIAL AND ECONOMIC AWARENESS BY SUBJECT GROUPS TAUGHT



Note: n=705
Source: self-edited

Figure 14

FINANCIAL LITERACY AND SATISFACTION WITH THE TRAINING MATERIAL TRANSFERRED



Note: n=705
Source: self-edited

Self-Image Index

The Self-Image Index shows how well persons completing the questionnaire are aware of their own financial and economic knowledge, i.e. how self-reported knowledge relates to the actual level of knowledge. The distribution of Self-Image Index values is shown in *Figure 15*.

The figure shows that the values of the index mostly fall into the positive range, which means that the level of subjective knowledge is higher than the measured level. The average value of financial literacy measured on the basis of self-declarations (7-point Likert scale) is 4.91, while the average value of FLI on a 7-point scale⁴ is 3.96.

To be able to identify teachers who can realistically assess their knowledge and teachers who underestimate or overestimate it,

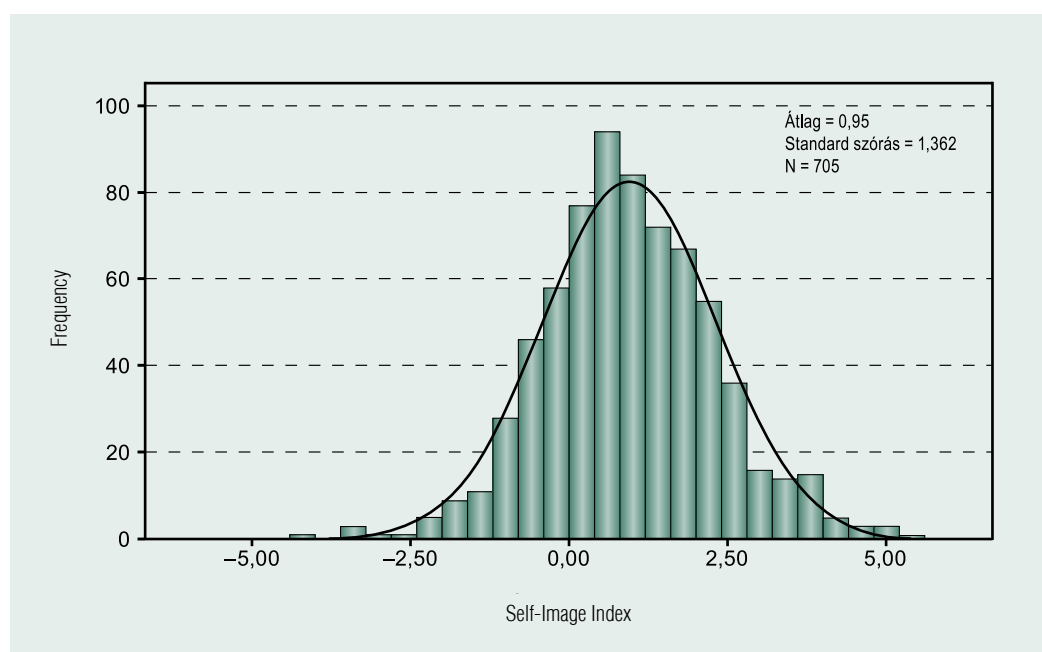
we need to define a band around the value of zero. *Table 2* shows how the number of those who value their knowledge under, over or realistically would evolve for those measured within different intervals.

Teachers typically overestimate their own financial and economic knowledge. In a study of students in tertiary education, we found that they also tend to slightly overestimate their knowledge, but this is less common for them compared to teachers. We also examined the difference between men and women and found that there is no difference between the two sexes in terms of the Self-Image Index.

The Self-Image Index of those who received financial and economic training does not differ significantly from those who did not participate in such training, i.e. we did not identify a direct causal relationship between

Figure 15

DISTRIBUTION OF SELF-IMAGE INDEX VALUES



Source: self-edited

Table 2

CLASSIFICATION OF TEACHERS ACCORDING TO SELF-IMAGE INDEX

%	Interval	Underestimate (persons)	Realistic judgment (persons)	Overestimate (persons)
5	0 ± 0,35	108	118	479
10	0 ± 0,70	61	247	397
15	0 ± 1,05	38	358	309
20	0 ± 1,40	16	436	253
25	0 ± 1,75	14	504	187
30	0 ± 2,10	10	563	132

Note: n=705

Source: self-edited

the two variables. Consequently, we can reject hypothesis *H2b*.

Teachers’ willingness to take risks

The teachers’ knowledge of financial and economic fields as well as their self-image and awareness can together determine how willing they are to take risk. However, as we could see for students in tertiary education in 2013 and 2020, the majority of respondents were rated to be risk averse, regardless of how well they felt informed about financial and economic topics. This is no different for teachers.

The level of actual risk-taking measured on the basis of real knowledge is higher, on average, than the level based on self-declaration (risk-taking is 0.42 based on self-declarations, and it is 0.52 when measured based on actual level of knowledge), because most teachers assess their financial and economic knowledge higher than it is in reality, so their real risk-taking is actually higher than what respondents declare. However, we can conclude that teachers of financial and economic fields are characterized by risk-averse behaviour. If we also take into account that teachers generally incur a high

marginal cost for each financial decision and that their opportunity costs are also high, then their risk-averse behaviour is understandable.

The teachers’ risk-averse behaviour is in line with the way they successfully draw students’ attention to the dangers of borrowing, and also with the fact that most of them teach children the importance of budgeting and saving (budgeting as an analogy to predictability). This is both positive and negative. It is positive because it allows students to become cautious of loans. On the other hand, as the old saying goes, without risk there is no profit, so entrepreneurial young people in particular are less likely to see risk-taking patterns.

Teachers’ follow-on training

We asked teachers if they had participated in some financial or economic follow-on training, and if so, which one of them. The majority (71.9 percent) of teachers involved in the research did not receive any follow-on training in this topic. Most of those who participated in some training marked the follow-on training offered by the Money Compass Foundation (19.7 percent, see Table 3).

Table 3

PARTICIPATION OF TEACHERS IN FINANCIAL-ECONOMIC FOLLOW-ON TRAINING WITHIN THE SAMPLE, %

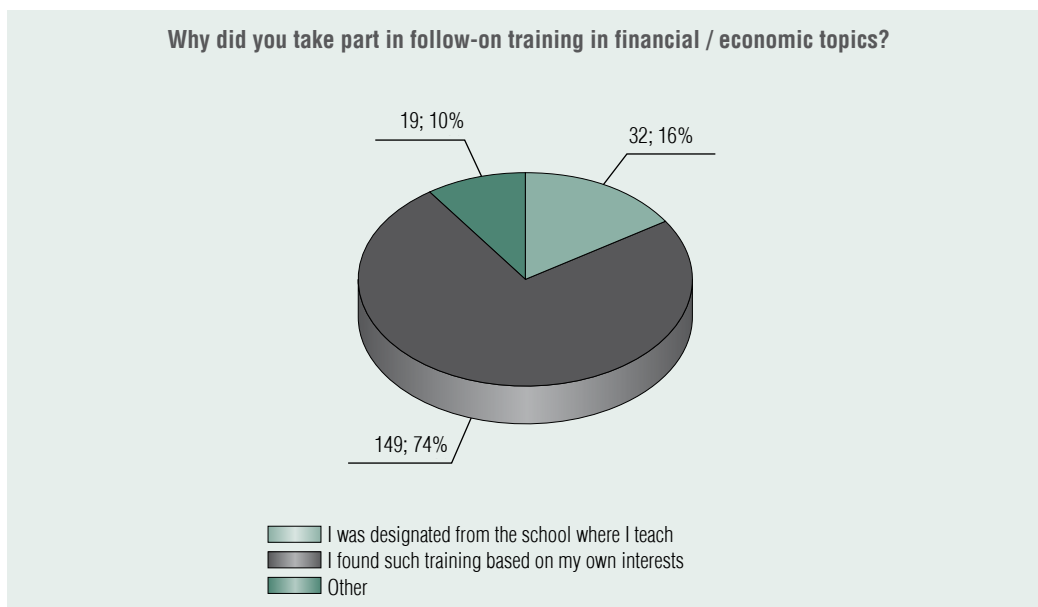
Eötvös Loránd University financial, economic and financial management skills teacher training	2.8
Money Compass Foundation financial-economic follow-on training programme	19.7
ECONVENTIO Foundation follow-on training for teachers	2.4
Other	6.7
No	71.9

Note: n=705705 (teachers could mark their participation more than one follow-on training)

Source: self-edited

Figure 16

UNDERLYING MOTIVATION TO PARTICIPATE IN FINANCIAL OR ECONOMIC TRAINING



Note: n=200

Source: self-edited

We were also interested in the motivation behind participating in financial or economic follow-on training, so we also asked about their reasons for it. Most of the teachers (74 percent) participated in financial or economic follow-on training because they found such training based on their own interests. Of

course, some of them (16 percent) were sent for such training by the head of the specific institution (Figure 16).

It is also an important question how teachers perceive whether they have any opportunity to expand their financial and economic knowledge and, if so, how. The

most characteristic attitude in this regard is self-development. 73 percent of respondents expand their knowledge on their own, using textbooks and websites. 14 percent responded to have no opportunity for expanding their knowledge of this type (Figure 17).

With regard to follow-on training, it is interesting to find out whether participation has any impact on financial literacy. What FLI values do those who have attended follow-on training have? Does participation in follow-on training improve the value of this indicator?

The mean value of FLI was 0.63 for respondents who participated in follow-on training and 0.53 for respondents who did not. This means that there is a difference between the two groups. Examining the difference by using variance analysis, we can state that the difference is statistically significant ($F = 66.07$; $p < 0.001$).

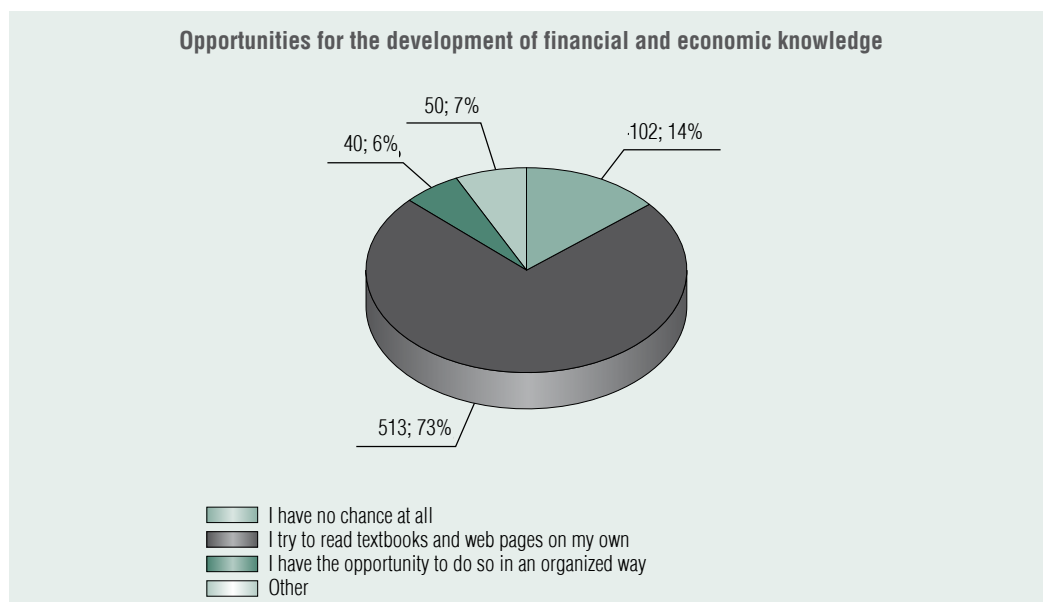
We also examined the FLI value of respondents as a function of the number of follow-on training programmes completed. Figure 18 clearly shows that those who participated in more than one training course had a higher average FLI score.

CONCLUSIONS

Regarding teachers' financial literacy, taking into account the relevant literature, the research team assumed that teachers' financial literacy is not better than that of young people studying in tertiary education, and that the level of financial literacy varies with age group (hypotheses *H1a* and *H1b*). Neither of the hypotheses could be confirmed. On the one hand, teachers have a higher average FLI value than students (*H1b*). This is an important result, especially if we

Figure 17

OPPORTUNITIES FOR THE DEVELOPMENT OF FINANCIAL AND ECONOMIC KNOWLEDGE

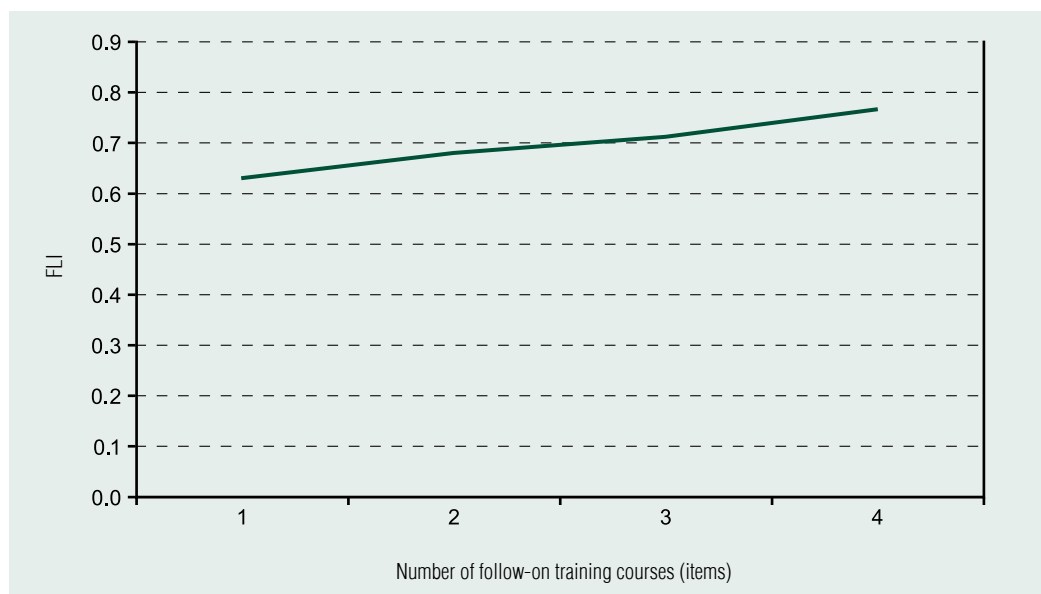


Note: n=705

Source: self-edited

Figure 18

IMPACT OF THE NUMBER OF FOLLOW-ON TRAINING COURSES ON THE FINANCIAL LITERACY INDEX



Note: n=198

Source: self-edited

consider that students studying economic and financial subjects were over-represented in the sample of students. At the same time, we can refute the common belief that teachers' financial literacy is low. Hypothesis *H1a*, according to which teachers' financial literacy varies significantly across age groups, was not confirmed by the research results either.

Teachers of financial and economic subjects mostly marked risk-based entrepreneurial knowledge, while teachers of natural sciences and humanities marked budgeting as the most frequently transferred knowledge. Teachers active in financial and economic fields have proven to be risk averse, meaning that risk-taking patterns required for entrepreneurial knowledge are scarcely available. In addition, it is an interesting result that teachers are not satisfied with their transferring of budgeting knowledge, which they find to be the most

important. However, the follow-up study of students in tertiary education in 2020 found progress exactly in students' savings and budgeting practices (Béres et al., 2020). The survey evaluating efforts to develop financial literacy also found that the highest emphasis among training topics is attached to attitude-shaping in relation to savings and budgeting (Németh et al., 2020). All of this suggests that if an attitude or behaviour is considered important but there is dissatisfaction with its effective transfer, it can demonstrably improve the specific field.

We also examined whether there was a correlation between teachers' financial literacy and their satisfaction with the knowledge they transferred. We found that there was a weak relationship between the two variables, so we could neither confirm nor reject the related hypothesis *H3*.

According to teachers, financial and economic knowledge can be effectively transferred to students if it is presented in a repetitive way connected to more than one topic. This means that it is worth reviewing the relevant curricula (history, geography, mathematics) and introducing related financial knowledge from time to time, paying attention to shaping everyday financial behaviour and attitudes.

Regarding the teachers' financial and economic self-awareness, it is revealed that they typically overestimate their own knowledge compared to what is measured. There is no difference in this between those who took part in such training and those who did not – therefore, we rejected hypothesis *H2b*.

Regarding students' motivation and responsiveness, the responding teachers suggest that students in the upper grades of primary school are the most interested in financial and economic skills. It is therefore worthwhile to start teaching this subject in a targeted manner at this age. As for secondary education, students' responsiveness depends on where they continue their studies.

It is an important result that the vast majority of teachers consider the development of students' financial literacy important. In connection with the development of their own skills, teachers marked follow-on training and self-development as effective tools. The latter is also underpinned by the evolution of the Financial Literacy Index values, i.e. there is a significant difference between the results achieved by those who received and those who did not receive financial and economic follow-on training, and the more training courses a person participated in, the better the results. Thus, hypothesis *H2a* is considered confirmed.

The results of the survey show that neither teachers' knowledge nor their commitment to this topic should be an obstacle to a more effective development of students' financial literacy. However, with regard to the transfer of financial and economic knowledge, results suggest that some textbooks need to be used for targeting teachers (follow-on training and self-education textbooks) and that, as a new approach, emphasis should be given to highlighting financial aspects in subjects currently being taught. ■

NOTES

- ¹ The indicators were developed by the members of the research group under the professional guidance of researchers *Dániel Béres* and *Katalin Huzdik*.
- ² The FLI value for students in tertiary education with international experience stood at 0.56 at that time.
- ³ A transformation was performed for the FLI variable: a categorical variable was created so that each group (5 groups) had the same number of respondents. A cross-tabulation analysis showed that there is a relationship between the two variables ($\chi^2=116$, $df=35$, $sig=0.000$), however, the relationship is weak (Cramer $V=0.182$, $sig=0.000$).
- ⁴ FLI point value / 3

REFERENCES

- ATKINSON, A., MESSY, F. A. (2012). Measuring Financial Literacy: Results of the OECD/International Network on Financial Education (INFE) Pilot Study. *OECD Publishing, OECD Working Papers on Finance, Insurance and Private Pensions*, 15
- BARRERA-PEDEMONTE, F. (2016). High-Quality Teacher Professional Development and Classroom Teaching Practices: Evidence from Talis 2013. Paris: *OECD Education Working Papers*, No. 141, OECD Publishing
- BÉRES D., HUZDIK K., DEÁK-ZSÓTÉR B., NÉMETH, E. (2021). Felmérés a felsőoktatásban tanuló fiatalok pénzügyi kultúrájáról [Survey on the financial literacy of young people in tertiary education], 2020. Budapest: State Audit Office. https://www.asz.hu/storage/files/files/elemzesek/2021/felsooktatasi_penzugyikultura_20210311.pdf?ctid=1259
- BÉRES D., HUZDIK K., KOVÁCS P., SÁPI Á., NÉMETH E. (2013). Felmérés a felsőoktatásban tanuló fiatalok pénzügyi kultúrájáról [Survey on the financial literacy of young people in tertiary education]. Research Report. Budapest: State Audit Office. <https://www.asz.hu/storage/files/files/Szakmai%20kutarc3%A1s/2013/t353.pdf?download=true>
- BERNHEIM, B. D., GARRETT, D. M., MAKI, D. M. (2001). Education and Saving: The Long-Term Effects of High School Financial Curriculum Mandates. *Journal of Public Economics*, 80(3), pp. 435–465
- BERNHEIM, B. D., GARRETT, D. M. (2003). The Effects of Financial Education in the Workplace: Evidence From a Survey of Households. *Journal of Public Economics*, 87(7–8), pp. 1487–1519
- CZAKÓ Á., GYÓRI Á., SCHMIDT L., IFJ. BOROS I. (2017). Innovatív pedagógiai módszerek a szakmai oktatásban. A szakmai tanárok módszerei szociológiai megközelítésben. [Innovative pedagogical methods in vocational education. Methods of teachers from a sociological perspective] *socio.hu*, 2, pp. 1–21
- DEÁK-ZSÓTÉR B., NAGY P. (2012). Our Everyday Emotions and Finances. *Public Finance Quarterly* 57(3), pp. 286–297
- DOWLING, N., TIM, C., HOILES, L. (2009). Financial Management Practices and Money Attitudes as Determinants of Financial Problems and Dissatisfaction in Young Male Australian Workers. *Journal of Financial Counseling and Planning*, 20(2)
- HERGÁR, E., BENÁTH, J. (2020). *Egyre nagyobb teret hódít a szórakoztatva tanítás az oktatásban*. [Teaching through entertaining in education is gaining ground] boon.hu: <https://boon.hu/életstílus/egyrenagyobb-teret-hodit-a-szorakoztatva-tanitas-azoktatásban-4654441/>
- HILGERT, M. A., HOGARTH, J. M., BEVERLY, S. (2003). Household Financial Management: The Connection Between Knowledge and Behavior. *Federal Reserve Bulletin*, 89, pp. 309–322
- KOVÁCS, L., TERTÁK, E. (2016). *Financial Literacy, Panacea or placebo? – A Central European Perspective*. Verlag Dashöfer
- KOVÁCS P. (2017). Fiatalok pénzügyi kultúra mérésének fejlesztésének lehetőségei. [Opportunities to develop the measurement of young people's financial literacy.] In Pál Z. *A pénzügyi kultúra aktuális kérdései, különös tekintettel a banki szolgáltatásokra*. [Current issues in financial literacy, especially banking services.] Miskolc, Economix Kft., pp. 31–38, <http://www.penz7.hu/uploads/images/ckfinder/files/tanulmánykotetfinal.pdf>

- KOVÁCS P., RÉVÉSZ B., ORSZÁG G. (2013). A pénzügyi kultúra és attitűd mérése. [Measuring financial literacy and attitude.] pp. 439–447, https://epale.ec.europa.eu/sites/default/files/a_penzugyi_kultura_es_attitud_merese.pdf
- LI, D., JIANG, Y., AN, S., SHEN, Z. (2009). The influence of money attitudes on young Chinese consumers' compulsive buying. *Young Consumers Insight and Ideas for Responsible Marketers*, 10(2), pp. 98–109
- LUSARDI, A., MITCHELL, O. (2006). Financial Literacy and Retirement Preparedness: Evidence and Implications for Financial Education. *Business Economics*, 42(1), pp. 35–44
- LUSARDI, A., MITCHELL, O. (2007). Financial Literacy and Retirement Planning: New Evidence From the RAND American Life Panel. Michigan Retirement Research Center Research Paper No. WP 2007-157, <https://doi.org/10.2139/ssrn.1095869>
- MANDELL, L., KLEIN, L. S. (2009). The Impact of Financial Literacy Education on Subsequent Financial Behavior. *Journal of Financial Counseling and Planning*, 20(1)
- NÉMETH E., VARGHA B., BEKE A., TORDAI H., DOMOKOS K. (2020). *Pénzügyi kultúra fejlesztési programok felmérése – Összehasonlító elemzés [Survey of Financial Literacy Development Programmes – Comparative Analysis] 2016–2020*. Budapest, State Audit Office, https://www.asz.hu/storage/files/files/elemezsek/2020/penzugyi_kultura_fejlesztési_programok_20201216.pdf?ctid=1296
- RADNÓTI, K. (2006). Milyen oktatási és értékelési módszereket alkalmaznak a pedagógusok a mai magyar iskolában? [What teaching and assessment methods do teachers use in today's schools in Hungary?] In: Kerber, Z. *Hidak a tantárgyak között.* [Bridges between subjects.] Országos Közoktatási Intézet [National Institute for Public Education] pp. 131–167
- STANGO, V., ZINMAN, J. (2007). Fuzzy math and red ink: When the opportunity cost of consumption is not what it seems. Working Paper, Dartmouth College
- VAN ROOIJ, M., LUSARDI, A., ALESSIE, R. (2011). Financial literacy and stock market participation. *Journal of Financial Economics*, 101(2), pp. 449–472
- WILLIS, L. E. (2008). Against financial-literacy education. *Iowa Law Review*, pp. 94–197
- WILLIS, L. E. (2009). Evidence and Ideology in Assessing the Effectiveness of Financial Literacy Education. *San Diego Law Review*, 46. pp. 415–458
- XIAO, J. J., O'NEILL, B., PROCHASKA, J. M., KERBAL, C. M., BRENNAN, P., BRISTOW, B. J. (2004). A consumer education program based on the Transtheoretical Model of Change. *International Journal of Consumer Studies*, 28(1), pp. 55–65, <https://doi.org/10.1111/j.1470-6431.2004.00334.x>
- Hungarian Central Statistical Office (2021). Education. Central Statistical Office (ksh.hu)
- Government of Hungary (2017). Pénzügyi tudatosság fejlesztésének stratégiája. [Strategy for developing financial awareness.] <https://2015-2019.kormany.hu/download/5/39/21000/P%C3%A9nz%C3%BCgyi%20tudatoss%C3%A1g%20fejleszt%C3%A9s%C3%A9nek%20strat%C3%A9gi%C3%A1ja.pdf>
- Government Decree 110/2012 (VI. 4.) on the Issuance, Introduction and Implementation of the National Curriculum