Financial Literacy of Elementary School Pupils in Pardubice

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Abstract: *This paper analyses results of the comparative study, related to the financial literacy, conducted among the pupils of the 8th and 9th year of the basic education. The data were collected by the survey questionnaire covering topics of personal budgeting, currency, payment methods, price literacy and future financial visions of the respondents. This study compares the results obtained from the survey realized in three elementary schools of different types. In particular, common type of elementary school, elementary school with advanced courses of mathematics and eight-year type of elementary school.*

Keywords: financial literacy, financial education, personal budget

JEL codes: A21, I20, C83

1 Introduction

Financial literacy is a core life skill for participating in modern society. Children are growing up in an increasingly complex world where they will eventually need to take charge of their own financial future. The OECD's Principles and Good Practices for Financial Education and Awareness recommend that financial education start as early as possible and be taught in schools. Including financial education as part of the school curriculum is a fair and efficient policy tool. Financial education is a long-term process. Building it into curriculums from an early age allows children to acquire the knowledge and skills to build responsible financial behaviour throughout each stage of their education. This is especially important as parents may be ill-equipped to teach their children about money and levels of financial literacy are generally low around the world. (OECD, 2012)

Ministry of Finance defined the financial literacy in the National Strategy for Financial Education. It is a comprehensive and systematic approach to reinforcing the financial literacy of citizens of the Czech Republic. The objective of the strategy is to create a financial education system aimed at increasing the level of financial literacy in the Czech Republic. The strategy defines the main issues as well as consequential priority tasks in the area, including specific tasks of the key players, with an emphasis on the public administration entities. According to Ministry of Finance, financial education is a key element in consumer protection in the financial market and represents one of the objectives stipulated in the Framework Policy of the Ministry of Finance on Consumer Protection in the Financial Market. (MFČR, 2010)

Ministry of Education, Youth and Sports in the Czech Republic in cooperation with experts for financial literacy prepared a collection of materials focusing on the development of financial literacy. These materials are supposed to use by elementary school teachers and should satisfy subsequent criteria: appropriateness with primary and secondary education, compliance with the curricular reform and Financial Literacy Standards, quality, up-to-datedness, availability and good references. (MŠMT, 2014)

Another source used in elementary schools is a project called "Financial literacy into schools". It has been designed as a compact tool for elementary and high-school teachers and also for parents and students who want to understand better the financial topics and effectively use this knowledge in everyday life. This project is a reaction to increasing indebtedness of Czech families. That prevention focused on young people can be a way how to change it because low financial literacy is one of the reasons why people are not economical with their money and why they often take out many loans. There are lessons and workshops including many important topics from the field of financial literacy organized

for students. In 2016 the first annual contest "Cost out it yourself!" has held. It is an interactive financial literacy event for elementary school pupils and their parents or teachers. (Yourchance, 2011)

Another useful source of information about financial literacy is highly appreciated book Finanční gramotnost by Škvára (2011). Covering main topics of financial literacy, it could be used for education at all school levels.

2 Methodology and Data

During spring 2016, a survey focusing on financial literacy took place in three elementary schools in Pardubice. This survey covered topics of personal budgeting, currency, payment methods, taxes, inflation, and insurance.

There were several questions on respondents in the questionnaire. These identifying questions inquired not only respondents' gender or school grade, but also their experiences with personal budget or future plans.

The part of the survey focusing on students' knowledge was arranged in a form of knowledge test. Some of the questions proposed several possibilities of answers, others were designed as open questions. Several questions were in the form of short numerical problems.

The questionnaire was filled in by the 8^{th} and the 9^{th} grade elementary school pupils. Three types of school took part in this survey. Participating schools were chosen on the basis of their popularity. All of these schools were highly evaluated and they refused many applicants every year.

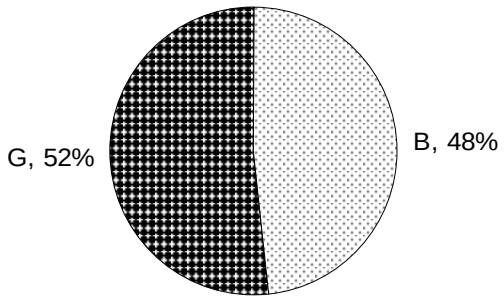
Type A was a common type of elementary school. This school provided 122 respondents, 67 were boys and 55 were girls. 43 of these respondents were studying their 8^{th} grade and 79 the 9^{th} grade. Students of the 8^{th} grade attended 4 lessons of mathematics a week, students of the 9t grade had 5 lessons of mathematics a week. Financial literacy was not taught on a regular base, no additional courses specialised on financial literacy were provided.

Type B was the elementary school with advanced courses of mathematics. Due to the demographical evolution and strictly selective admissions to the mathematical class, the number of responses was quite low. Only 53 respondents from this school took part in our survey, from which 25 were boys and 28 girls. 35 of these pupils were studying their 8^{th} grade and only 18 the 9^{th} grade. Students of 8^{th} as well as 9^{th} grade attended 5 lessons of mathematics a week. Numerical problems focused on financial literacy were solved during mathematical lessons.

C stood for the eight-year type of the grammar school. From this school participated 108 respondents, 45 were boys and 63 girls. 56 of these participants were studying the 8^{th} grade, 52 were studying the 9^{th} grade. Students of both the 8^{th} and the 9^{th} grade attended 4 lessons of mathematics a week. Voluntary course focused on financial literacy was provided for students of grammar school.

Figure 1 presents distribution of respondents from all participating schools by gender, where G means girls and B means boys. The numbers of responding girls (146) and boys (137) were very similar. Figure 2 presents distribution of respondents by their grade. The number of 8^{th} grade pupils was 134, while the number of 9^{th} grade pupils, participating the survey, was 149.

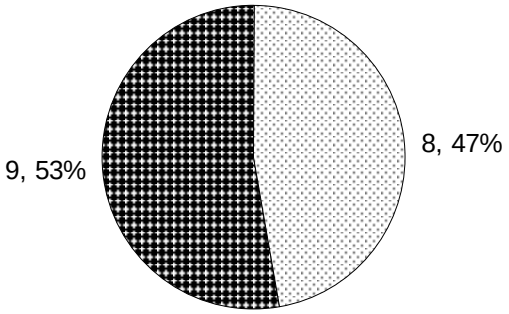
Figure 1 Gender



Source: own results based on questionnaire survey

The questionnaire was distributed in a paper form. The advantage of this form of distribution was that pupils had a chance to write down their own remarks to particular questions. This opportunity was used by about 25 % of respondents and it provided additional information.

Figure 2 Grade



Source: own results based on questionnaire survey

The questionnaire used for this research was designed and evaluated according to Presser (2004) and Saris and Gallhofer (2007). Questions were designed in compliance with MŠMT (2014).

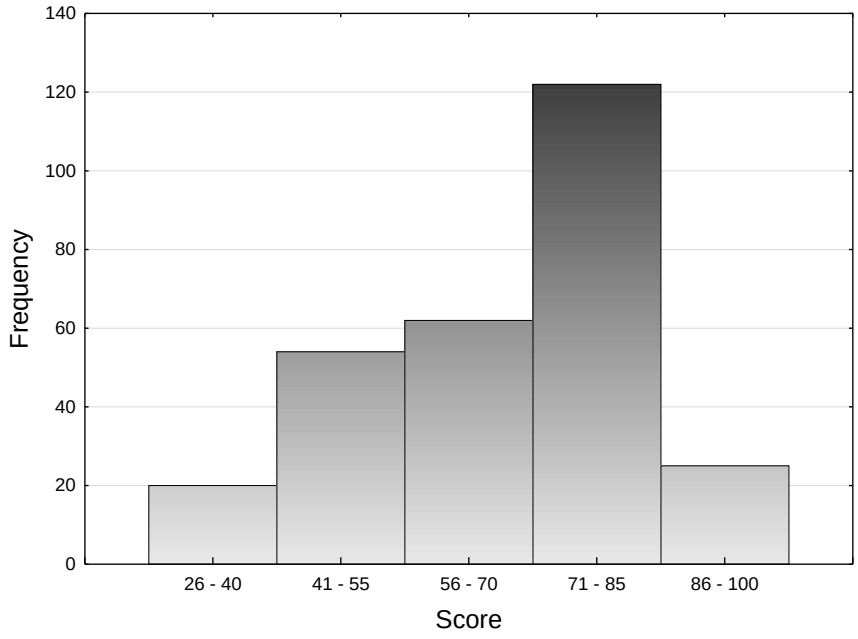
3 Results and Discussion

Figure 3 presents the distribution of score achieved by the respondents. Only 8.8 % of respondents achieved the top range of score, i.e. more than 86 %, but a decent number of respondents (43.1 %) achieved the score range of 71 – 85 %. Almost 7.1 % of pupils did not responded more than 40 % of questions correctly. Average score achieved in the survey was 65.2 %, modus and median were both 71 %.

Figure 4 presents box plots showing different score results achieved by pupils of particular analysed schools. From this figure, it is obvious that the highest possible score 100 % was

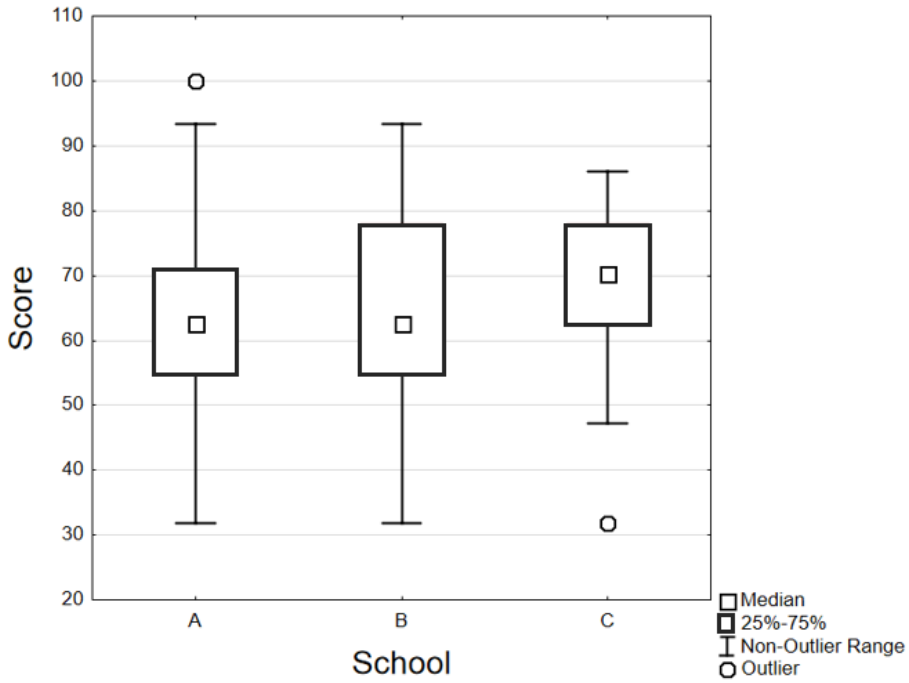
achieved only by a pupil attending common type of elementary school. It was a girl studying the 9th grade.

Figure 3 Overall score (in %)



Source: own results based on survey

Figure 4 Box plots



Source: own results based on survey

Table 1 presents score distribution by the school type. Average score for school of type A is 62.221 %, for type B 63.849 and for type C 69.259. The eight-year type of the grammar school achieved significantly higher score than the others types of schools.

Table 1 Score distribution

Score	26 - 40	41 - 55	56 - 70	71 - 85	86 - 100
Type A	13	35	22	43	9
Type B	6	10	12	21	4
Type C	1	9	28	58	12

Source: own results based on survey

Although scores of both elementary schools (type A and B) can be considered as identical (p = 0.38327 using Mann-Whitney test), scores of all the participating schools cannot (p = 0.0001 using Kruskal-Wallis test). These results were based on rough data (not shown).

Table 2 presents p-values of the chi-square tests and corresponding values of Cramer V. These tests tried to discover possible dependences.

Dependence between the score and the school type is significant, since the p-value 0.0003 is very small. Value of V = 0.227 refers to weak dependence between the score and the school type.

Dependence between gender and score achieved by the respondent was not discovered on the significance level 0.05, but is significant on level 0.01.

Weak dependence between grade and achieved score is significant on level 0.05.

The last analysed situation concerned the relationship between the score and the property of an own bank account. This test was not significant on any usual significant level.

Table 2 Chi-square tests

	***p*-value**	***V***
School type	0.0003	0.227
Gender	0.0591	0.179
Grade	0.0211	0.220
Own account	0.3323	-

Source: own results based on survey

Table 3 presents results of participating schools in different topics of survey. Average scores of personal budgeting were similar for schools of type A and B, but obviously higher for school of type C, whereas results related to currency were quite good and comparable, exceeding 80 % for all participating schools. Other topics, including for example payment methods, taxes, inflation, and insurance showed lower average scores between 50 and 60 %.

Table 3 Average scores

	Personal budgeting	**Currency**	**Other topics**
Type A	57.58	81.76	50.14
Type B	55.19	84.43	54.09
Type C	65.74	84.26	59.88

Source: own results based on survey

Table 4 presents results of various types of questions. Average scores achieved by respondents in short numerical problems showed obvious differences among participating schools. Students of the elementary school with advanced courses of mathematics showed better results than pupils of common elementary school, but scores of eight-year type grammar-school students were even higher exceeding 95 %. Most problematic questions

were definitions of basic terms of financial literacy (credit card, inflation, interest), no school exceeded average score of 40 %. Questions related to awareness of prices again showed obvious difference among students of particular types of schools.

Table 4 Average scores

	Numerical problems	Definitions	Prices
Type A	79.92	37.21	54.92
Type B	86.79	34.72	58.49
Type C	95.83	39.26	64.81

Source: own results based on survey

Another results obtained from the survey showed an example of future visions of the respondents. One pupil did not respond this question. As presented in table 5, salary expected by the eight-year type of the grammar school pupils were higher than by the others.

Table 5 Expected salary (in CZK)

Salary	< 20 000	20 - 30 000	30 - 40 000	> 40 000
Type A	7	45	40	30
Type B	4	17	22	10
Type C	0	20	35	52

Source: own results based on survey

4 Conclusions

Results of the survey showed significantly higher level of financial literacy for pupils of the eight-year type of the grammar school. These students were enabled to attend voluntary courses of financial literacy. The level of the financial literacy on the common elementary school and the school with advanced courses of mathematics was almost the same.

Distinct difference was observed in levels of solving the numerical problems. Comprehensibly, students of elementary school with advanced courses of mathematics achieved better scores than students of common elementary school, as their mathematical education is concerned to solving it. Even better results were observed at grammar school.

Dependence between the survey score and the school type as well as between the score and the grade of the respondent was proved. The grammar school pupils showed higher expectations concerning to their future salaries. Remarks made by respondents on the questionnaire papers showed that the grammar school students analysed the questions deeply, showing the knowledges, those were not expected by the author of the survey.

Acknowledgments

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