



Financial Literacy of First-Year University Students: The Role of Education

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This paper presents an insight into the characteristics of how students manage their finances and their general financial literacy. The study was carried out by surveying 259 students from two different faculties. Students from the study programs with economics subjects were statistically better at defining inflation, liquidity and real income. Statistically significant differences between courses were seen also in the area of investment decisions, business students prefer riskier investments like an investment in bonds or gold, whereas non-business students prefer saving the money in a savings account. The results show that students who had economics content in their program more often state they control their finance and have on average better financial knowledge. The results suggest that participation in economic/financial courses increases financial literacy and also feelings of mastery of financial areas, which is important to transfer knowledge into the practice.

Keywords: financial literacy, financial management, education, knowledge, Slovenia, students

Introduction

Improving the ability to understand finance has become an important focus of state-run educational programs in several countries. The importance of financial education has grown in recent years as a result of financial market developments and demographic, economic and policy changes. More sophisticated financial markets and a greater variety of credit and savings instruments, together with increased life expectancy, hold important consequences for people saving or investing for retirement, for the users of credit, and all other consumers (OECD, 2006).

In addition, financial literacy and financial education have been found to be strongly positively associated with household wealth (Behrman, Mitchell, & Bravo, 2010). Although only a few financial education programs have so far been evaluated, the results are encouraging since they have been found to be reasonably effective. However, academic analyses provide ambiguous results, finding no firm evidence of the measurable success of financial

education when it comes to improving participants' financial well-being (Cole & Shastry, 2008; Willis, 2009).

In this paper we consider the case of Slovenian first-year students to provide evidence of the importance of basic financial and economics education for young people's financial literacy. The study sample consists of two groups of first-year students from the University of Ljubljana in Slovenia: a group of first-year students of Economics and Business from the Faculty of Economics who had already passed their first-semester, introductory-level courses in economics and finance, and a group of first-year students of Educational Sciences with either one or no such courses in their first semester. This sample allows us to examine the impact of financial and economics education on the students' financial literacy. Moreover, it allows us to analyze the impact of the students' familiarity with financial and economics topics on their perception of the adequacy of their financial skills to efficiently manage their finance. This is the first empirical investigation of financial literacy for Slovenia and, to our knowledge, one of the rare studies that analyzes the impact of financial and economics education on financial literacy by directly examining differences between students of economics and education other fields.

The paper is organized as follows. In the first section, we review the relevant theoretical and empirical literature. The second section outlines methodological issues and demographic information about the analyzed sample, while in the third section we present the results of the survey whose purpose was to obtain information about the students' knowledge of basic economic/financial concepts and behavior. The last section – discussion concludes by setting out educational policy implications.

Literature Review

In theory, several terms have been used for those capabilities of an individual that relate to the ability to use their financial and economic knowledge. Hung, Parker and Yoong (2009), for example, define financial literacy as 'the knowledge of basic economic and financial concepts, as well as the ability to use that knowledge and other financial skills to manage financial resources effectively for a lifetime of financial well-being.' Huston (2010) 'Financial knowledge is an integral dimension of, but not equivalent to, financial literacy. Financial literacy has an additional application dimension which implies that an individual must have the ability and confidence to use his/her financial knowledge to make financial decision.'

Studies show that responsible financial behavior (regular budgeting, savings), which can be associated with greater financial literacy (Mandell & Schmidt Klein, 2007) is linked to the financial well-being of young people (Joo & Grable, 2004; Shim, Xiao, Barber, & Lyons 2009). However, empirical

studies (American Savings Education Council, 1999; Chen & Volpe; 1998, Williams-Harold & Smith, 1999; Beal & Delpachtra, 2003) have found that students are not well-informed about personal finance, and show that students generally do not have adequate knowledge about such finance. In these studies, the majority of the surveyed students agree that they do not know enough about money management (American Savings Education Council, 1999). Chen and Volpe (1998) see the reason that many students are not familiar with money management practices as lying in the fact that students are in the beginning phase of their financial life-cycle, in which most of their money is spent rather than invested. Studies also show that superior financial literacy is usually a characteristic of male students, students majoring in business studies, students from a higher social class, those over 30 years of age and students with greater work experience (Chen & Volpe, 1998). Based on a sample of 500 students, Williams-Harold and Smith (1999) report that only 31% of students were able to balance their bank account, 23% were familiar with credit cards and only 7% were familiar with the current level of interest rates. On the contrary, Beal and Delpachtra (2003) also found that most students have fairly good knowledge of basic financial concepts. In their study, differences in the level of financial literacy were observed as a result of differences in work experience and income. In addition, students of business were better than others. Similarly, Nidar and Bestari (2012) report that financial literacy is influenced by several factors like education level, faculty, personal income, parents, parents' income, and ownership of insurance.

The factor that is recognized as an important determinant of financial literacy in almost all empirical studies is thus financial education and numerous studies relate to its impact on financial literacy. The OECD (2005, p. 26) defines financial education as 'the process by which financial consumers/investors improve their understanding of financial products and concepts and, through information, instruction and/or objective advice, develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being.' Huddlestone-Casas, Danes and Boyce (1999) argue that financial education has a positive impact on the financial behavior of students and adults, while Stone, Wier and Bryant (2008) find that financial learning programs increase positive financial attitudes (while reducing materialism) and impact on changes in behavior. On the contrary, Chatzky (2002), Mandell and Schmidt Klein (2007) and Cole, Paulson and Shastry (2009) did not discover a significant effect of formal financial education on financial decisions. However, Cole, Paulson and Shastry (2009) report a significant link between cognitive abilities and participation in financial markets.

In spite of the ambiguous results of empirical studies about the impact of financial education on financial literacy, it is generally agreed that changes in financial behavior as a result of financial education increase the financial well-being of individuals, which clearly shows the importance of financial education. Authors (Rao & Barbera, 2005) suggest that educational programs increase consumer knowledge and change individuals' attitudes and behaviors in the case of borrowing, spending and saving. Similarly, Danes (2004) reports positive changes in students' financial behavior immediately and three months after completing such training. Further, research shows (e.g. Salie Mae's National Study, 2009) that the majority of students believes they need more education about financial topics, and would like to acquire this knowledge in the context of formal education. Carlin and Robinson (2012) investigated how financial education impacts financing choices and consumer behavior and report that 'students who experienced training were somewhat better at making current-cost/current-benefit trade-off decisions (spending more today versus spending less today).'

Methodology

Data Collection and Sample

The survey-based research was conducted among 259 students of the Faculty of Economics and the Faculty of Education at the University of Ljubljana. The survey was conducted among first-year students after they had finished their first-semester courses (at the end of semester). During their first semester, students from the Faculty of Economics listened to different introductory-level lectures in business, business law, finance and economics. In their first semester at the Faculty of Education only stu-

Table 1 Sample of Students According to Their Study Field

Faculty/Study program	N	%	Economics subjects
Faculty of Economics			
University Degree – Business & Economics Sciences (specialization: Money and Finance, Business Economics, International Economics, Banking and Financial Management)	73	28.2	Introduction to Microeconomics, Macroeconomics 1, Principles of Accounting, Introduction to Business, Management
Professional Degree Program – Business Administration	72	27.8	
Faculty of Education			
Two-Subject Teacher (specialization: Home Economics and Biology or Chemistry)	36	13.9	Home Economics (money, budget, market, supply and demand)
Primary Education Teacher	29	11.2	
Preschool Education	49	18.9	

dents studying Home Economics were given lectures on economics topics, whereas students of Primary Teacher Education and students of Preschool Education did not have any economics courses in their first semester's course list (Table 1). To avoid bias regarding students' motivation of economic topics, students who are not from the Faculty of Economics (but they have in their study program one economic subject) were included in our sample.

We used a randomized sampling of students within groups (at FE – students with a certain letter starting their surname, at FED first-year students from three different courses), but otherwise stratified according to the course of study (FE, FED).

Questionnaire

The coverage of survey questions were general, very common, concepts heard everyday and necessary for a successful life. The questionnaires were completed at the respective faculties in the presence of the researchers. The question types were short answers, closed answers and offered a Likert scale. The questionnaire consisted of the following sections:

- *The student's demographic and socioeconomic characteristics.* Respondents were asked about their age, gender, study field, current financial situation, whether they work as well as studying, and the reasons for working.
- *The student's beliefs about money and their own financial management skills.* Respondents were asked about their views on the meaning and importance of money (e.g. an asset, a symbol of power) and how they perceive their own financial management skills in terms of their ability to handle their own personal finance.
- *The student's actual financial practices.* Respondents were asked about their records of spending (e.g. how detailed are their spending records), their saving habits and the reasons for their saving behavior. They were also asked to state what they would do if they had extra money at their disposal.
- *The student's financial general knowledge.* In this section, a student's general financial knowledge was tested. Students were asked to choose from among offered answers to explain some simple generally known and frequently used financial or economic terms (GDP, VAT, euribor, share, real income, net assets, bonds- return, share, excise duty, effective interest rate, liquidity, how do we measure inflation), or to make simple calculations (monthly interest rate, annual interest rate) or to predict what would happen in different situations (bank failure, suitability of risky investments, warranty)

The data were statistically processed using the Statistical Package for the Social Sciences Version 18. Frequency counts were run on all items. Further analyses involved t-tests, chi-square analyses and one-way analyses of variance (ANOVA) where the significance level of $p < 0.05$ was used.

Results

In our sample of first-year students from the University of Ljubljana (FE and FED), 81.3% were females (Table 2). The average monthly income of the surveyed students was stated to be €214.7, with the minimum student income being €20 and the maximum €2,000 per month. During their first study year, 53.3% of the students from our sample lived at their parents' home, 27.0% lived on their own in a rented apartment, while 19.7% lived in dorms. Students claimed to be spending most of their money to satisfy their fundamental needs such as food (88.5%), transportation (80.4%), clothing and footwear (75.8%) and literature (46.2%). A smaller share of the money they have available goes on leisure activities such as tickets for various events (34.6%), sport and recreation (25.8%), rent (25%) and travel (19.2%). The surveyed students also included instances of students who work to help their parents or other family members financially (3.8%).

Students' Beliefs about Money and Their Own Financial Management Skills

Responsible financial behavior (e.g. regular budgeting and saving) is linked to the financial well-being of young people (Joo & Grable, 2004; Shim et al., 2009) and can be associated with greater financial literacy (Mandell

Table 2 Summary of Demographic and Socioeconomic Characteristics

Variable		<i>n</i>	%
Gender	Men	49	19.0
	Women	209	81.0
Age	18–20	224	87.20
	21–23	29	11.20
	24 and more	4	1.6
Expenditure type	Food	230	88.5
	Transportation	209	80.4
	Clothing/footwear	197	75.8
	Literature	120	46.2
	Tickets for various events	90	34.6
	Rent	68	25.8
	Sport and recreation	67	25.8
	Travel	50	19.2
Help their family	10	3.8	

& Schmidt Klein, 2007). Studies show that a person's attitude to money depends on gender and experience. Men are more likely to perceive money as a means of comparison and evaluation compared to women, while individuals who have experienced financial hardship, regardless of gender, more often use money as a means of evaluation (Lim & Thompson, 1997). We asked the students about the meaning they ascribe to money. Our results show that most of the surveyed students (78.7%) perceive money as a medium of exchange, while male students more often also associate money with power than females ($\chi^2 = 4.472$, $df = 1$, $p = 0.03$). These findings are in line with Lim and Thompson's (1997) designations.

When the students were asked about their perceptions of their capabilities to manage their finance and about their knowledge of the topic, 10% stated they are fully confident in their capabilities to manage their finance and that they also have very good knowledge of this topic. Around 55% of the students believe they manage their finance to a large extent and that they have most of the relevant knowledge. More than one-third, however, state they are able to manage their finances only partially and would like to have more knowledge on this subject. Two percent of the surveyed students feel they do not supervise their finances and would like to have more knowledge on this topic.

Results also show (Table 3) that students from the Faculty of Economics ($M = 2.82$, $SD = 0.730$) are slightly more confident of their financial management capabilities than students of Home Economics from the Faculty of Education ($M = 2.74$, $SD = 0.505$). But, both are more self-assured about their financial management capabilities than students of Primary teacher education and students of Preschool education (students from courses with no economics content at the Faculty of Education). A one-way analysis of variance (ANOVA) reveals statistically significant differences between business program students and non-business students ($F = 3.724$, $p = 0.05$). A more detailed Tukey *post hoc* test revealed statistically significant differences between the Faculty of Economics students and students of Primary Teacher Education and Preschool Education ($p = 0.01$), but not between the

Table 3 Student's Beliefs in Their Financial Management Capabilities

Study programs	N	Mean	SD	F	Sig.
Faculty of Economics	142	2.82	0.730	3.724	0.025
Faculty of Education					
Home economics	35	2.74	0.505		
Primary school teacher and Preschool teacher	78	2.56	0.572		

Notes Students from a different field had to indicate belief in one's financial management capabilities on a four-point scale, where 4 represents the strongest and 1 the weakest belief in one's financial management capabilities.

Faculty of Economics students and Home economics students. It seems that listening to lectures on topics from economics, business and finance strengthens students' feelings about their abilities to manage their own finance and also increases their perception of their knowledge of the topic.

Students' Actual Financial Practices

American Savings Education Council (1999) found that students are not well informed about personal finance, and that two-thirds of the students surveyed in that study agree that they do not know enough about money management. The reason for their insufficient familiarity with the topic was related to the fact that the students are 'in the beginning phase of their "financial life cycle" and a majority of their money is spent rather than invested' (Chen & Volpe, 1998). Namely, a good money management practice includes budgeting, keeping different records, estate and retirement planning, insurance and investment (Muske & Winter, 1998), which means good basis for a secure financial future for young adults.

Among the surveyed students, 76% save some of their available income, while 23% do not. 49% of the students are saving money for a trip, 22.3% to buy a car, and 15.5% to purchase real estate and other. Among those who do not save, more than 80% state the main reason for not saving is the fact that they spend all their available income, 13.6% report they have no reason to save, while 4.5% believe that saving is not reasonable for students. Statistically significant differences in keeping financial records were observed between students who claim they save and those who do not. Namely, those who statistically save significantly more often keep financial records compared to those who do not ($\chi^2 = 12.174$, $df = 1$, $p = 0.00$).

Among the students we surveyed, only 13% keep detailed evidence about their expenses for food, housing and entertainment. More than half the students in our sample (53%) indicated they only know approximately how much they spend on food, housing and entertainment and have no accurate records of their expenses. 26% do not have exact records of their spending, but generally know the amount they can spend and consequently stay within their limits. Only less than 3% of the students do not keep any records on their spending. The comparison of responses among students from the different study fields indicates that those students who are familiar with economics, financial and business topics (students from the Faculty of Economics and students of Home Economics from the Faculty of Education) are more inclined to keep financial records than students who did not have the opportunity to attend any economics, financial or business lectures (all other students at the Faculty of Education). Yet the differences are not statistically significant. However, it is notable that those students who kept records largely believed they were in control of their finances (Table 4).

Table 4 Efficiency of Financial Management and Keeping Financial Records

Efficiency of financial management	Yes		No	
	<i>n</i>	%	<i>n</i>	%
I don't control my finances – I want more knowledge	1	20	4	80
I control my finances only partially – I want more knowledge	34	39	53	61
I control my finances to a large extent – I have most of the necessary knowledge	83	59	57	41
I completely control my finances to a large extent – I have all the necessary knowledge	18	69	8	31

On the contrary, most of students from our sample who claim not to keep financial records also answered that they do not control their finances successfully and would like more knowledge about the topic (Table 4). It is also notable that those students who want more knowledge about finances are from study programs with no economics subjects ($\chi^2 = 4.514$, $df = 1$, $p = 0.017$).

Students' Financial Knowledge

Existing empirical research (Chen & Volpe, 1998; Williams-Harold & Smith, 1999; Beal & Delpachtra 2003) shows that students' knowledge about personal finance and basic economic terms is inadequate. Studies also show that greater levels of financial literacy are associated with study field, gender, social class, age and work experience. Namely, older, well-situated male students, majoring in business studies and with work experience on average know their personal finances best (Chen & Volpe, 1998). Based on a sample of 500 students, Williams-Harold and Smith (1999) also report that only 31% of the surveyed students were able to balance their bank account, 23% were familiar with the terms of their credit card and only 7% were able to state the current interest rate level. Further, Beal and Delpachtra (2003) found that most students have fairly good knowledge of basic financial concepts, with differences in the levels of students' financial literacy being a result of differences in study field, work experience and income.

In our research, students were asked to identify several basic financial and economic terms. In general the students from the study programs with economics (SPES) subjects were more successful than students from the study programs with no economics subjects (SPNES). They were statistically significant better in defining liquidity, inflation, real income (Table 5). They were also better in answering on business related questions, but in answering on personal financial related questions (monthly interest rate, effective interest rate, euribor, warranty, VAT) differences were not so expressed. Interestingly, in answering questions related to financial investments (bank

Table 5 Students' Average Scores on Basic Financial Terms

Question	Correct answers (%)		χ^2	Asymp. Sig.*
	(1)	(2)		
Liquidity	68.5	53.9	5.092	0.024
Annual interest rate*	70.72	70.51	0.001	0.973
Monthly interest rate*	13.3	11.54	0.145	0.703
Effective interest rate	53.8	48.72	0.009	0.923
Euribor	35.4	34.61	0.013	0.908
Warranty	76.8	75.64	0.040	0.841
Bank failure	57.5	62.8	0.648	0.421
Inflation	64.9	33.8	10.584	0.001
How do we measure inflation	56.35	47.44	1.743	0.018
Net assets	24.31	20.0	1.855	0.173
Real income	32.04	8.33	17.375	0.000
GDP	53.04	53.0	0.014	0.905
Risky investments – suitability	42.54	60.26	0.842	0.359
Shares	91.7	100.0	6.861	0.009
VAT	74.03	69.2	0.632	0.427
Excise duty	27.07	32.05	0.662	0.416

Notes Column headings are as follows: (1) study programs with economics subjects, (2) study programs with no economics subjects. * 2-sided.

failure, shares, suitability of risky investments for different age groups) they were slightly less successful.

When students were asked 'What would you do with extra money?' 64.6% answered that they would open up a savings account, 24% would spend only part of the money, roughly 20 percent would buy gold, 27.2% would invest in some sort of securities, while less than 1% would spend the entire amount of this extra money. Interestingly, 6.1% of the students answered that they do not know what they would do with a surplus of money. We wanted to determine whether there is a correlation between the type of investment and the student's opinion of their own knowledge. Among those who indicated that they have sufficient knowledge and those who have indicated that they want more knowledge there was no statistical significant differences. Differences were detected when we separated students who were involved in the study programs with economic subject and those who were not. A marked share of students from the study programs with economics subjects would spend their extra money to buy gold ($\chi^2 = 5.984$, $df = 1$, $p = 0.014$) and bonds ($\chi^2 = 4.508$, $df = 1$, $p = 0.034$), while the students from the study programs with no economics subjects would largely decide to save the money in a savings account ($\chi^2 = 8.894$, $df = 1$, $p = 0.003$). It is possible that the SPNES student's decision to choose less risky in-

vestments is connected with the fact that, due to their lack of financial education, they are unable to recognize (as suitable) several other alternatives besides depositing savings in a savings account as the other students are.

When students were asked who they would ask for financial advice they mentioned first their parents ($M = 1.67$, $SD = 1.661$) and at last their professors ($M = 6.55$, $SD = 1.852$). Greater confidence in the teachers had students involved in study programs with economics subjects ($t = -4.549$, $df = 182.356$, $p = 0.000$).

Discussion

The findings indicate that university students are vulnerable when they need to undertake day-to-day financial tasks. This is especially worrying for the SPNES students who will not have the chance to take courses with financial and economics content in the future. This fact also poses a serious obstacle to SPNES student's professional life as they will obviously go into classrooms without in-depth knowledge and are thus not well prepared. Baron-Donovan, Wiener, Gross and Block-Lieb (2005) report that teachers who participated in just two days of training in financial literacy increased their financial knowledge by 9%, while positive changes were also found in their attitudes and ability to transfer these newly gained skills into their teaching strategies. Taylor, Tisdell and Sprow Forte (2012) argue that 'learners are not likely to change their financial behavior with success if they are not in touch with beliefs that affect those behaviors.' A systematic approach is needed to bring about a general increase in financial literacy.

Keeping in mind that 'Financial education represents a lifelong process' (Starček & Trunk, 2013, p. 1443), more attention to financial subjects is needed in all educational schemes (formal and non-formal). In Slovenia, financial topics are very poorly represented in the curriculum. Some finance related topics can be already found in different nine-year primary school subjects (Mathematics, Geography, Technique and Technology, Home Economics, Patriotic and Civic Culture and Ethics). In the Home Economics subject (5th year of primary school) students systematically cover topics about money, budgeting, saving, investment, etc. Thus, within the first module of this school subject students actually start with financial literacy education, but these topics are not systematically upgraded in later years of education. This can be one of the reasons that Slovenian 15 year-old students who participated in the international study PISA 2012 achieved poor results (for more details see OECD, 2014). It makes sense to consider the possibility of appropriate curriculum development – how to achieve continuity, as well as the possibility of implementing elective courses in the context of individual programs. However, introduction to financial topics should be

carefully considered—the content must be adapted to the individual's understanding – to the stage of cognitive development of individuals on different levels of education.

Secondly, student teachers should be offered appropriate training that is not solely driven by the acquisition of facts, but that will incorporate a variety of active methods. By using active methods of teaching, which require the use of complex thinking (analysis, synthesis etc.), we should motivate the individual to transfer new knowledge into practice. Mandell and Schmid Klein (2007) indeed found that motivation to learn about personal finances is an important factor of financial literacy. With an appropriate combination of facts, experiences and guided learning situations, students can improve in their management of the financial aspects of their life and to transfer their financial knowledge to their students. Secondary schools (vocational, technical, gymnasium) and faculties could also consider different educational strategies through which students can obtain relevant, objective, impartial, timely information and assistance in finding a wide range of responses.

Conclusion

As a result of our sample selection, the study enabled us to analyze the impact of economics/ financial education on the financial literacy of the students. Namely, while the first-year students of Economics and Business at the Faculty of Economics and students of Home Economics at the Faculty of Education had the opportunity to take part in courses related to economic/financial topics, the other surveyed students did not. Our results suggest that participation in the study programs with economics courses:

- provides knowledge to more thoughtful financial decisions (for example investment decisions);
- encourages the development of the necessary skills and transfer of good practices into everyday life (for example records keeping);
- increases the feeling of mastery of financial areas – confidence (for example SPES students largely believed in their financial management capabilities than others students).

It should, however, be noted that some students' educational background (previous education), which was not observed, may affect their knowledge. But the PISA 2012 results (OECD, 2014) for Slovenia (secondary education) and the results of the present study (university education) revealed that economical/financial literacy is not sufficient. The results of this study also suggest that participation in economic/financial courses increases financial literacy, as well as feelings of mastery of financial areas, which is important to transfer knowledge into the practice.

Accordingly, from the perspective of the financial health of the individuals involved, it would make sense to ensure that all students have at least the possibility to select subjects where they would be motivated to adopt prudent financial behavior and basic knowledge to be prudent consumers. To effectively convey the idea of how good financial literacy is, it is also necessary to pay attention to the teachers (student teachers and current practitioners) in terms of them recognizing the importance of financial education for the well-being of an individual.

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