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FINANCIAL EDUCATION FROM THE PERSPECTIVE OF UNIVERSITY STUDENTS: COMPARATIVE STUDY

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Abstract

The importance of financial literacy has rapidly increased in the last decades. The critical need for sustainable financial decisions is driven by changes in the economy. The goal of this study was to find out how the university students rate their acquired financial knowledge and knowledge providers, with the purpose to find solutions for promoting personal financial education to promote financial literacy. The study used Explanatory sequential mixed methods design, in which a quantitative part of study was conducted among 1110 participants, followed by a qualitative part with a sample of 22 students. Students at universities of technology from two neighboring countries, Estonia, and Finland, participated in the survey. The data were collected in a quantitative part through a questionnaire survey and in a qualitative part during three focus groups. Based on the results of the quantitative survey, questions and participants were purposefully selected for the qualitative phase in order to explain the content of the quantitative results. The results showed that students' interest to improve their financial literacy was high. The assessments revealed that most important financial knowledge provider was the family, and the university came next. The obstacle that was most mentioned in the pursuit of pre-university education, was a lack of interest in obtaining financial knowledge, which was largely due to boring teachers and learning material. The article presents students' assessments, opinions, and suggestions, and contributes to the literature on Mixed Methods Research (MMR) by describing the procedure how the solutions to the research problem was found.

Keywords: Personal Financial Literacy, Financial Education, Higher Education Students, Gender Differences, Mixed Methods Research (MMR)

1. Introduction

The importance of financial literacy has rapidly increased in the last decades. The critical need for sustainable financial decisions is driven by changes in the economy – globalization with the abundance of goods and services, changes in financial markets, innovation in the financial sector, etc., but also by the ageing process of the population, which in turn increases the obligations on individuals and their financial responsibility. Financial literacy is an essential life skill, which could improve financial welfare at all life-stages (OECD, 2014). If people do not have sufficient knowledge for making financial decisions, there can be consequences for the individuals themselves and for the economy as a whole (Lusardi *et al.* 2010). Huston (2010) marked that

increasing consumer financial literacy is a public policy objective to improve welfare through better decision making.

According to OECD (2014, p. 33) definition, "Financial literacy is knowledge and understanding of financial concepts and risks, and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life."

Researchers have examined the financial literacy and practice of various components of society and found out that financial knowledge needs improvement. For improvement of financial literacy it is essential to enhance personal financial education. "Financial education is 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 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 and protection" (OECD, 2006, p. 118).

While financial literacy and financial education are defined in a number of ways, this study is based on the above-mentioned OECD definitions, which have been the basis for a number of international studies, as well as financial literacy studies of Estonian and Finnish students in 2015/2016.

Finns and Estonians are two relative nations with different late history. Their languages are closely related to Karelian and more remotely to the Sami and Hungarian, but are not related to their nearest geographical neighbors, Swedish, Latvian, and Russian, which are all Indo-European languages. Throughout history, Finland, like Estonia, has been part of the Kingdom of Sweden and the Russian Empire, but Finland became a presidential republic in 1917 and their (Finnish) democracy did not experience any Soviet coup attempts. Estonia has been a part of the socialist planning economy for nearly 50 years and then has developed a market economy for 30 years. Finland, on the other hand, has been a market economy country all along. This study compares these two countries in purpose to find whether there occur specific differences in students' financial literacy that could be explained by differences in historical background.

Earlier surveys in Estonia and Finland have shown the need to improve the university students' financial knowledge (Mändmaa, 2020a, 2020b, 2021), but there were few specific suggestions for promoting personal financial education and a lack of the overview about proposals, visions and needs of the students themselves.

The results of studies in the United States and Australia highlighted the importance of teacher training in teaching personal financial education (Asarta *et al.* 2014; Blue *et al.* 2014). The researchers in New Zealand (Cameron *et al.* 2014) pointed out that financial literacy education beginning at the high school level may be the key to improving financial decision-making in the population.

The goal of this study was to find out how the university students rate their acquired financial knowledge and knowledge providers, with the purpose to find solutions for promoting personal financial education to promote financial literacy.

Current study uses Mixed Methods Research (MMR) design, which is the combination of quantitative and qualitative approaches that provide a better understanding of a research problem than either approach could alone (Creswell and Plano Clark, 2006; Creswell, 2014). The numeric data collected were analyzed by quantitative methods and further explained by using qualitative methods.

The results of this study showed that university students' interest to improve their financial literacy is high. The most important financial knowledge provider was the family, and the university came next. The obstacle most mentioned by students in the pursuit of lower education levels, i.e., pre-university education, was a lack of interest in obtaining financial knowledge, which was largely due to boring teachers and learning material. The students' assessments and opinions with examples gathered in the research are presented in more detail in the Results section. The paper is organized as follows. Section 2 describes the methodology and the used data. Section 3 presents the obtained results; Section 4 discuss about findings and Section 5 concludes the paper.

2. Methodology

Based on previous studies and the assessments of students who participated in the quantitative part of this study, a simple Conceptual Model (Figure 1) about provision of financial knowledge has been developed. This Model shows the order of importance created on the basis of students' assessments, where the most important or number one (No 1) provider of financial knowledge is the family. However, the well-being and sustainability of the family (and not only) will be directly affected by the students' financial literacy.

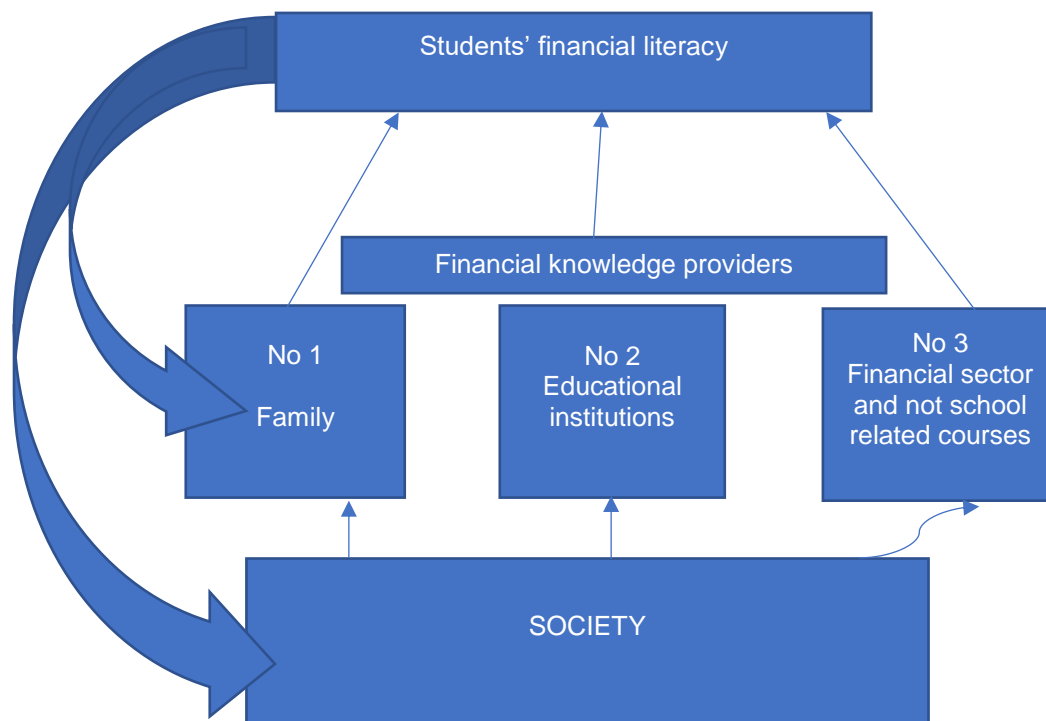


Figure 1. Conceptual model
Source: Author's own preparation

The research questions, for the first quantitative phase of this study, were:

- Do the students have an interest to improve their Financial Literacy?
- Are there any differences between evaluated and self-assessed financial literacy levels?
- Are there any differences in ratings between financial knowledge providers?

The guiding research questions, for the second qualitative phase, were:

- How can the statistical results obtained in the quantitative phase be explained?
- How could financial education improve the financial literacy?

The sub-questions to perform Phase II of the study were formulated on the basis of the results of the first, quantitative phase of the study and are presented in the Methodology of this article (Table 1).

2.1. Research design

The present study uses Mixed Methods Research (MMR) design, which is a procedure for collecting, analyzing, and “mixing” both quantitative and qualitative data at some stage of the research process within a single study, for understanding a research problem more completely (Creswell and Plano Clark, 2006; Creswell, 2014).

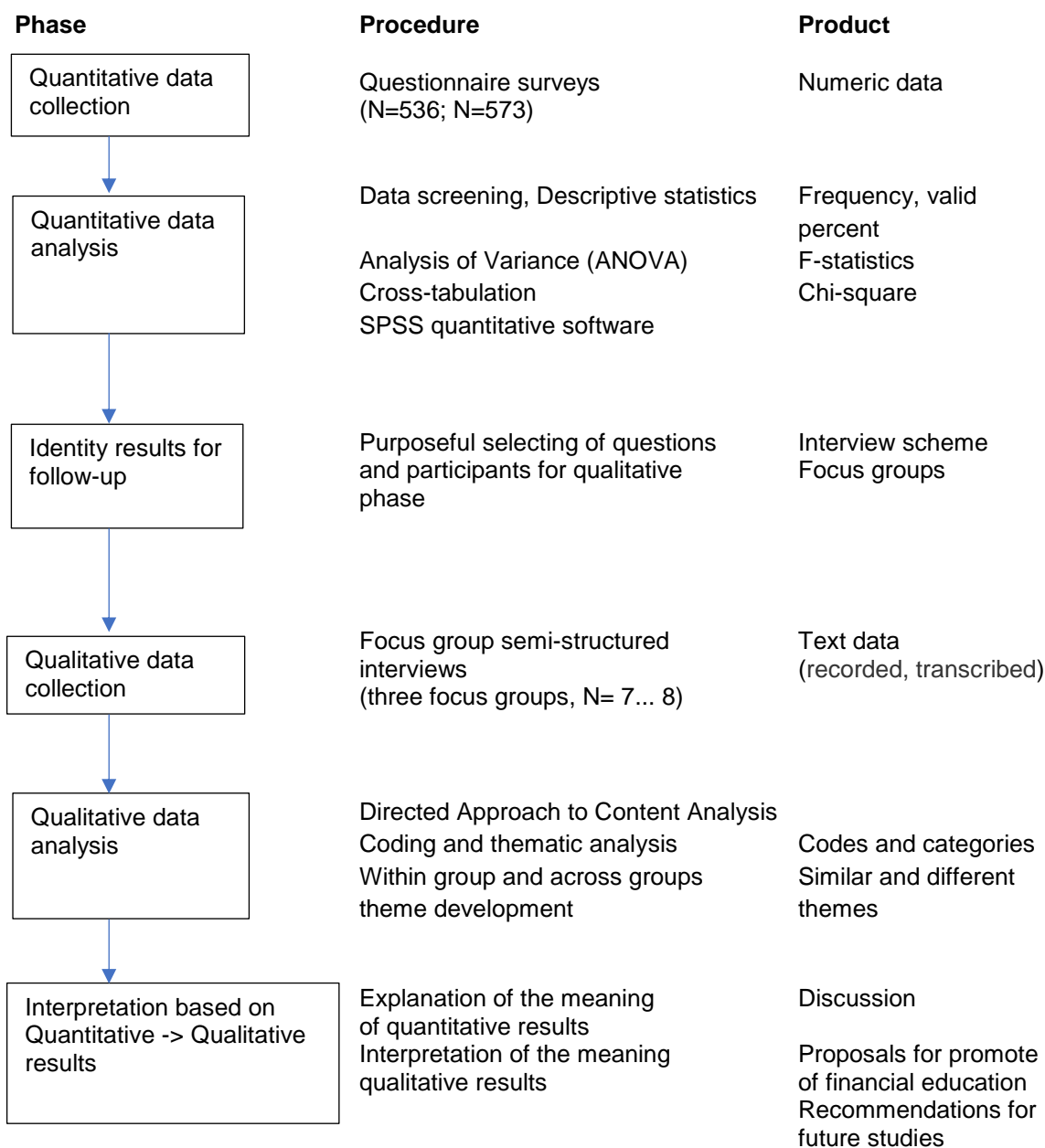


Figure 2. Visual model for mixed methods procedures (sequential explanatory mixed methods design)

Source: Composed by the author

In a mixed methods approach, the researchers are using pragmatic grounds (Maxcy, 2003) and are asserting that truth cannot be purely calculated but is rather “what works” in reality (Howe, 1988). “Pragmatism is a philosophical movement that includes those who claim that an ideology or proposition is true if it works satisfactorily, that the meaning of a proposition is to be found in the practical consequences of accepting it, and that impractical ideas are to be rejected.” (IEP, n.d.) By the words of Creswell (2014), for the mixed methods researcher, pragmatism opens the door to multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis.

“Mixed methods involve combining or integration of qualitative and quantitative research and data in a research study. Qualitative data tends to be open-ended without predetermined responses while quantitative data usually includes closed-ended responses such as found on questionnaires or psychological instruments.” (Creswell, 2014, p. 43) Although many designs exist in the mixed methods field, this research focuses on the Explanatory sequential mixed methods design, as it is one of the most popular mixed methods designs in educational research (Creswell *et al.* 2003; Creswell, 2014).

The explanatory sequential mixed methods design involves a two-phase project in which the researcher collects quantitative data in the first phase, analyzes the results, and then uses the results to plan the second, qualitative phase. The quantitative results typically inform the types of participants to be purposefully selected for the qualitative phase and the types of questions that will be asked (Creswell, 2014). The purpose to use the explanatory sequential mixed methods design in the current study is that the qualitative results to assist in explaining and interpreting the findings of a quantitative study. Figure 2 presents “Visual Model for Mixed Methods Procedures” that illustrate the research strategy.

2.2. Quantitative phase

Quantitative research is used to quantify behaviors, opinions, attitudes, and other variables. Quantitative research focuses on quantifying the collection and analysis of data, which can be used to find trends or averages, test causal relationships, make predictions, and generalize results to wider populations.

Survey is a method that is appropriate for use in quantitative research for gathering data. It is a good choice to find out about the characteristics, preferences, opinions, or beliefs of a group of people (Hirsijärvi and Huttunen, 2005).

A questionnaire is a research instrument consisting of a set of questions intended to capture responses from respondents in a standardized manner, while questions may be unstructured or structured. Structured questions ask respondents to select an answer from a given set of choices (Bhattacharjee, 2012).

One type of survey is a group-administered questionnaire where a sample of respondents is brought together at a commonplace and time, and each respondent is asked to complete the survey questionnaire while in that room. This format assures the high responses rate and although the respondents enter their responses independently, there remains a possibility to ask clarification if any specific question is not understandable (Bhattacharjee, 2012). The above-mentioned survey type was in use on data collection of the current study.

The first, quantitative phase of the study, focused on participants' interest to have additional knowledge, and to the students' ratings about own personal financial knowledge and sources of personal financial education. The data were collected by the questioning survey method to gather standardized information to be analyzed statistically about as many students as possible. In the current study, 10 questions from the questionnaire of University students' financial literacy survey were used and analyzed. For the data collection, structured multiple-choice questions including 7 questions on students' education and other demographic information were used to characterize the sample and to analyze students' opinions. For the assessment of personal finance knowledge and knowledge providers, the rating scales from 1 to 5 were used. A similar technique (five-point scale) was used by Chen and Volpe (2002) and Mändmaa (2019b, 2020a). For comparability with financial literacy levels, students' own knowledge rankings were converted to values: Low (1 and 2), Medium (3), High (4 and 5).

The validity and clarity of the survey was previously evaluated by a group of master level students and by three experts knowledgeable in personal finance topics. The polls were conducted during the lectures in the paper form as that supported the increase of participant number. The respondents answered anonymously, therefore they did not have to worry about confidentiality and their answers could be more reliable.

The Analysis of Variance (ANOVA), Cross-tabulations and Chi-Square tests were used to provide evidence of the differences. The collected data were analyzed using the software Statistical Package for the Social Sciences (SPSS).

2.3. Qualitative phase

The origin for the qualitative study is the description of real life. Qualitative study seeks first and foremost to find and present facts to the public, rather than to prove already existing (truth) claims (Hirsijärvi *et al.* 2005).

Traditionally, focus group research is “a way of collecting qualitative data, which involves engaging a small number of people in an informal group discussion (or discussions), ‘focused’ around a particular topic or set of issues” (Wilkinson, 2004, p. 177). Grönfors (1982) have acknowledged that interviewees feel more relaxed and that their talk is more reliable when several people are present. A focus group interview is a conversational group interview conducted according to a structured survey plan, which has a definite, rather narrow focus on the topic and the goal of achieving mutual stimulation from the informants participating in the conversation. The focus group is led by a moderator, whose task is to keep the conversation within specific time and topic frames and to create and maintain an atmosphere free from social pressure (Vihalemm, 2014). Social science researchers in general rely on focus groups to collect data from multiple individuals simultaneously. Focus groups are less threatening to many research participants, and what occurs in this environment is helpful for participants to discuss perceptions, ideas, opinions, and thoughts (Krueger and Casey, 2015). The interactions among the participants can yield important data (Morgan, 1997), and can provide a setting where the participants can discuss personal problems and provide possible solutions (Duggleby, 2005).

Well-designed focus groups usually last between 1 and 2 hours and are composed of 5 to 8 people, but the size can range from 6 to 12 participants (4 to 12 by Krueger and Casey, 2015). The rationale for the range of focus group size stems from the goal that focus groups should include enough participants to yield diversity in the information provided, yet they should not include too many participants because large groups could make the sharing of personal thoughts, opinions, and beliefs uncomfortable (Krueger and Casey, 2015; Onwuegbuzie *et al.* 2009; Vaughn *et al.* 1996). The number of times a focus group meets can vary from a single meeting to multiple meetings. Likewise, the number of different focus groups can vary. However, using multiple focus groups allows the researcher to assess the extent to saturation (Flick, 2009; Onwuegbuzie *et al.* 2009). Krueger (1994) and Morgan (1997) have suggested that three to six different focus groups are adequate to reach data saturation and/or theoretical saturation, with each group meeting once or multiple times. Focus groups can be formed by using pre-existing groups (e.g., colleagues at a place of work) also (Onwuegbuzie *et al.* 2009).

To collect answers (i.e., data) in the present study's qualitative phase, the unstandardized focus group interviewing technique (method) was chosen. To reach saturation, three different focus groups were used, while each group met once. Focus groups were formed on the bases of university students who participated in the quantitative phase (i.e., survey) and the size of groups was 7 to 8 participants. The focus group meetings (i.e., group interviews) took place in the spring semester 2016 and interviews lasted an average for two hours. The interviews were semi-structured, conducted according to the survey plan (Table 1) and were led by a moderator. To create a comfortable atmosphere and interaction, the moderator was a third-year bachelor student in economics.

The directed approach of content analysis was chosen to analyze the collected qualitative data. Researchers regard content analysis as a flexible method for analyzing text data (Cavanagh, 1997). The goal of the content analysis is “to provide knowledge and understanding of the phenomenon under study” (Downe-Wamboldt, 1992, p. 314). According to Hsieh and

Shannon (2005), the qualitative content analysis is defined as a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns.

Table 1. Semi-structured interview guide

No	Question
	Research question:
I	How can the statistical results obtained in the quantitative phase be explained?
	Sub-questions:
1.	How do students evaluate their financial knowledge
2.	Would their financial skills - knowledge (about budgeting/ saving / borrowing / investing etc.) need to be improved?
3.	Where does students' knowledge come from (family/ basic school/ upper secondary school/ university etc.)?
4.	What did they learn from knowledge providers and what could have been different?
	Research question:
II	How could financial education be improved?
	Sub-questions:
5.	Should borrowing be taught?
6.	Should saving be taught?
7.	Should budgeting be taught - how to create and maintain a budget?
8.	Should the happenings in financial markets be taught?
9.	Should investing be taught?
10.	Should the assessment of the financial condition and value of a company be taught?
11.	Summary:
	a) When and who should teach? At what age?
	b) How should be taught? Should it be a special subject - Personal finance?
	c) What knowledge would be needed (Interests)?

Source: Composed by the author

Content analysis is a widely used qualitative research technique with three distinct approaches - conventional, directed, and summative. All three are used to interpret meaning from the content of text data, but there are differences among the approaches in coding schemes, origins of codes, and threats to trust worthiness. With a directed approach, analysis starts with a theory or relevant research findings as guidance for initial codes (Hsieh and Shannon, 2005).

Hsieh and Shannon (2005) recommended using a directed approach to the content analysis if an existing theory or prior research about a phenomenon is incomplete or needs further description. By Potter and Levine-Donnerstein (1999), this might be categorized as a deductive use of theory based on their distinctions on the role of the theory.

The goal of a directed approach in the content analysis is to validate or extend conceptually a theoretical framework or theory while existing theory or research can help focus the research question and help to determine the initial coding scheme or relationships between codes (Hsieh and Shannon, 2005). Using existing theory or prior research, researchers begin by identifying key concepts or variables as initial coding categories (Potter and Levine-Donnerstein, 1999). The theory or prior research used will guide the discussion of findings. The main strength of a directed approach in the content analysis is that an existing theory can be supported and extended (Hsieh and Shannon, 2005).

As the results of previous studies on the acquisition of students' financial knowledge were insufficient, further descriptions were needed. Data were collected through focus groups interviews and were analyzed by using a Directed Approach in the Content Analysis. All interviews were recorded and transcribed.

Following the recommendations of Hsieh and Shannon (2005) and Laherand (2008), coding was started with predefined codes. The initial coding scheme was found from the basic concepts of previous research and as a continuation, a coding legend was created. For each

focus group member, an own code was created as well, which included information about the participant's education (academic discipline, level of study), gender and age. During the coding of the text, important and emphasized thematic concepts were identified and grouped into categories based on similarity. The main purpose of coding is to break down the text and understand it, to develop categories and to put them in an orderly system as the study progresses (Laherand, 2008).

The guiding research questions for the qualitative phase with the categories and sub-categories created to aggregate the answers are presented in Table 2.

Table 2. Coding scheme - The guiding research questions and categories

No	Questions and categories
I	How can the statistical results obtained in the quantitative phase be explained?
	The assessment of acquired financial knowledge from:
1.	Family
2.	Basic school
3.	Upper secondary school
4.	University
II	How could financial education be improved?
1.	1.Topics
2.	2.Teaching process - tips and hints

Source: Composed by the author

The categories and codes were used to create two informative organized tables, the first focusing on the origin of students' financial knowledge - was that knowledge important?, what and how did they learn?, what could have been differently?, and the second on students' interest in improving their knowledge - who should teach?, what should be taught? and when?. In addition to the coded text, the most substantive citations were presented in the tables, which both describe and refine the codes, thus creating a whole. Two separate tables were compiled for each focus group, the first contains the coded and categorized answers to the first four questions in a Semi-structured interview guide (Table 1) and the second contains the coded information about students' answers to questions 5 to 11 (Table 1). These tables and the results of prior research were guiding the discussion about findings and helping prepare conclusions. Due to the limited volume of the article, these tables, and the coding legend were not included to the article, but these are available from the author upon request.

2.4. Sample

2.4.1. Quantitative

The sample used in the quantitative phase of this study was composed of students enrolled at technological universities. The selection of universities was based on convenience driven by readiness for cooperation.

Purposive sampling was used, where the main criterion for the selection of respondents was the study in mathematics-based academic discipline (Engineering Science, Economics, Business) in university. Purposive sampling is a non-probability sampling method where the researcher chooses the participants as per own judgment, keeping back in mind the purpose of the study (Showkat and Parveen, 2017). Non-probability sampling technique uses non-randomized methods to draw the sample, and that sample is used to study existing theoretical insights or developing new ones.

The sample size was planned to be 1000-1200 students, more precisely 500-600 respondents from both participate countries. The size of the sample used to evaluate students' financial literacy and to gather their estimates about the financial knowledge acquired, was 1110 students. There were participants from two different countries. 574 (426 male and 148 female) students were participating from two Finnish universities: 321 (250 male and 71 female) students from Tampere University of Technology and 253 (176 male and 77 female) students from Lappeenranta University of Technology. From Estonia, the number of survey participants was

536 (326 male and 210 female students) and all of them were students in Tallinn University of Technology. The characteristics of the sample are presented in Table 3.

Table 3. Characteristics of the Sample

Characteristics	Estonian sample		Finnish sample	
	Frequency	%	Frequency	%
Total amount of observations	536	100	574	100
A. Education				
1. Academic discipline				
a) Engineering	447	82.5	463	80.7
b) Other*	89	17.5	111	19.3
2. Level of education				
a) Bachelor studies	177	33.0	516	89.9
b) Master studies	95	17.8	49	8.5
c) Other**	264	49.2	9	1.6
B. Experience				
1. Age groups				
a) 18-22	340	63.4	465	81.0
b) 23-29	157	29.3	81	14.1
c) 30 and up	39	7.3	28	4.9
2. The work experience				
a) None	171	31.9	47	8.3
b) Less than 2 years	207	38.6	317	55.2
c) 2 to 5 years	83	15.5	161	28.0
d) More than 5 years	66	12.3	49	8.5
e) Unanswered	9	1.7	0	0
C. Demographic characteristics				
1. Nationality				
a) Finnish/ Non-Estonian	91	17.0	573	99.8
b) Other/ Estonian	445	83.0	1	0.2
2. Gender				
a) Male	326	60.8	426	73.9
b) Female	210	39.2	148	25.8
3. Household size				
a) Live alone	156	29.1	335	58.4
b) Live with husband/ wife	100	18.7	115	20.0
c) Live with husband/ wife and children	40	7.5	14	2.4
d) Live with parents/ grandparents	190	35.4	27	4.7
e) Other	50	9.3	83	14.5

Note: Other* including Economic and Business, Info technology, and Mathematics; Other** including Integrated Bachelor's and Master's Study, and Unanswered.

Source: Composed by the author

2.4.2. Qualitative

For the data collection in the study qualitative phase, the focus group method was used. Based on the principles of the strategic sample (Trost, 1986; Laherand, 2008), the subjects were selected according to a combination of homogeneous and heterogeneous characteristics. In this qualitative phase of research, which looked at students' opinions in relation to the acquisition of

financial knowledge, the aim was to differentiate the sample by students' field of study (which was the heterogeneous feature of the sample), while previous experiences were relatively similar, i.e., all students had exposure to financial knowledge and participated in a university financial literacy survey (these were homogeneous features of the sample).

Onwuegbuzie *et al.* (2009) recommend researchers to use the multiple focus groups to assess if the themes that emerged from one group also emerged from other groups. Doing so would assist the researcher in reaching data saturation and/or theoretical saturation. To reach saturation, three different focus groups from different study fields (Civil Engineering, Business/Economics, International studies) were used. The selection of focus groups was based on the findings of the quantitative part of this study and the results of previous studies (Chen and Volpe, 2002; Mandell, 2008; Mändmaa 2020a, 2020b, 2021), taking into account differences in students' financial literacy levels between different academic disciplines, and in addition, among different nationalities. The size of groups was 7 to 8 students. The amount of groups was between 3 and 6, and the number of participants 6 to 12, had been recommended by multiple scientists earlier (see in part 3.1). In focus groups, there were all-together 22 participants of them 10 male and 12 female students, aged from 18 to 30.

3. Results

3.1. Quantitative part

This section presents the results of the quantitative analysis. The data were collected from students enrolled at universities of technology in Estonia and Finland during a questionnaire survey in 2015-2016. The questions concerned students' interest to improve financial literacy, their self-assessment about financial knowledge, and assessments to the financial knowledge providers. Students' responses were analyzed by financial literacy levels and gender using the software Statistical Package for the Social Sciences (SPSS). Students' financial literacy levels used in the analysis were published earlier (papers by Mändmaa, 2020a, 2020b, 2021) and have been used in the current study with permission of the author.

Consistent with the existing literature (Chen and Volpe, 1998; Mändmaa 2019a, 2019b, 2020a, 2020b, 2021), the mean percentage of correct answers was grouped into three categories: High level (more than 80%); Medium level (60% to 79%), and Low level (below 60%). The financial literacy of participated students was at Medium level - an average score of correct answers among Estonians was 68% and among Finns 74%, whereas female students answered 69% and 72% of questions correctly, respectively, and male students 67% and 74% of the questions, respectively (Mändmaa, 2021).

3.1.1. The students' interest to improve their financial literacy

The following subsection describes the results of the quantitative part of the current study to respond to the first guiding research question. The question "Does your financial literacy need improvement?" 82% of Estonian (Table 4) and 87% of Finnish (Table 4) respondents answered "yes". Estonian female students had remarkably (16%) lower interest in financial literacy improvement than Finnish female students, but the male students' interest was on a similar level. Table 4 summarizes the opinions relating to the interest about additional financial knowledge by gender.

In earlier studies (Goldsmith and Goldsmith, 1997; Chen and Volpe, 2002; Mändmaa, 2020b), several researchers suggested that financial literacy tends to be affected by interest about financial topics. Table 5 shows differences in students' financial literacy levels in case of differing opinions about the need to improve the financial knowledge. Statistically significant results show that the interest of Estonian students increased with financial literacy, but Finnish students with the higher financial literacy score were not interested in improving financial literacy. That could be interpreted as Finnish male students' higher confidence, as the answer "No" came mostly from male students (Table 4).

Table 4. Students' opinions about the need of financial literacy improvement

1. Estonian students	Yes	No	Unanswered	Total
Male	274	21	31	326
	84.1%	6.4%	9.5%	100%
Female	166	22	22	210
	79.0%	10.5%	10.5%	100%
Total	440	43	53	536
	82.1%	8.0%	9.9%	100%
2. Finnish students	Yes	No	Unanswered	Total
Male	361	57	8	426
	84.7%	13.4%	1.9%	100%
Female	140	5	3	148
	94.6%	3.4%	2.0%	100%
Total	501	62	11	574
	87.3%	10.8%	1.9%	100%

Note: For Estonian students; Chi-square = 3.101, significant at the 0.212 level. For Finnish students; Chi-square = 11.407, significant at the 0.003 level.

Source: Composed by the author

The differences in the answers of Finnish and Estonian students could be explained by the differences between the two countries in recent history, which has also been reflected in the results of previous studies (Bucher-Koenen and Lusardi, 2011; Bucher-Koenen *et al.* 2017; Mändmaa, 2021).

Table 5. Differences in financial literacy levels in case of differing opinions about the need to improve the financial knowledge

Students' opinions Does your financial literacy level need improvement?	Estonian students		Finnish students	
	Count	FL level	Count	FL level
Yes	440	68.4%	501	73.6%
No	43	64.4%	62	74.4%
Unanswered	53	62.4%	11	63.2%
Total	536	67.5%	574	73.5%

Note: FL - Financial literacy

Source: Composed by the author

3.1.2. Differences between levels of evaluated and self-assessed financial literacy

The following subsection describes the results of the quantitative part to respond to the second guiding research question of the current study. Table 6 gives a descriptive overview about the relation between students' self-assessment by gender. Estonian female students rated their financial literacy higher than male students, as 46% of females and 39% of male students rated their knowledge at high level (Table 6).

Self-assessment among Finnish students shows the opposite results, as 64% of male students rated their financial literacy at High level while only 47% of female students marked the same rating (Table 6). This result can again be interpreted as a sign of self-confidence of Finnish male students.

Table 6. Participants' evaluation of their financial knowledge

1. Evaluate your level of financial knowledge (Estonian students' answers)	Hard to say	Low	Medium	High	Total
Male	32	29	137	128	326
Weights (responses of male students')	9.8%	8.9%	42.0%	39.3%	100%
Female	23	16	74	97	210
Weights (responses of female students')	11.0%	7.6%	35.2%	46.2%	100%
Total	55	45	211	225	536
Weights (responses of male students')	10.3%	8.4%	39.3%	42.0%	100%
2. Evaluate your level of financial knowledge (Finnish students' answers)	Hard to say	Low	Medium	High	Total
Male	8	28	118	272	426
Weights (responses of male students')	1.9%	6.6%	27.7%	63.8%	100%
Female	3	20	55	70	148
Weights (responses of female students')	2.0%	13.5%	37.2%	47.3%	100%
Total	11	48	173	342	574
Weights (responses of male students')	1.9%	8.4%	30.1%	59.6%	100%

Note: For the first question; Chi-square = 3.363, significant at the 0.339 level. For the second question; Chi-square = 14.655, significant at the 0.002 level. Low = mean percentage of correct answers below 60%; Medium= 60% to 79%; High= more than 80% of questions.

Source: Composed by the author

Figures 3 and 4 display the comparison of students' self-assessment with rated financial literacy levels. The Cross-tabulations and Chi-Square tests were used, and the results were statistically significant (Estonian: Chi-Square 31.775 sig=0.000 and Finnish: Chi-Square 19.973 sig=0.003).

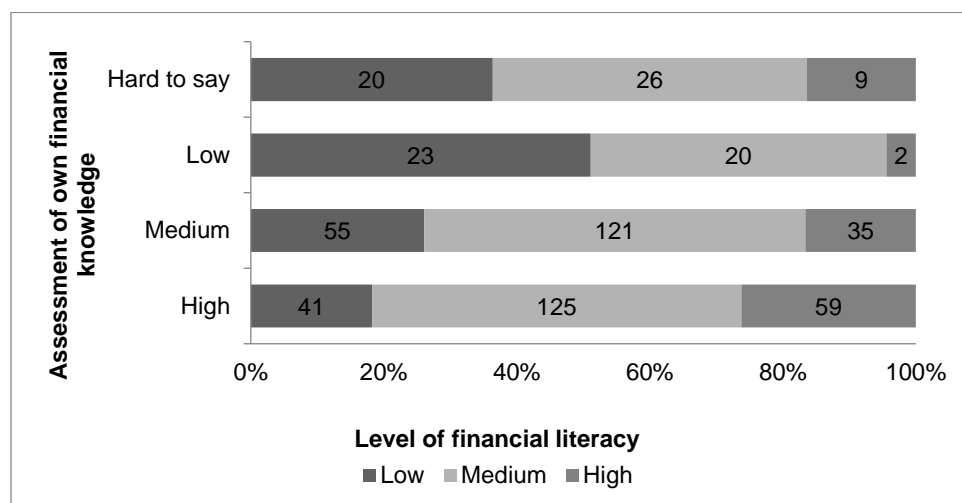


Figure 3. Comparison of Estonian students' self-assessment with the financial literacy study results

Source: Composed by the author based on Mändmaa (2021)

Figure 3 shows the results about Estonian students. The level of own financial literacy was assessed correctly by 203 students, which accounted for 38% of the total number of respondents. 225 students, which is 42% of the respondents, evaluated their financial

knowledge higher of the tested value, and 57 students rated their financial literacy level lower than was the value in the study results.

Figure 4 shows the results about Finnish students. The level of own financial literacy was assessed correctly by 238 students, which accounted for 42% of the total number of respondents. 237 students, which is 41% of the respondents, evaluated their financial knowledge higher of the tested value, and 88 students rated their financial literacy level lower than was the value in the study results.

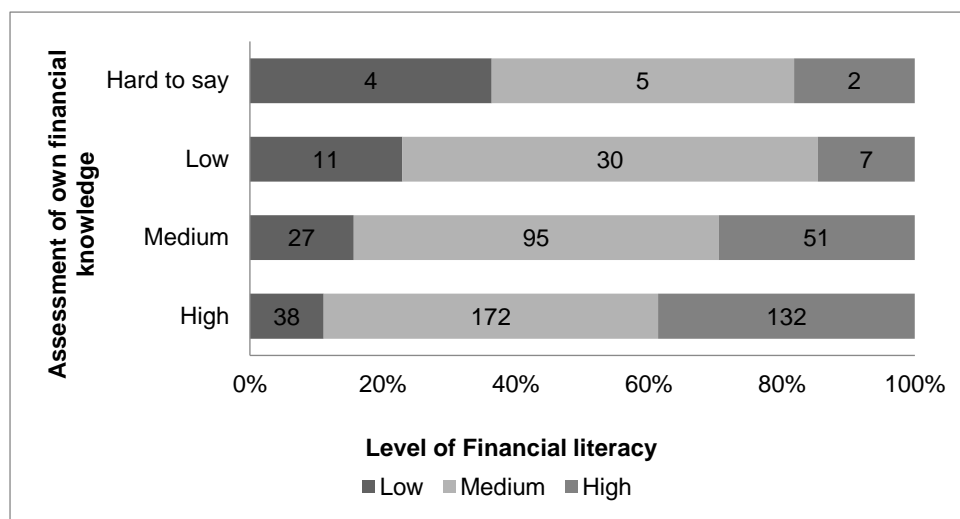


Figure 4. Comparison of Finnish students' self-assessment and the financial literacy study results

Source: Composed by the author based on Mändmaa (2021)

There were no significant differences in the comparison results of students from the two countries. A worrying indicator is an overestimation of students' own knowledge, as the proportion of students who overestimated own level of financial literacy was over 40% in both countries.

3.1.3. Differences in ratings of financial knowledge providers

The following subsection describes the results of the quantitative part in order to respond to the third guiding research question of the current study. Students' assessments of their financial literacy providers are presented in Table 7. Ratings were given on a scale from one to five, where 1 was "Unimportant" and 5 was "Very important". The indicators under position 6 expressed the number of respondents who did not give an assessment (i.e., they selected the answer "Hard to say").

Results show that the most important financial knowledge provider was the family, as the importance was assessed with "5" or "4" by 74% of Estonian and 79% of Finnish students. The next most important financial knowledge provider was the university, as it was evaluated with "5" or "4" by 51% of participants from Estonia and 44% of participants from Finland. Assessment nearly at the same level was given to the Upper Secondary School as knowledge provider (Table 7). By the students' opinions, modest importance as financial knowledge provider was given to the Basic School as well as to the Non-school related courses or financial services providers (Table 7).

ANOVA has been used to detect if participants who gave different ratings to financial knowledge providers have differences in financial literacy levels. The testing results of ANOVA indicated that differences are statistically significant at the 0.05 level. Differences in financial literacy levels were noticeable not only between rating groups or knowledge providers but also in the results of the two countries, which referred to the need to continue the study with more detailed methods to better understand gaps in financial education.

Table 7. Evaluations of sources of financial knowledge

A. Estonian students						
1. Importance of financial knowledge acquired from Basic School (stage I – grades 1-3)	1	2	3	4	5	6
Number of participants	318	93	28	16	20	61
% of participants' total number	59.3	17.4	5.2	3.0	3.7	11.4
Mean financial literacy level (%)	68.8	68.8	69.1	71.2	57.6	60.1
F Statistic = 5.744 significant at the 0.000 level						
2. Importance of financial knowledge acquired from Basic School (stage II and III – grades 4–9)	1	2	3	4	5	6
Number of participants	128	142	143	51	32	40
% of participants' total number	23.9	26.5	26.7	9.5	6.0	7.5
Mean financial literacy level (%)	69.5	69.0	68.3	66.8	64.0	56.5
F Statistic = 5.583 significant at the 0.000 level						
3. Importance of financial knowledge acquired from Upper Secondary School	1	2	3	4	5	6
Number of participants	45	64	124	150	118	35
% of participants' total number	8.4	11.9	23.1	28.0	22.0	6.5
Mean financial literacy level (%)	72.5	71.3	69.0	67.7	64.6	57.8
F Statistic = 6.005 significant at the 0.000 level						
4. Importance of financial knowledge acquired from university	1	2	3	4	5	6
Number of participants	53	54	86	111	160	72
% of participants' total number	9.9	10.1	16.0	20.7	29.9	13.4
Mean financial literacy level (%)	68.7	70.0	70.1	69.6	66.3	61.2
F Statistic = 4.072 significant at the 0.001 level						
5. Importance of financial knowledge acquired from not school related courses	1	2	3	4	5	6
Number of participants	164	54	64	63	65	126
% of participants' total number	30.6	10.1	11.9	11.8	12.1	23.5
Mean financial literacy level (%)	69.7	68.1	67.3	68.0	70.4	62.7
F Statistic = 3.784 significant at the 0.002 level						
6. Importance of financial knowledge acquired from financial service provider	1	2	3	4	5	6
Number of participants	116	75	108	66	57	114
% of participants' total number	21.6	14.0	20.1	12.3	10.6	21.3
Mean financial literacy level (%)	68.6	68.6	70.6	70.0	67.3	61.5
F Statistic = 5.158 significant at the 0.000 level.						
7. Importance of financial knowledge acquired from family, parents	1	2	3	4	5	6
Number of participants	10	23	75	133	261	34
% of participants' total number	1.9	4.3	14.0	24.8	48.7	6.3
Mean financial literacy level (%)	68.3	68.4	68.4	70.3	67.4	54.7
F Statistic = 6.062 significant at the 0.000 level						

Table 7. Continued

B. Finnish students						
1. Importance of financial knowledge acquired from Basic School (grades 1–3)	1	2	3	4	5	6
Number of participants	316	128	49	7	4	70
% of participants' total number	55.1	22.3	8.5	1.2	0.7	12.2
Mean financial literacy level (%)	73.5	74.6	75.3	77.3	68.2	70.0
F Statistic = 2.383 significant at the 0.037 level						
2. Importance of financial knowledge acquired from Basic School (grades 4–9)	1	2	3	4	5	6
Number of participants	104	169	166	79	18	38
% of participants' total number	18.1	29.4	28.9	13.8	3.1	6.6
Mean financial literacy level (%)	72.2	74.7	74.0	75.1	74.5	65.7
F Statistic = 5.288 significant at the 0.000 level.						
3. Importance of financial knowledge acquired from Upper Secondary School	1	2	3	4	5	6
Number of participants	47	71	204	166	55	31
% of participants' total number	8.2	12.4	35.5	28.9	9.6	5.4
Mean financial literacy level (%)	71.4	74.8	73.6	74.6	74.6	65.2
F Statistic = 4.715 significant at the 0.000 level						
4. Importance of financial knowledge acquired from University	1	2	3	4	5	6
Number of participants	51	65	156	164	85	53
% of participants' total number	8.9	11.3	27.2	28.6	14.8	9.2
Mean financial literacy level (%)	72.0	72.8	74.1	74.8	73.8	69.6
F Statistic = 2.176 significant at the 0.054 level						
5. Importance of financial knowledge acquired from not school related courses	1	2	3	4	5	6
Number of participants	149	86	106	72	40	121
% of participants' total number	26.0	15.0	18.5	12.5	7.0	21.1
Mean financial literacy level (%)	73.7	75.4	74.9	75.8	74.8	68.9
F Statistic = 6.164 significant at the 0.000 level						
6. Importance of financial knowledge acquired from financial service provider	1	2	3	4	5	6
Number of participants	75	90	118	143	76	72
% of participants' total number	13.1	15.7	20.6	24.9	13.2	12.5
Mean financial literacy level (%)	72.2	75.2	75.1	73.6	74.4	69.0
F Statistic = 3.773 significant at the 0.002 level						
7. Importance of financial knowledge acquired from family, parents	1	2	3	4	5	6
Number of participants	5	22	67	165	286	29
% of participants' total number	0.9	3.8	11.7	28.7	49.8	5.1
Mean financial literacy level (%)	78.2	75.6	74.6	73.7	73.6	66.6
F Statistic = 2.852 significant at the 0.015 level.						

Source: Composed by the author

3.2. Qualitative part

Hsieh and Shannon (2005) argued that sometimes existing prior research is incomplete or would benefit from further description and in this case the qualitative researcher might choose to use a directed approach to the content analysis. Existing research can help focus on the research question and help to determine the initial coding scheme or relationships between codes. Potter

and Levine-Donnerstein (1999) suggested beginning the research by identifying key concepts or variables as initial coding categories.

This section presents the results of the qualitative part of the current study where the directed approach to the content analysis was used, which was based on the existing quantitative study (see 3.1.). The thoughts expressed by the focus group members were analyzed and interpreted on the light of guiding research questions.

In the present study, directed coding was used, where coding was done according to the research questions and the remaining topics were excluded from this research. The coding was performed with predefined codes, i.e., on the basis of a previously prepared coding scheme (Table 2). The assessments and opinions of the three focus groups participating in the study were remarkably similar despite differences in field of study or nationality (country of origin), and as the information occurred so repeatedly, the collecting of more data appeared to have no additional interpretive worth.

To start, all focus groups members had to evaluate their own financial knowledge. The personal financial knowledge was rated on a scale of 1 to 5, where "1" was "Insufficient" and "5" "Excellent". The largest number of participants, 9 students, assessed their knowledge with the score "3", followed by 6 students with the score "4", 4 students admitted that their knowledge was excellent (score "5") and the rest 3 assessed their knowledge with the score "2". Although participated students admitted their knowledge as satisfactory or higher, all 22 acknowledged the need to improve their financial literacy, even those who rated own knowledge as very good or excellent. Students expressed the view that: "... always you can improve yourself in something."; "... how money moves in the stock market, ... how to put money to work, that's what is needed.".

3.2.1. The explanation of statistical results obtained in the study quantitative phase

The following subsection describes the information gathered during the interviews to answer to the first guiding research question of qualitative part of current study. The description covers four categories (Table 2, 1.-4.) that can be grouped under a common topic: The assessment of acquired financial knowledge from knowledge providers (Was that knowledge important?; What and how did they teach?; What could have been differently?). The number following the letter P refers to the specific student who participated in the focus group.

3.2.1.1. Assessment of acquired financial knowledge from the family

Thoughts expressed by the focus group members revealed that the most valued source of financial knowledge was the family, which is in line with the results of the quantitative survey. The students noted that important explanations were received from parents about both financial terminology and meeting financial needs:

"... I used to watch news and stuff, and I used to ask a lot from my stepdad, like what does this mean, what does that mean ..." (P6);

"... I got a basic from home, that as you want something, go do your own job, go earn your own money, ..." (P19);

"... yes, she /mother/ also directed me to work quite early in the summertime ... well, to earn my pocket money ..." (P20).

The occupational effects of parents or relatives were highlighted. For example:

"My mother works in bank, so I hear through it." (P18);

"... well, my mother is an accountant, and then she deals a lot with that money ... and basically now, in my adult life, I also ask her for advice." (P20);

"... the initial knowledge in principle comes from my parents, because I have a well-enterprising family, ... everyone is developing their business." (P13).

The family has also taught about saving, and investing:

"I was maybe 11 or 12 years old, I have this box, my mom created for me, like this wood box. So, whenever visitors come to our house and give me money or something, she said, oh, 'go put that in a box, you don't have to spend this, you have to save for something so that's my upbringing ..." (P5);

"My first knowledge definitely came from my parents, who have always, I would say, handled money very well ... and also managed to invest in real estate mostly..." (P11);

"... I think in the sixth grade then I started investing with my father, uh well, let's say that through my father came this economic interest ... " (P14);

"... when I was a kid, we opened this ... kind of stock account for me ... when I was younger, when my dad got it to me, I was like a, I don't need it. But I now, I think it is very good thing that I have it because it is kind of like start." (P4)

3.2.1.2. Assessment of acquired financial knowledge from the basic school

Little knowledge was gained from the Basic School, and several students expressed the opinion that teaching was not appropriate:

"... how to draw it /a budget/ was taught, but precisely how to view it and what to read from it, that ee ... it would have been more important." (P11);

"... it was an economic subject, but it was ... very poorly drafted, and we learned some things about the stock markets there, but for me - for what these are?..." (P12)

However, one student who had had a subject in Economics since the first grade was very pleased with it and pointed out:

"... perhaps bringing in more young teachers who seem to be able to pass on their experience, ... not that any academic knowledge, but just that experience, well, we had a few of them and ... it motivated me a lot." (P10)

3.2.1.3. Assessment of acquired financial knowledge from the upper secondary school

The focus groups have highlighted the positive elements of economics studies framework in Estonian Upper Secondary Schools, as the creation of student companies and related practical activities, which increased the economic knowledge of the participants:

"... making a student company... which, as to some extent, also provided knowledge, we still talked in every lesson about everything economically before we tested it directly on our student company ..." (P11)

Guest speakers, i.e., representatives of different companies - entrepreneurs, as well as the teacher's personal business experience (entrepreneur-to-teacher) also contributed to the acquisition of knowledge:

"As much as I had that economics studies in Upper Secondary School, I can say it was quite useful, because our teacher was an entrepreneur himself, and he kind of told a lot about his own experience ..." (P15)

More personal financial knowledge was gained from the Upper Secondary School than during the previous educational levels, but still several students pointed out problems that the subject was too general - theoretical, students had no interest in these topics and what they learned was not remembered longer. For example:

"Well, I had economics as such, ... I do not remember if it was 1 or 2 years that kind of ... short, general, kind of boring ... then I thought that I will never study economics (laughs) ... " (P13);

"... uh, to me ... secondary school courses on economics, were not really helpful, maybe because of the methods of teaching. ... I did not understand anything, so. Yeah." (P3)

3.2.1.4. Assessment of acquired financial knowledge from the university

Students estimate that more financial knowledge was acquired from the university than from previous educational institutions by both as opinions of participants in the focus group and as questionnaire survey results.

The usefulness of knowledge was assessed differently depending on the subjects included in the specific curricula. For example, the courses in Micro and Macroeconomics were assessed as particularly useful and logical, but they could not be associated with real life:

"Well for me ... it was the 1st time I took economy, and it was easy for me to understand. From the beginning it was not so easy but then like it got more and more interesting but ... mm ... I do not know how to use these things in life, because I do not see any connection between life and .. (laughs)." (P1)

The importance of pedagogical work was reflected in the opinions of all those involved in the focus groups, i.e., the ability of pedagogues to link knowledge to real life and to understandably convey it - to generate in listeners the interest and to guide it. For example:

"I had a good example last semester, I had Financial Analysis and Accounting, which was really good, because it was taught by this man who is a financial manager in one big company, so actually he knew how to explain this stuff and how use it in real life, but this semester I have Corporate Finance, which I hate, I do not understand anything there. And the teacher is very knowledgeable with numbers and theory, she is very wise, but she cannot teach. The way she explains the stuff, is like we were, we were mathematicians..." (P4)

One student studying at the Faculty of Economics also noted the knowledge acquired during the internship:

"... I definitely got some knowledge at the university and then a particularly good, very great benefit was the internship, at Swedbank ..." (P12)

The results of the qualitative part of the study support the statistical results of the quantitative analysis and affirm the great importance of the family in acquiring financial knowledge. Although, the possibility that the parents themselves may not have the necessary knowledge is also noted. Students are of the opinion that gathering the financial knowledge in family as a child has a sustainable effect. Being close to parents (authority) allows them to start gathering knowledge at an early age, which is constantly evolving with the help of interest and the environment. The knowledge offered during the years of Basic School has been assessed very insignificant in both qualitative and quantitative results. This is mainly due to a lack of interest and boring study methods. In the level of Upper Secondary School, the students' own interest in personal financial knowledge has already been considerably higher, that is why the assessments are also higher. However, there have been repeated criticism for studies organized boringly. The personal financial knowledge provided at the University has been assessed by the students as good, although sometimes too complicated. That suggests that the topic of personal financial education needs to be improved at the university also and it must not be forgotten that most of students are future family creators - parents.

3.2.2. Students' suggestions for financial education to improve the financial literacy

This subsection aggregates the information gathered during the focus groups interviews to respond to the second guiding research question of qualitative part. Students were most interested about budgeting and investing:

"... I would like to know about budgeting (laughs) that would be first, that comes to my mind, and then I would like to know a lot about investing money, because I think it is like good way to earn money." (P1);

"... more about investments, and also taxes, ... risks of it, ... tips and tricks ..." (P6)

Some students mentioned interest in the economics situations of different countries and the needs to translated information:

"... So, if I get more knowledge more about the Chinese system and this is very difficult because I already search it, but most of the documents are in Chinese and I may speak 4 languages but not Chinese (laugh)... I really would like to study it and to understand it also because it could really affect us as European Union ... if the Chinese system just falls down." (P8)

When asked whether borrowing should be taught, many students answered that this knowledge should come from the family or by experiences.

"I think ..., we can learn that from our parents, as well ... before getting a loan... you should understand the terms and conditions ..." (P5)

At the same time, it was considered that students should be aware about the procedures of borrowing, responsibilities of repaying and about interests. Some students had suggestions that borrowing could be taught at the university level:

"... more emphasis should be placed on the consequences and how to get a loan ... I guess they can teach you in school, but I don't think at that age you'll think of loans because you're still dependent on your parents and it's not something that you care about that much, so maybe in university ..." (P2);

"... it has to be your knowledge, which have to save you and to give you the opportunity to take a loan, to understand what is the loan, ... and if you can repay it, effectively." (P8);

"... how interest is actually calculated." (P18)

Talking about saving, students found that the topic is much more important than borrowing and should be taught already at early ages by parents and as well at school:

"... saving should be taught... It is very important, like this wooden box - from the early age - do not waste your money, right away." (P3);

"... your parents should like to tell you it's a good thing to save, or something like that, but because my parents didn't emphasize on that, so I kind of just spend everything." (P6); " ... parents... cannot be bad at savings. (laugh) So you have to teach your children how to save for the rainy days, ... so it should be taught right from the household ..." (P5);

"... savings is a lot more important to teach than loaning, because it's more beneficial in a way, so ... it should be taught, definitely, like, at least if not as a subject alone, part of something..." (P2)

Interesting reactions were expressed about teaching budgeting among participants in focus groups. Most of the students were interested in budgeting, the students from Estonia were sure that budgeting should be taught at school:

"Yes, budgeting should be taught. So, speaking, it helps to save money and, to keep the costs lower, ... it could be at a very young age, in basic school ..." (P19);

"... the ninth grade seems reasonable." (P20);

"... we had to made budget in basic school ... it definitely provided some support for future." (P10)

But students from other countries had opinions that teaching budgeting is not important because that depends on personality and conditions:

"I do not think it should be taught, at least in school, cause some people are systematic, that they keep track on what they do... it is something that you come up with yourself if you want to do it or not."(P4);

"... you will just like, by experience... slowly learn how to manage."(P2);

"... well, it comes with your lifestyle."(P1);

"I do not think it ... should be taught, ... I believe, budgeting is just your common sense ..."(P3)

There were students who thought that financial markets is the topic for everyone, and others whose opinions were the opposite. There was a student who explained his opinion about reasons why that topic is for everyone:

"... Everyone has to have some knowledge about that ... it's part of the financial education, you start with the basic knowledge in the primary /basic/ school, and then when you get older and you already have some knowledge about that, you focus more of the, on the financial markets and everything, what does it mean... We could actually avoid the financial crisis in 2008, if most of the people knew what was happening in the markets in the world,... the biggest problem was that most of the people don't have an idea how the financial system works, ... if you don't know that you are not able to face a crisis. And the crisis in the capitalistic system are, ... like a cycle." (P8)

Some opposite opinions:

"... if someone is interested, then why not, but taught by everyone? I do not think that it is sufficient."; (P1)

"... the financial market is still only for those who really want to enter it." (P16)

The students of the Faculty of Economics were more optimistic in their opinions and thought that the financial markets could be introduced in the upper secondary school and those interested could be offered the opportunity to study in more depth - as an elective subject, and then in more detail already in the university.

Students' unequal knowledge levels about investing refers to the need for courses with different levels:

"We need the stock market and the exchange market for the thing, then we need to know how competitive is this company which we are investing and how many other companies there are that are working in the same sector because if you invest in a sector, which is monopoly sector, of course you will have more probability to... have some income. If you invest in a sector that is very competitive, you will have the opportunity to lose your money. I need to know who is the owner of the company, where is the base of the company." (P8);

"... it depends on the investment, so if it is like currency, I need to know about inflation, I need to know about social psychology, people's behavior, how it is going to impact currency rate..."(P6);

"... to know what are the benefits, and like, what might be the risks, ... consequences, ... about the market ... what happened to people who invested there... it is kind of important to have some background knowledge about ... at least have some basis..., maybe, in the university, would be nice, like before you go off to... to real world." (P2);

"... about derivatives, ... futures, options, and forwards ..."(P9)

Students' answers to the question of what information you need about investing can be summarized as follows: knowledge of the behaviors of stock and real estate markets in order to make investments; advice how options can be traded on the US stock markets and on which

platforms they can be traded as cheap as possible; introduction of investment platforms; information on derivatives; practical help from someone who has traded and knows the markets well.

Students gave contradictory opinions on the question of whether the assessment of a company's financial and economic condition should be taught. Some felt that a basic understanding is important for everyone:

"... basic stuff everybody should know ... cause everything in the society evolves around the companies ... ratios for those people who are interested, and the basic stuff for everybody ..." (P8)

Others thought the topic should be taught only for the specialists in this area or to those interested in investing:

"I don't believe it has to be taught to a wide audience. ... Well, obviously except for the specialists in this area, those who are interested." (P3);

"... it should not be taught for everyone, ... the investors, who are going to invest in the companies and ... they should know the basic information." (P1)

Earlier sections of this paper have already highlighted the need to improve teachers' knowledge and skills as well as teaching methods. According to students' opinions, teaching the courses of personal financial knowledge should be interesting - not boring, more practical - connected with everyday life, enriched with living examples – cases, and with visual materials:

"... First I had a course on economics in high school, I was not interested and I.. did not get anything... because I was not interested ... then, I had ... more advanced course in my 1st degree and I was not interested either ... but here in this university, it was much better, probably because it was less boring, we had more ... examples, more visual materials, more ... living examples, cases, ... practical tests... I think it has to do with the methods of teaching. And it should not be boring." (P3);

"... it would be... better if ... there would be subject what will connect life, ... how to invest for example." (P1)

Several students expressed an opinion that teaching personal financial knowledge is mostly the obligation of parents and later on, the knowledge could be received from school or university:

"I feel like it's more up to your parents to teach you because people don't really take what they learn in school too seriously and then forget, and... if your parents kind of tried to get it into you slowly, then I think it's more effective... and ... in the beginning of your university maybe... you are a little smarter and take things more seriously..." (P2);

"... a little knowledge would be good, from school ... the last year ... or maybe the first year of university, ... 18-19, ..." (P1)

Teaching financial knowledge through active discussion and using film material to start the discussion had been suggested as interesting ideas that were welcomed greatly by the rest of focus group members:

"I think it should start from like /age of/10...11 ..., it should be very basic, ...like really simple stuff by parents and then in school it should be kind of subject, but not as kind of book subject, it should be ... open discussion, to just go sit in class, someone introduces things happening in their family, like someone lost money.. and then the teacher who has like good knowledge about this matter, bring it in the children language, like if you are not careful then you invest in bad things and the parents lose money, and stuff like that ... I think discussion part is the best way to learn ..." (P6);

"Another way can be documentaries and movies. I saw another movie, "Big Short" it was recently in cinema, there were many things I didn't understand, but it was really interesting, ... so it would be great if they bring it up in class and they say, "yeah this happened" then give an example, they just... dedicate ... to this movie, and just discussing it and what happened ..." (P6)

Students who participated in focus groups often expressed the opinion that this or that information could be obtained from parents, which means, however, that parents must acquire this knowledge in advance. The part of the interviews (qualitative part) significantly complemented earlier information, especially about the financial knowledge acquired from the Basic School that had low level importance by the results of the quantitative part. Based on the results of the qualitative part, the teaching of personal financial knowledge is important in every educational level, provided interesting (not boring) study methods and teachers with practical knowledge and explaining skills (about budgeting, saving, borrowing, investing, assessment of financial markets and companies etc.) are used.

4. Discussion

The current study was planned in purpose to collect and compare students' assessments and opinions about the acquired financial knowledge, together with suggestions for the promotion of personal financial education.

In the present study, the Explanatory sequential mixed methods design was used, in which a quantitative part of the study was conducted among 1110 participants, followed by a qualitative part of the study with a sample sized of 22 students. Students at the universities of technology from two neighboring countries, Estonia, and Finland, participated in the survey.

The data were collected in a quantitative part through a questionnaire survey and in a qualitative part during three focus groups. Based on the results of the quantitative survey, questions and participants were purposefully selected for the qualitative phase in order to explain the content of the quantitative results, i.e., students' assessments to financial literacy providers and to financial education in general. For studies (quantitative and qualitative) conducted separately, a clear link between quantitative results and qualitative research would have been lost. The quantitative study alone did not provide clarity about bottlenecks and the topics of interest relevant for students, which is extremely valuable information to develop the personal financial education. Krueger and Casey (2015) suggested using of focus groups to gain understanding about a topic, so decision makers could make more informed choices. At the same time, the results of the qualitative part only, in which 22 students participated and expressed their opinions, would not have had a significant weight. In the current case, the 1110 students who responded in the quantitative part increased the reliability of the qualitative part results.

In addition, due to the choice of MMR, the collection of all information was coordinated by the same researcher, who carried out the analysis and interpreted the results. This approach ruled out possible errors in the interpretation of the data and results, such as different interpretations of the wording, etc. MMR was excellent for achieving this research goal, and this method would be recommended for anyone planning to compile new curricula or subjects, as well as to further develop existing ones.

In earlier studies (Goldsmith and Goldsmith, 1997; Chen and Volpe, 2002; Mändmaa, 2020b), several researchers suggested that financial literacy tends to be affected by interest about financial topics. Statistically significant results show that the Estonian students interest to improve the financial knowledge increased with financial literacy, but Finnish students with the higher financial literacy score were not interested in improving financial literacy. That could be interpreted as Finnish male students' higher confidence, as the answer "No" came mostly from male students (Table 4). The differences in the answers of Finnish and Estonian students could be also explained by the differences between the two countries in recent history.

The results about the relation between students' self-assessment by gender showed that Estonian female students rated their financial literacy higher than male students, as 46% of females and 39% of male students rated their knowledge at High level (Table 6). Self-assessment among Finnish students had the opposite results, as 64% of male students rated their financial

literacy at High level while only 47% of female students marked the same rating (Table 6). This result can again be interpreted as a sign of self-confidence of Finnish male students.

The comparison of students' self-assessment with rated financial literacy levels showed that the level of own financial literacy was assessed correctly by 38% of Estonian and 42% of Finnish students and, 42% of the respondents from Estonia and 41% from Finland, evaluated their financial knowledge higher of the tested value. There were no significant differences in the comparison results but a worrying indicator is an overestimation of students' own knowledge (over 40% in both countries). Too high self-esteem can lead to decisions that are detrimental to well-being. The results of the quantitative part showed, that more than 80% of students (82% of Estonians and 87% of Finns) were still interested in improving their financial knowledge, and that can balance the situation.

The results of financial knowledge providers assessment showed that the most important financial knowledge provider was the family, as the importance was assessed with "5" or "4" by 74% of Estonian and 79% of Finnish students. The next most important financial knowledge provider was the university, as it was evaluated with "5" or "4" by 51% of participants from Estonia and 44% of participants from Finland. Assessment nearly at the same level was given to the Upper Secondary School as knowledge provider (Table 7). By the students' opinions, modest importance as financial knowledge provider was given to the Basic School as well as to the Non-school related courses or financial services providers (Table 7).

The results of the qualitative part of the study supported the statistical results of the quantitative analysis and affirmed the significant importance of the family in acquiring financial knowledge. Although, the possibility that the parents themselves may not have the necessary knowledge is also noted, the students are of the opinion that gathering the financial knowledge in family as a child has a sustainable effect.

The knowledge offered during the basic school years has been assessed as very insignificant in terms of both qualitative and quantitative results. The main reasons are lack of interest and boring teaching methods. At the upper secondary school level, the students' own interest in personal financial knowledge has already been considerably higher, therefore the assessments are also higher.

However, boring lessons have repeatedly been criticized, which points to the need for professionally trained teachers. The results of research conducted in the USA and Australia also highlighted the importance of teacher training in teaching personal financial education (Asarta *et al.* 2014; Blue *et al.* 2014).

The personal financial knowledge offered at the university has been assessed by students as good, although sometimes too complicated. That suggests that the topic of personal financial education needs to be improved at the university as well.

Researchers in New Zealand (Cameron *et al.* 2014) have argued that financial literacy education, starting at the high school level, can be key to making financial decisions for the population.

The objects of this study were students from technology universities. Their opinions expressed in the qualitative part of the study included suggestions to offer a preparatory financial course to the first-year students, which would contain knowledge of saving, borrowing, budgeting, investing, as well as financial risks. Students have also noted interest in additional information, i.e., more in-depth, courses for making informed investment decisions - what is happening in the financial markets, the current economic situation in different countries, evaluation of companies' economic activities, etc.

Students who participated in focus groups often expressed the opinion that this or that information could be obtained from parents, which means, however, that parents must acquire this knowledge in advance. Based on the results of the qualitative part, the teaching of personal financial knowledge is important in every educational level, if provided interesting (not boring) study methods and teachers with practical knowledge and explaining skills (about budgeting, saving, borrowing, investing, assessment of financial markets and companies etc.) are used.

5. Conclusion

The goal of this study was to find out how the university students rate their acquired financial knowledge and knowledge providers, with the purpose to find solutions for promoting personal financial education to promote financial literacy.

The results of this study showed that university students' interest to improve their financial literacy is high. The most important financial knowledge provider was the family, and the university came next. The obstacle most mentioned by students in the pursuit of lower education levels, i.e., pre-university education, was a lack of interest in obtaining financial knowledge, which was largely due to boring teachers and learning material.

Teaching of personal financial knowledge has been considered notably necessary by students participated. Many of students had opinion that personal financial knowledge like saving and budgeting should come from the family and should be taught from an early age. However, it was noted that families may not always be knowledgeable enough in these issues and may not to be able manage the finances well.

Based on the views expressed in the focus groups, it can be argued that financial knowledge should be provided at every level of education, starting with a course in basic school and continuing with more comprehensive knowledge in secondary school and university. Students involved in the interviews explained the low importance of the knowledge acquired in basic school (school years 1 to 9) mainly with lack of interest - boring subjects and teachers. According to the collected opinions, connection with real life, the use of interesting examples, tasks and practical advice in organizing teaching in financial education is most important. So, the emphasis here should be on the teaching staff, their knowledge, and skills.

Study results revealed differences in male and female students' self-confidence and interest in personal finance, but due to time and volume limits, these topics were left for future studies. Research could be continued through the development, piloting and monitoring of specific subjects aimed at promoting financial literacy of students and also educating appropriate pedagogues. At the same time, it would be necessary to continue research on gender differences in financial knowledge in order to find both causes and solutions.

This study makes contribution to the literature on Mixed Methods Research (MMR) by describing the procedure of how the solutions to the research problem were found.

The study is important for researchers dealing with financial literacy or interested in using MMR in research. The results of this study could provide interesting information for politicians and educators who are planning improvements in teaching personal financial knowledge, as well as for financial executives, economic managers, investors, entrepreneurs, or anyone who has knowledge and interest in issues of fundamental importance to the sustainable economic growth and welfare.

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