A Survey of Financial Literacy Among University Students

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ABSTRACT

The purposes of the study are; to determine the level of financial literacy among university students, to find out the relationship between financial literacy and student characteristics, and to provide an information resource that may assist with the development of strategies to improve financial literacy among university students. In this study, a survey instrument which includes 29 items that measure constructs such as saving and spending, banking, risk and insurance, investing, and general financial knowledge levels of the participants was administered to 1,127 students from three universities. The results were analyzed based on gender, field of study, type of residence, class rank, work status, parents' education, and the school of student. The relationship between financial literacy and demographic characteristics of the students were examined by employing analysis of variance and logistic regression analyses. Significant relationships were found between financial literacy and student characteristics.

Anahtar Kelimeler: *Financial Literacy, university students.*

JEL Sınıflandırması: *D14, D83, I23.*

Üniversite Öğrencilerine Yönelik Bir Finansal Okuryazarlık Anketi Uygulaması

ÖZET

Çalışmanın amacı, üniversite öğrencilerinin finansal okuryazarlık düzeyinin belirlenmesi, finansal okuryazarlık seviyeleri ile öğrencilerin demografik özellikleri arasındaki ilişkilerin ortaya konması ve üniversite öğrencilerinin finansal okuryazarlık düzeylerinin yükseltilmesi için stratejilerin geliştirilmesine yardımcı olacak bir bilgi kaynağı sağlanmasıdır. Verilerin toplanmasında, iki bölümde toplam 29 maddeden oluşan bir ölçme aracı kullanılmıştır. Anketin ilk kısmında katılımcının; cinsiyeti, okulunun ait olduğu akademik disiplin, ikamet türü, okuldaki yılı, çalışma durumu, ebeveynlerinin eğitim durumu ve öğrencinin okuduğu bölümün belirlenmesine yönelik sorular bulunmaktadır. İkinci kısımda ise öğrencilerin; finansal okuryazarlık ve tasarruf ve harcama, bankacılık, risk ve sigorta, yatırım ve genel finans-ekonomi bilgilerini ölçmeye yönelik çoktan seçmeli sorular yer almaktadır. Anket üç üniversitede toplam 1,127 öğrenciye uygulanmıştır. Sonuçlar varyans ve regresyon analizleri kullanılarak incelenmiştir. Üniversite öğrencilerinin finansal okuryazarlık düzeyleri ile demografik özellikleri arasında anlamlı ilişkiler gözlemlenmiştir.

Keywords: *Finansal okuryazarlık, üniversite öğrencileri.*

Jel Classification*: D14, D83, I23.*

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1. INTRODUCTION

Financial literacy is a basic concept in understanding money and its use in daily life. This includes the way income and expenditure are managed and the ability to use the common methods of exchanging and managing money. Further, financial literacy incorporates an understanding of everyday situations that need to be understood such as insurance, credit and an appreciation of savings and borrowings. The understanding of financial terms and concepts includes an understanding of key financial concepts central to investing and managing funds to increase wealth and security. Individuals require an awareness of features available for borrowing and investing. This awareness includes the understanding of prospectuses and annual statements, compound interest calculations and delaying the use of funds for consumption. Individuals further need to be aware that high return investments are also likely to involve high risk, the realization that market values fall as well as rise, and the principles of diversification. This need introduces a new complex set of skills in relation to products and how they work, the advantages and disadvantages. The other component of financial literacy is the skill to utilize knowledge and understanding to make beneficial financial decisions (Wagland and Taylor: 2009, 16-17).

Financial literacy is important at several levels. It has major implications for the welfare of individuals in the management of their financial affairs. Financial literacy influences how people save, borrow, invest and manage their financial affairs. It therefore affects their capacity to grow their wealth and income, and has significant implications for people's lifestyle choices. Financial literacy also has a significant part to play in influencing financial institutions. Because financial literacy influences people's investment decisions, including risk/return tradeoffs, it also affects how resources in the economy are allocated. In turn, it influences the allocation of resources in the real economy and therefore the longer-term potential growth rate of the economy (Widdowson and Hailwood, 2007: 37-38). Financial literacy helps individuals to improve their level of understanding of financial matters which enables them to process financial information and make informed decisions about personal finance. Financial literacy is directly related to the well-being of individuals (Bhushan and Medury: 2013, 155). Having financial literacy skills is an essential basis for both avoiding and solving financial problems, which, in turn, are vital to living a prosperous, healthy and happy life. In addition, "financial hardship can increase isolation, emotional stress, depression and lower self-esteem, which, in turn, can generate or exacerbate marital tensions" that lead to divorce (Wolcott and Hughes: 1999, 10). Most importantly, the lack of financial literacy may lead the young adults, the future labor force contributors, to become involved in a higher level of financial problems during school life, which has a significant effect on their present and future family, and professional life.

In this context, the purposes of present study are to; (1) determine the level of financial literacy among university students, (2) find out the relationship between financial literacy and student characteristics, and (3) provide an information resource that will assist with the

development of strategies to improve financial literacy among university students. The paper is organized as follows. The second section briefly reviews the literature regarding the analysis of financial literacy. The third section explains the empirical methodology and data employed in the analysis. The fourth section presents the results. The paper ends with some concluding remarks.

2. LITERATURE REVIEW

Financial literacy as a construct was first championed by the Jump$tart Coalition for Personal Financial Literacy in its inaugural 1997 study Jump$tart Survey of Financial Literacy among High School Students. In this study, Jump$tart defines financial literacy as "the ability to use knowledge and skills to manage one's financial resources effectively for lifetime financial security (Hastings, et al.: 2012, 5). However, as happens in many research areas, different researchers and organizations have defined financial literacy in many different ways.

Atkinson and Messy (2012) has defined financial literacy as "a combination of awareness, knowledge, skill, attitude and behavior necessary to make sound financial decisions and ultimately achieve individual well-being". According to Vitt et al. (2000), financial literacy is the ability to read, analyze, manage, and communicate about the personal financial conditions that affect material well-being. It includes the ability to discern financial choices, discuss money and financial issues without (or despite) discomfort, plan for the future, and respond competently to life events that affect every day financial decisions, including events in the general economy. Hogarth (2002) states that the financially literate individuals are: 1) knowledgeable, educated, and informed on the issues of managing money and assets, banking, investments, credit, insurance, and taxes; 2) understand the basic concepts underlying the management of money and assets; and 3) use that knowledge and understanding to plan and implement financial decisions.

There are also many studies that investigate financial knowledge and financial literacy. Among them; Danes and Hira (1987) surveyed college students using a questionnaire of 51 items to measure their knowledge of credit cards, insurance, personal loans, record keeping, and overall financial management. The findings of their Pearson Product Moment correlations and ordinary least squares regression analyses indicate that males know more than females in most areas, married students know more than unmarried students, and upper class individuals know more than lower class individuals. Their overall finding is that college students have low financial knowledge.

Volpe et al. (1996) surveyed undergraduate business students using an instrument of 23 items that focused primarily on investment knowledge. Findings show a low average literacy score of 44%, with those who majored in business being more knowledgeable on investments than those who did not major in business. Chen and Volpe (1998) conducted a financial literacy survey involving 924 college students in USA. The survey examined literacy across four main areas, investigated the relationship between literacy and the student

characteristics, and analyzed the impact of literacy on student opinions and decisions. They used analysis of variance techniques to demonstrate the variation in the levels of financial literacy among subgroups of students. In addition, logistics regression models were used to examine the financial literacy levels of students across different demographic characteristics. They found that those students with a nonbusiness major and who are female, in a lower class rank, under the age of 30 and with little work experience have lower levels of knowledge. The study indicates that these students with less knowledge are more likely to hold wrong opinions and make incorrect decisions.

Hogarth (2002) explored the financial literacy of adults in the U.S using 28 true/false type questions on topics related to personal finance. The study shows that, in general, less financially knowledgeable respondents are more likely to be single, relatively uneducated, relatively low income, minority, and either young or old (not middle aged).

Volpe et al. (2002) surveyed investors to examine their investment literacy and the relationship between the literacy and online investor characteristics. They used analysis of variance to determine the differences in investment knowledge among participants and further analyzed how various factors impact investors' level of knowledge using logistic regressions. The results of their study indicate that investors who are 50 years of age or older are more knowledgeable than those who were younger. Women have lower levels of investment knowledge than men. Investors with graduate degrees are more knowledgeable than those with some high school or college education. Those who trade online are more knowledgeable. Bowen (2002) aimed to determine the financial knowledge of high school juniors/seniors and their parents and the relationship between the teens' and parents' financial knowledge. She used a non-parametric technique, phi coefficient, to describe relationships between teens' and parents' knowledge about money terms and financial concepts. The result of her study shows that teens are knowledgeable about net incomes and endorsing checks. Parents are knowledgeable on all areas studied except, credit card liability for unauthorized use, annual percentage rates, auto collision coverage, and interest accrual on outstanding credit card balances. Beal and Delpachitra (2003) measured financial literacy of Australian students by using 25 four-option multi-choice questions and found that university students are neither skilled nor knowledgeable in financial matters. It was found that students with higher financial literacy scores are more likely to be male, have greater work experience and have a higher income. The results of their logistic regression model indicate that financial literacy improves with work experience and income. Valentine and Khayum (2005) aimed to determine the effect of various demographic and economic socialization factors on the results of a personal finance literacy quiz administered to rural and urban high school students in Indiana. They used cross-sectional regression to quantify the effect of their family backgrounds and participation in financial activities on their financial literacy. Worthington (2006) explored the financial literacy of Australian adults. The analytical technique employed in the study was to specify each respondent's financial literacy quintile as the dependent

variable in a linear regression with demographic, socioeconomic and financial characteristics as predictors. Results of the study suggested that financial literacy was found to be highest for persons aged between 50 and 60 years, professionals, business and farm owners. Financial literacy was lowest for unemployed, females and those from non-English speaking background with a low level of education. Wagland and Taylor (2009) investigated if any differences in financial literacy among Australian business students can be explained by gender. They used a linear regression method and found that gender is not a significant factor among Australian students.

Lusardi et al. (2010) examined financial literacy among young adults. They showed that financial literacy is low; less than one-third of young adults possess basic knowledge of interest rates, inflation and risk diversification. Financial literacy is strongly related to sociodemographic characteristics and family financial sophistication. Van Rooij et al. (2011) devised two special modules to measure financial literacy and study its relationship to stock market participation. They found that the majority of respondents display basic financial knowledge and have some grasp of concepts such as interest compounding, inflation, and the time value of money. Their estimates showed that the relationship between literacy and stock market participation remains positive and statistically significant in the Generalized Method of Moments regression and the OLS estimates did not differ significantly from the GMM estimates. They found that financial literacy affects financial decision-making: Those with low literacy are much less likely to invest in stocks. Lusardi and Mitchel (2011) examined financial literacy in the US, wherein they demonstrates that financial literacy is particularly low among the young, women, and the less-educated. Moreover, Hispanics and African-Americans scored the least on financial literacy concepts. They also showed that people who score higher on the financial literacy questions were much more likely to plan for retirement, leaving them better positioned for old age. Bucher-Koenen and Lusardi (2011) examined financial literacy in Germany and found that knowledge of basic financial concepts is lacking among women, the less educated, and those living in East Germany. In particular, those with low education and low income in East Germany have low financial literacy compared to their West German counterparts. Interestingly, there is no gender disparity in financial knowledge in the East. The empirical analysis of Fornero and Monticone (2011) shows that, most individuals lack knowledge of basic concepts such as interest rates and inflation, in Italy. Men, who are more educated, and residents in the Centre–North possess higher financial literacy.

In Turkey, although there appears to be a consensus regarding the importance of it, the empirical research on financial literacy is limited. Altıntaş (2009) aimed at evaluating the financial literacy level of potential defined contribution pension plan beneficiaries and developing an alternative investment curriculum for basic investment education. The results show that investment education can remarkably scale up the financial knowledge of the subjects who participated in the survey. Temizel and Bayram (2011) examined the level of

basic financial literacy of students of a Faculty of Economics and Administrative Sciences in Anadolu University. They used Pearson Chi-Square test to associate the variables such as age and gender with the survey responses.

3. THE DATA AND RESEARCH METHOD

This study uses a questionnaire designed to cover major aspects of financial literacy of university students. The survey participants were asked to answer multiple-choice questions of their knowledge on personal finance and some questions on demographic data. Before the survey got its final form, it was used in a pilot study to refine the instrument. The reliability of the survey was evaluated by using Cronbach's alpha.

3.1. Survey Questionnaire

The final survey instrument is comprised of 29 questions and is divided into two sections. First section contains 7 items related to demographics of the participant and is based on the following inputs: (1) gender, (2) field of study, (3) type of student's residence, (4) class rank, (5) work status, (6) parents education level, and (7) business or economics major or not.

Section II contains 22 multiple choice questions, each with four response choices, which assessed the students' knowledge related to financial literacy. In some of the questions the fourth response provides the student the opportunity to respond "don't know". This permits the students the opportunity to admit not knowing the answer of the question. Since the approach taken in this study is not to test specific financial questions, the questionnaire is designed by drawing on the general and basic questions on the following financial literacy concepts: (1) general knowledge, (2) saving and spending (3) banking, (4) risk and insurance, and (5) investing. The questions in this section were adopted from the items used in previous surveys in the published literature (Van Rooij et al.: 2011, ANZ: 2011, Bowen: 2002; Chen and Volpe: 1998, Dew and Xiao: 2011, Jorgensen: 2007, OECD: 2013, Robb and Woodyard: 2011, Prawitz et al.: 2006). The survey instrument is available upon request from author.

3.2. Descriptive and Frequencies of Data

The population for this study is a sample of undergraduate students at the Mevlana (Rumi) University, Necmettin Erbakan University and Selcuk University. The survey was administered 1,127 students, of which 1,099 were usable for analysis. The principal limitation of this study is the investigation of students' financial literacy drawn from the Universities in the city of Konya. Detailed characteristics of the sample are presented in Table 1.

Table 1: Study Participant Characteristics

	Number of Participants	Percentage	Cumulative Percentage
Gender			
Female	597	54.32	54.32
Male	502	45.68	100.00
Field of Study			
Educational sciences	273	24.84	24.84
Health sciences	108	9.83	34.67
Natural sciences	436	39.67	74.34
Social sciences	282	25.66	100.00
Type of Residence			
Student dormitories	390	35.49	35.49
Private households (alone)	24	2.18	37.67
Private households with friend(s)	289	26.30	63.97
Private households with family	382	34.76	98.73
Other residences	14	1.27	100.00
Class Rank			
Freshman	468	42.58	42.58
Sophomore	276	25.10	67.69
Junior	208	18.90	86.62
Senior	147	13.38	100.00
Work Status			
Full time	26	2.37	2.37
Part time	54	4.91	7.28
Casual or holiday work	345	31.39	38.67
Never worked before	674	61.33	100.00
Parents Education Level			
Masters or doctorate degree	69	6.28	6.28
Associate's or bachelor's degree	377	34.30	40.58
High school	284	25.84	66.42
Secondary or elementary school	357	32.49	98.91
No formal education	12	1.09	100.00
Business Education			
Majors	168	15.29	15.29
Not Majors	931	84.71	100.00

3.3. Methodology

The methodology used in this study is similar to those of Beal and Delpachitra: 2003, Chen and Volpe: 1998; Volpe et al.: 2002, Chen and Volpe: 2002, Volpe et al.: 2002 and Suwanaphan, 2013.

The responses from each participant were used to calculate the mean percentage of correct scores for each question, section, and the entire survey. Consistent with the existing literature, the mean percentage of correct scores were grouped into (1) more than 0.80 (2) 0.60 to 0.79 and (3) below 0.60. The first category represents a relatively high level of knowledge. The second category represents a medium level of knowledge. The third category represents a relatively low level of knowledge (Suwanaphan: 2013, 1063). T test or Analysis of variance (ANOVA) is used to determine the differences between each of the independent variables and the summated financial literacy scores. T and F statistics are tested at 0.05 significance level.

The next step is to analyze how various factors impact students' level of financial literacy. Logistic regression diagnostic techniques are adopted for use in model validation. The independent variables used in the model are gender, field of study, type of student's residence, class rank, work status, parent’s education, and business or economics major. The coefficients represent the effect of each subgroup compared with a reference group, which is arbitrarily selected. For example, gender is coded as "1" if a participant is a female participant, "0" otherwise. The reference group is male participants. If the logistic coefficient of the variable is positive and statistically significant, then it means that compared with male students, female students are associated with decreased log odds ratio of being more financial literate. Whereas, dependent variable must be dichotomous to use a logistic regression model, the participants are classified into two subgroups using the median percentage of correct answers of the sample. Students with scores higher than the sample median are classified as those with relatively more financial literate and students with scores equal to or below the median are classified as students with relatively less financial literate. This dichotomous variable is then used in the logistic regression as the dependent variable, which is explained simultaneously by all of the independent variables. Additionally, the same methodology is used to analyze the responses for each of the four financial literacy concepts.

The form of the linear regression equation is:

$$\log [p/(1-p)] = \beta_0 + \beta_1(\text{Gender}) + \beta_2(\text{Educational}) + \beta_3(\text{Health}) + \beta_4(\text{Natural}) + \beta_5(\text{Social}) + \beta_6(\text{Dormitory}) + \beta_7(\text{Housealone}) + \beta_8(\text{Houseothers}) + \beta_9(\text{Housefamily}) + \beta_{10}(\text{Freshman}) + \beta_{11}(\text{Sophomore}) + \beta_{12}(\text{Junior}) + \beta_{13}(\text{Senior}) + \beta_{14}(\text{Fulltime}) + \beta_{15}(\text{Partime}) + \beta_{16}(\text{Cashol}) + \beta_{17}(\text{Noworkbef}) + \beta_{18}(\text{Msphd}) + \beta_{19}(\text{Assobach}) + \beta_{20}(\text{Highschl}) + \beta_{21}(\text{Secondelem}) + \beta_{22}(\text{Majors}) + e_i$$

Table 2: Variable Definitions

Variable	Definition
p	The probability of a student who is more knowledgeable
Gender	1 if the student is a female, 0 otherwise.
Educational	1 if the student studies an educational science, 0 otherwise.
Health	1 if the student studies a health science, 0 otherwise.
Natural	1 if the student studies a natural science, 0 otherwise.
Social	1 if the student studies a social science, 0 otherwise.
Dormitory	1 if the student lives in a student dormitory, 0 otherwise.
Housealone	1 if the student lives in a household alone, 0 otherwise.
Houseothers	1 if the student shares a household with other(s), 0 otherwise.
Housefamily	1 if the student lives with family, 0 otherwise.
Freshman	1 if the student is a freshman, 0 otherwise.
Sophomore	1 if the student is a sophomore, 0 otherwise.
Junior	1 if the student is a junior, 0 otherwise.
Senior	1 if the student is a senior, 0 otherwise.
Fulltime	1 if the student is a full time employee, 0 otherwise.
Parttime	1 if the student is a part time employee, 0 otherwise.
Cashol	1 if the student is a casual employee or works in hollidays, 0 otherwise.
Noworkbef	1 if the student never worked before, 0 otherwise.
Msphd	1 if at least one parent has masters degree or PhD, 0 otherwise.
Assobach	1 if at least one parent has associates or bachelors degree, 0 otherwise.
Highschl	1 if at least one parent has a high school diploma, 0 otherwise.
Secondelem	1 if at least one parent has an elementary or secondary school diploma, 0 otherwise.
Majors	1 if the student is a business or economics major, 0 otherwise

4. RESULTS

Before the survey instrument got its final form, pilot study was conducted with 136 students in Mevlana University. Classical reliability analysis was performed on the questionnaire including 30 multiple choice questions. It was found that the value of Cronbach's coefficient did not reach 0.80 criterions. In order to discern which items were causing the coefficient to be lower than desired, item-discrimination indices and item-to-total score correlations were examined and 7 items to that were negatively correlated with the total or items whose correlation with the total was less than 0.20 were deleted from the survey. Afterwards, the final survey instrument with 23 multiple choice items were tested again and reliability coefficient (Cronbach alpha) of 0.84 was found. Item analysis of the final survey revealed no item that was negatively correlated with the total, and no item whose correlation with the total was less than 0.20. Conclusively, the test was found to be a reliable instrument for financial literacy investigation.

The final survey instrument was further administered to a sample of 1,127 university students of which 1,099 were usable for analysis. Table 3 shows the mean percentages of correct responses of the sample for each section and the entire survey. On average, participants answered 0.65 of questions correctly. For the percentage of the right answers checked for each section, the results are in the following order: 0.63 for general knowledge, 0.75 for saving and spending, 0.61 for banking, 0.69 for risk and insurance, and 0.56 for investing. Considering that the questions were basic and simple, these mean percentages suggests that university students' financial literacy level is inadequate.

Table 3: Mean Percentage of Correct Responses to Each Section and the Entire Survey

	Level of Financial Knowledge		
	Low Below 0.60	Medium 0.60-0.79	High Over 0.80
General knowledge		0.63	
Saving and spending		0.75	
Banking		0,61	
Risk and insurance		0.69	
Investing	0.56		
Entire Survey		0.65	

Furthermore, the relationship between personal financial literacy and participants' gender, field of study, type of residence, class rank, work status, parents' education and business or economics education were examined. T tests or ANOVA were used to detect if participants from various subgroups had different levels of knowledge. Table 4 shows the mean percentage of correct responses for Section I (General knowledge), Section II (Saving and spending), Section III (Banking), Section IV (Risk and insurance), Section V (Investing), and the entire survey by different subgroups and the results of t tests and ANOVA.

Table 4: Mean Percentage of Correct Responses to Each Section by Characteristics of Sample and Results of ANOVA

	General Knowledge	Saving and Spending	Banking	Risk and insurance	Investing	Entire Survey
Gender						
Female	0.61	0.76	0.59	0.69	0.52	0.64
Male	0.66	0.74	0.63	0.70	0.62	0.67
T Statistic	*20.04**	*1.07*	*8.40**	*0.31*	*21.01**	*0.34**
Field of Study						
Educational sciences	0.54	0.73	0.56	0.64	0.45	0.59
Health sciences	0.65	0.72	0.59	0.70	0.46	0.65
Natural sciences	0.66	0.75	0.62	0.71	0.60	0.67
Social sciences	0.67	0.78	0.62	0.71	0.66	0.69
F Statistic	*22.91**	*4.96**	*5.45**	*4.89**	*20.83**	*22.50**
Type of Residence						
Student dormitories	0.63	0.76	0.62	0.72	0.60	0.66
Private households(alone)	0.64	0.74	0.59	0.72	0.58	0.66
Private households with other(s)	0.66	0.75	0.62	0.69	0.59	0.67
Private households with family	0.61	0.79	0.66	0.66	0.51	0.63
Other residences	0.57	0.75	0.76	0.54	0.64	0.65
F Statistic	*2.78***	*0.42*	*1.59*	*2.12*	*2.67*	*2.88***
Class Rank						
Freshman	0.62	0.74	0.60	0.67	0.57	0.65
Sophomore	0.63	0.76	0.60	0.70	0.59	0.66
Junior	0.62	0.74	0.61	0.70	0.49	0.65
Senior	0.66	0.77	0.65	0.73	0.60	0.69
F Statistic	*1.69*	*2.02*	*2.43*	*1,89*	*3.74***	*3.19***
Work Status						
Full time	0.64	0.66	0.58	0.67	0.52	0.63
Part time	0.63	0.75	0.67	0.69	0.58	0.67
Casual or holiday work	0.67	0.78	0.62	0.62	0.61	0.68
Never worked before	0.61	0.70	0.60	0.60	0.54	0.64
F Statistic	*5.70**	*2.54***	*2.43*	*0.57*	*3.09***	*4.19**
Parental Education						
Masters or doctorate degree	0.57	0.70	0.53	0.68	0.48	0.60
Associate's or bachelor's degree	0.62	0.74	0.61	0.70	0.55	0.65
High school	0.63	0.75	0.61	0.69	0.56	0.65
Secondary or elementary school	0.65	0.77	0.62	0.69	0.59	0.67
No formal education	0.67	0.65	0.67	0.67	0.67	0.66
F Statistic	*2.11*	*3.96***	*3.17*	*0.17*	*1.61*	*3.51***
Business or Economics Education						
Majors	0.70	0.78	0.65	0.73	0.67	0.71
Not majors	0.62	0.75	0.59	0.68	0.54	0.65
T Statistic	*19.34**	*4.62***	*8.64**	*5.25***	*14.83**	*23.57**

** p< 0.05, * p< 0.01

The difference between genders is significant for general knowledge (*T=20.04*, p<0.01), banking (*T=8.40*, p<0.01), investing (*T=21.01*, p<0.01) and entire survey (*T=0.34*, p<0.01). The percentages of correct answers from the female participants are lower than those from the male participants.

The students whose field of study is one of the health sciences or educational sciences are less knowledgeable than the others. The more knowledgeable students are the participants who studies one the social sciences. The difference between field of study is significant for general knowledge (*F=22.91*, p<0.01), saving and spending (*F=4.96*, p<0.01), banking (*F=5.45*, p<0.01), investing (*F=20.83*, p<0.01) and entire survey (*F=22.50*, p<0.01).

There are not interactions between spending and saving, banking, risk and insurance, investing and the type of students' residences. Whereas, the testing results of ANOVA indicate significant differences between the type of students' residences and general knowledge (*F=2.78*, p<0.05) and entire survey (F=*2.88*, p<0.05). The percentages of correct answers from the students' who lives in the private households are lower than the others for general knowledge section and the entire survey.

The findings indicate that seniors know more than the freshmen, sophomores and juniors about investing. They are also more knowledgeable than the others for the entire survey. The differences in the level of investing *(F=3.74)* and entire survey *(F=3.19)* knowledge among class ranks are statistically significant at the 0.01 level.

The difference among work status of the students is significant for general knowledge (*F=5.70*, p<0, 01), saving and spending (*F=2.54*, p<0.01), investing (*F=3.09*, p<0.01) and entire survey (*F=4.19*, p<0.01). The level of general knowledge, saving and spending knowledge, investing knowledge and entire survey correct answers percentages of the students' who work casual or holidays are higher than the others.

In terms of parents' education of the students, participants whose one of the parents has a secondary or elementary school diploma are more knowledgeable than the others in saving and spending sections and the entire survey. The differences in saving and spending section *(F=3.96)* and the entire survey *(F=3.51)* are statistically significant at the 0.05 level.

The results for the sections and the entire survey clearly show that the students who are attending to business or economics schools are more knowledgeable than the non-business or non-economics schools' students. The results of t test indicate statistically significant differences at the 0.01 level for general knowledge (*T=0.62*), banking (*T=0.59*) and entire survey (*T=0.65*). The differences in saving and spending (*T=4.62*), risk and insurance (*T=5.25*) and investing (*T=14.83*) sections are statistically significant at the 0.05 level.

The differences were further analyzed using logistic regression models. Results of the logistic regression are shown in Table 5. The Chi-square is statistically significant at the 0.01 level for the entire survey, general knowledge and the investing sections, and at the 0.05 level for the saving and spending, and banking sections. Logistic models exhibit high explanatory power for these sections. The Chi-square is statistically insignificant for the risk and insurance model.

Another widely used measure of the overall fit of the model is to examine its ability to correctly classify observations. For the entire sample, 0.64 of the observations are correctly

classified as compared with 0.52 chance classification. Similar results are found in each individual question where the correct classification is always higher than the chance classification. The model can classify from 0.61 to 0.71 of the observations correctly whereas the chance classifications are from 0.51% to 0.52 for the other sections.

The results of the logistic regression analysis are presented in Table 5. There are some differences between the t tests-ANOVA and logistic regression because the logistic regression had all of the variables in the model, which controlled the effect of the independent variables on each other and on the dependent variable of financial literacy. In addition, the financial literacy scores in the t tests and ANOVA could range between 0-100, where the logistic regression had only above the mean and below the mean levels.

Table 5: Logistic Regression Results on Financial Literacy

	Estimated Coefficients and the Significance Level of Each Section and Entire Sample					
	General Knowledge	Saving and Spending	Banking	Risk and Insurance	Investing	Entire Survey
Gender	-0.101	0.258	-0.272	-0.092	-0.409*	-0.309**
Educational	-1.214*	-0.591**	-0.468**	-0.332	-0.807*	-1.247*
Health	0.150	-0.832*	-0.329	0.061	-0.638**	-0.593**
Natural	-0.243	-0.411**	-0.126	-0.066	-0.332	-0.506*
Social	1.272*	0.846*	0.951**	0.462	0.504*	0.558*
Dormitory	0.237	-0.229	1.090	-0.559	0.042	0.623
Housealone	0.851	-0.133	1.120	-0.119	0.432	0.827
Houseothers	0.520	-0.409	0.980	-0.691	-0.133	0.532
Housefamily	0.143	-0.475	1.060	-0.832	-0.169	0.200
Freshman	-0.295	-0,296	-0.446	-0.197	-0.418**	-0.347**
Sophomore	-0,59	-0.217	-0.799	-0.221	-0.396	-0.674*
Junior	-0.400	-0.221	-0.295	-0.203	-0.599	-0.575
Senior	0.014	0.454**	0.689**	0.239	0.113	0.220
Fulltime	0.323	0.734	0.168	-1.039	0.332	-0.415
Parttime	-0.060	0.684	-0.349	-1.039	0.148	0.196
Cashol	0.172	0.071	-0.048	0.109	0.016	0.134
Noworkbef	-0.657	-0.051	-0.073	-0.387	-0.501	-0.620
Msphd	-0,226	0.589	-0.748	0.312	-0.889	-0.179
Assobach	-0.507	0.456	-0.600	0.176	-0.745	-0.005
Highschl	-0.480	0.562	-0.493	0.048	-0.751	0.029
Secondelem	-0.314	0.762	-0.520	-0.039	-0.634	0.208
Majors	0.180**	0.101	0.181	0.215	0.110**	0.714**

Constant	0.892	1.212	0.996	0.204	1.152	0.714
-2 log Likehood	1,443.051	1,286.878	1,357.880	1,384.808	1,377.365	1,424.848
Chi-Square	80.224*	35.378**	32.234**	23.311	54.607*	93.006*
Nagelkerke R Square	0.094	0.045	0.040	0.029	0.067	0.108
Correct Classification	61.3	71.3	68.3	66.4	65.0	64.1
Change Classification	50.8	51.1	52.2	50.1	52.4	51.6

** p< 0.05, * p< 0.01

The coefficient of Gender for the entire sample is negative and significant at the 0.05 level. The result suggests female students are more likely to be less knowledgeable than male students. The significant positive coefficients for Social variable indicate that the students whose field of study is one of the social sciences are more likely to correctly score below the median level than the students whose study fields are educational sciences, health sciences and natural sciences. The coefficient of freshman for the entire sample is negative and significant at the 0.05 level, which indicates that freshmen are less knowledgeable than others. The seniors are likely to be more knowledgeable about saving and spending and banking than the others. The coefficients of Major on general knowledge and entire survey are positive and statistically significant indicate that the students who are attending to business or economics schools are more knowledgeable than the non-business or non-economics schools' students. The coefficients of Fulltime, Parttime, Cashol, Noworkbef, Assobach, Highschl and Secondelem are statistically insignificant.

5. CONCLUSION

This study surveys 1,099 students from three universities in Konya to examine their knowledge about saving and spending, banking, risk and insurance, investing, and general financial knowledge and the relationship between the financial literacy and the characteristics such as gender, field of study, type of residence, class rank, work status, parents' education, and the school of students

For the percentage of the right answers checked for each section, the survey results are in the following order: 0.63 for general knowledge, 0.75 for saving and spending, 0.61 for banking, 0.69 for risk and insurance, and 0.56 for investing. Considering that the questions were basic and simple, these mean percentages suggests that university students'' financial literacy level is inadequate. Results suggest that university students need to improve their knowledge of personal finance. If the individuals are not able to manage their finances, it may become a problem not only for them but for the society. Without adequate knowledge, they are likely to make more mistakes in the real world.

The results of t tests and ANOVA indicate that;

- The percentages of correct answers from the female participants are lower than those from the male participants,

- The students whose field of study is one of the health sciences or educational sciences are less knowledgeable than the others,
- The more knowledgeable students are the participants who studies one of the social sciences.
- There are not interactions between spending and saving, banking, risk and insurance, investing and the type of students' residences.
- The percentages of correct answers from the students' who lives in the private households are lower than the others for general knowledge section and the entire survey.
- Seniors know more than the freshmen, sophomores and juniors about investing. They are also more knowledgeable than the others for the entire survey.
- The level of general knowledge, saving and spending knowledge, investing knowledge and entire survey correct answers percentages of the students' who work casual or holidays are higher than the others.
- In terms of student' parent's education, participants whose one of the parents have a secondary or elementary school diploma are more knowledgeable than the others in saving and spending sections and the entire survey.
- The students who are attending to business or economics schools are more knowledgeable than the non-business or non-economics schools' students.

The differences were further analyzed using logistic regression models. The results suggest that female students are more likely to be less knowledgeable than male students. The students whose field of study is one of the social sciences are more likely to correctly score below the median level than the students whose study fields are educational sciences, health sciences and natural sciences. The freshmen are less knowledgeable than others. The seniors are likely to be more knowledgeable about saving and spending and banking than the others. The students who are attending to business or economics schools are more knowledgeable than the non-business or non-economics schools' students.

The differences between the t tests-ANOVA and logistic regression are resulted from the logistic regression' having all of the variables in the model, which controlled the effect of the independent variables on each other and on the dependent variable of financial literacy. In addition, the financial literacy scores in the t tests and ANOVA can range between 0-100, where the logistic regression has only above the mean and below the mean levels.

These results reveal the need for universities to pursue a program of improving the financial literacy of their students considering the characteristics of the students. The sooner such a program is put in place; the better will be the outcomes for both individuals and the economy as a whole.

This study also has some limitations. The principal limitation is the investigation of students' financial literacy drawn from the universities in the city of Konya. In addition to

this, short periods of time for the participants to fill the questionnaire prevented survey from including more questions. Future researches, with a country-wide sample, can direct more efforts in identifying other important items in financial literacy tests.

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