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Analysis of Financial Literacy and Financial Application among University Students: A Survey in Bangladesh

Ara Jesmin,***Aktar Mahbuba**

Associate Professor, Department of Finance and Banking, Faculty of Business Studies, Hajee Mohammad Danesh Science and Technology University, Dinajpur-5200, Bangladesh

Corresponding Author: **Aktar Mahbuba**

Abstract

The study analyses financial literacy and its application by the university students of Bangladesh. Randomly selected university students of various faculty and various levels are the respondents of this study. This research is done in two steps. At first, student's characteristics are used to predict financial literacy of students. Then, the relationship between university students' financial literacy and their successful involvement in financial sector is examined. Results are quantified to understand the significance of financial knowledge. Firstly, the findings of the study suggest that the field of education is a significant factor that can influence student's financial literacy and students of major in business have significant knowledge of finance. In addition, the study identifies there is no significant association between financial literacy score and financial application. The study tries to find out reasons of this negative effect. In this context, policymakers need to be more cautious to protect young investors' fund.

Keywords: Financial literacy, financial application, university students, investment

1. Introduction

In the FinTech era, financial literacy is one of the most discussed and used topics.Financial literacy has an impact not only on the person who deals with budgeting, making a financial plan, forecasting future cash flows, investing, and doing financial activities in any organization but also on individual lives. Today's growing world makes us competitive to adapt to every applied field. In the wake of recent financial alarming events, the financial worlds remind us to be financially literate enough to stay safe and sound while making any financial transaction and planning to invest in any financial functions.

Every person is engaged in financial activities either deliberately or unintentionally. As human beings, everyone needs to budget for his personal life to keep a balance between their income and expenditure. Similarly, for the person, who is going to invest their money in any business or financial project needs to know whether and to what extent they should invest. To maintain these things properly and to prevent someone from losing money or financial assets, it is necessary to be financially literate. In many countries, Government and Non-government organizations offer vast opportunities to invest in profitable projects. Whether it will really be profitable or not depends on the circumstances and range of investment. From the perspective of Bangladesh, some organizations were invented with ill motives. They offer people in a lucrative way to invest money in their business, and people invest unwittingly which results in huge losses. After considering all insights into finance, it is obvious that keeping basic financial knowledge is important for every individual. Most of the research works have been done from different aspects of financial literacy as we explore different scholars' articles. But, a small number of works have been done regarding the financial literacy and its applicability among university students.

Keeping basic knowledge of financial activities likes how to budget, how to manage money and how to maintain short-term or long-term savings etc. is most important for university students. In this stage of life, students start to become financially independent.The level of financial literacy and money management skills among the university students is very low, especially in the developing countries (Thomas and Subhashree, 2020).Without guidance and their poor knowledge of finance leads them to suffer from different types of losses, scarcity of money, involvement to lend money from others, and fall into some traps. Similarly, money can also lead to suffering in students' personal lives. Along with that, they have to use digital transactions and mobile banking apps to cope with this growing world. Many organizations are established with illegal motive to snatch money from financially less aware peoples. Due to less financial literacy people moved on high expectations without knowing the risk of it.

Financial knowledge is essential for institutions and individuals. It helps to make better financial decisions. Institutions and individuals set short term as well as long term financial goals and financial literacy assists people in achieving these goals. To make decision in savings-borrowings, insurance, investment in physical and financial assets, budgeting, lease, pension plan etc. financial literacy skills are considered as an indispensable factor. Financial literacy is a combination of awareness, knowledge, skill, attitude, and behaviour necessary to make sound financial decisions and achieve individual financial well-being.

Financial literacy is a globally recognized essential life skill applied by people to differentiate among a wide range of financial products and services to manage their money successfully. In addition, people have to make daily financial decisions about expenditures and savings. Before investing in any financial and physical assets, investors should analyse them carefully so that they can benefit from them. Otherwise, they will lose their money. Many investors in our country could not select right opportunity only because they have no proper knowledge of finance. Financial literacy will guide them to improve their financial behaviour. So, investors should gather financial literacy before they complete their institutional education. University students are adult enough to start investments to become financially independent. The knowledge of finance will help them to make right decision and the chance of loss willbe minimized. It is thus crucial to understand how financial literacy is acquired and how it can be taught.

2. Literature survey

Financial literacy is a fundamental component of individuals' financial well-being and decision-making. It refers to the knowledge, skills, and understanding of financial concepts, tools, and behaviours necessary to make informed financial choices. This literature review provides an overview of key research studies on financial literacy, examines the current state of knowledge in the field, and discusses the implications for individuals, policymakers, and educators.

Financial literacy is crucial for individuals to manage their personal finances effectively, make informed investment decisions, and plan for their future financial goals. Several studies have highlighted the positive association between financial literacy and financial outcomes, including higher savings rates, better debt management, and improved retirement planning (Lusardi& Mitchell, 2014; Mandell& Klein, 2009). The Financial Literacy Standard (FLS) and the Financial Literacy Assessment Test (FLAT) are among the commonly used instruments to gauge financial literacy (Klapper et al., 2015; Lusardi& Mitchell, 2011).

Studies have examined the factors influencing financial literacy levels. Socio-demographic characteristics, including age, education, income, and gender, have consistently been identified as significant determinants of financial literacy (Hastings et al., 2013; Lusardi& Mitchell, 2014). Additionally, personal experiences, financial learning programs, and access to financial information have also been found to contribute to financial literacy (Hastings et al., 2013; Mandell& Klein, 2009).

Research has shown a strong association between financial literacy and financial behaviours. Financially literate individuals are more likely to engage in responsible financial practices, such as budgeting, saving, and investment diversification (Hastings et al., 2013; Lusardi&Tufano, 2015). Conversely, lower financial literacy have a link with negative financial behaviours, including excessive debt, financial fraud victimization, and poor retirement planning (Lusardi& Mitchell, 2014;Remund, 2010).

The importance of promoting financial literacy has led to policy initiatives and educational programs aimed at improving financial knowledge and skills. Governments, financial institutions, and non-profit organizations have developed interventions, such as financial education campaigns and workplace programs, to enhance financial literacy levels (Hastings et al., 2013; OECD, 2016). The effectiveness of these interventions and the need for targeted approaches to different populations remain areas of on-going research. H. Chen and R. P. Volpe (1998) tried to relate college student's personal financial literacy with their characteristics. Employing logistic model they measured the relatedness of various characteristics of students with their knowledge of personal finance. L. Corsini and G C Giannelli (2021) also worked on how college students financial literacy be increased. They judged the impact of learning new financial course in improving financial literacy of students. J JPopovich et al. (2020) also summarized that short term digital learning can improve financial knowledge of students.

Not only business major students need financial literacy, other discipline's students also require the knowledge of finance. B Thomas and P Subhashree (2020) postulated that financial literacy has vital importance among engineering students and they identified financial knowledge and attitude, peer-group pressure and family influence can influence the level of financial literacy. They summarized proper training can instill the financial confidence of engineering students. ShoshShahrabani (2012) reported that intention to budget among students is not only affected by debt terms and conditions, but also on the level of financial literacy, income and nationality. It also suggested that positivity on financial management moderate the negative impact of debt frequency on the intention to maintain personal budget. So, financial literacy can increase budgeting intentions. A study on Malaysian college students carried on by Sabri and MacDonald (2010) analyzed the relationship of financial literacy with savings behavior and financial problems and concluded that students who had higher financial knowledge test scores pursued more savings and faced less financial problems. Xiao J. J. et al. (2014) tried to find out the relationship between subjective and objective financial knowledge and financial behavior of later time. Based on two time points data from college students at a major state university in the U.S., the results showed that the association between earlier knowledge and later borrowing and paying behaviors mostly differed by subjective knowledge rather than objective knowledge.

Financial literacy is influenced by several factors. Family context for socialization and experience in money matters are significant to improved financial literacy (M H Dolores et al. 2018). M P Cameron et al. (2014) found some other influential factors of financial literacy like family financial condition, English ability and mathematical ability. They identified the need for include financial literacy courses in the early level education so that students could make financial decision. Financial literacy along with microcredit can increase women empowerment of Bangladesh (F Nawaz, 2015).Furtuna F. (2008) also studied the influential factors of financial knowledge competency. This study focused on testing the results of past research hypothesis to show whether non-business majors, women, students under age 30, with lower class ranks lower the level of financial knowledge or not.

Cude J. B. et al. (2006) showed that financial behaviours depend on financial education opportunities for students, parents, campus administrators, and financial professionals and educators. E Gilenko and A Chernova (2021) conducted their research to find out the importance of including financial literacy course in the high school level in Russia to relate financial literacy and financial well-being positively. C Das (2019) studied the need for financial literacy to apply it in the stock market. The researcher examined the financial literacy level of the investors of stock market and identified less financial knowledge leads to more incorrect investment decision.

Many researches have been done in the field of financial literacy. Financial scores were calculated to predict the literacy level. Some authors divided financial literacy into some segments like knowledge, behavior and attitude and then computed combined score. Some studies examine the dependency of financial behavior on financial literacy in different time. However, students can acquire knowledge between this time intervals. Our study quantifies the financial knowledge and its application separately but in a single time. The researcher's interest was at first, to find out the factors influencing financial literacy of university students in Bangladesh and then to recognize its relationship with practical application in the market.

3. Theoretical Background and Hypotheses

Theory of knowledge transfer emphasizes not only knowledge sharing but also to application of knowledge. The purpose of practical knowledge is to know how to deal with the specific situations encountered in a particular case. The gap between theory and practice is typically formulated as a knowledge transfer problem (Ven& Johnson, 2006). This gap is found in many applied fields like- human resources (Anderson et al., 2001; Rynes, Colbert, & Brown, 2002), and management (Tranfield, Denyer, & Smart, 2003). The current study assumes that financial literacy leads efficient application in the particular field and there is no problem in knowledge transfer.

Proposed hypotheses are

H_1. Student's characteristics have significant influence on the financial literacy.
H_{2a}. Foreign students have more knowledge of finance than domestic students.
H_{2b}. Male students have significantly higher levels of financial literacy than female students.

H_{2c}. Urban dwelling students have significantly higher level of financial literacy than rural dwelling students.

H_{2d}. Postgraduate students have significantly higher levels of financial literacy than undergraduate ones.

H_{2e}. Business major students have significantly improved skill of financial literacy than non-business major students.

H_3. There is a positive relationship between financial literacy and involvement in financial activities.

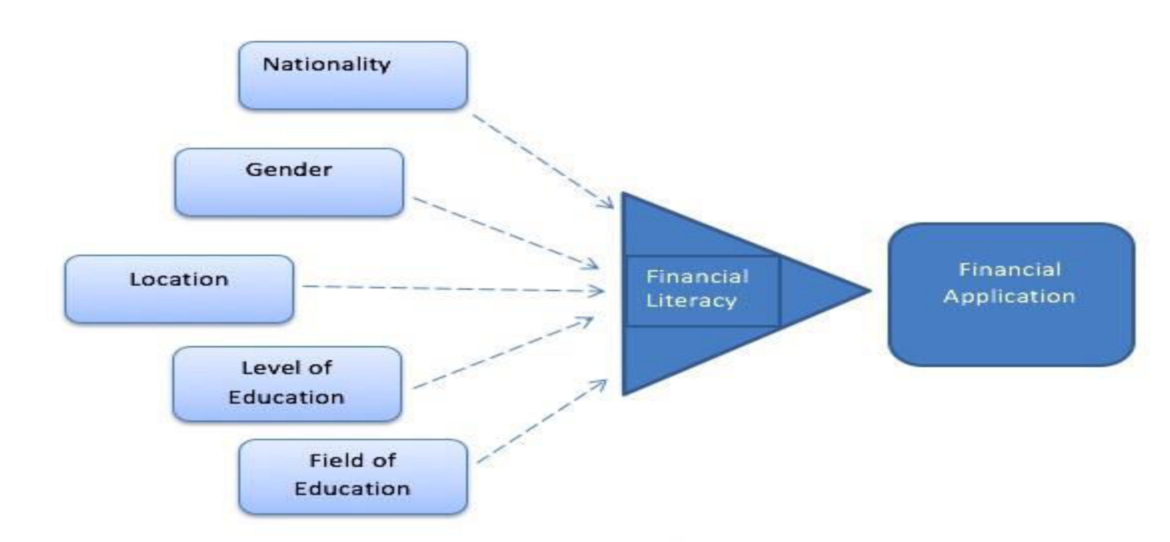

Figure 1: Theoretical Model

University students are generally vulnerable in their financial decision-making and transactions. Today, most of the students are using bank accounts and digital financial services. However, majority lack knowledge even on the basic financial concepts such as interest rate, credit score, inflation, budgeting, compound interest, loan default, etc. Education applies a substantial and positive effect on financial literacy (Zhou et al. 2022).

University students have greater chance to achieve advanced financial knowledge than students never going universities. However, financial literacy courses are taught only business faculties and sometimes in social science faculties. Corsini&Giannelli (2021) recognized that economics course can positively affect financial literacy and the gain is most relevant for students coming from backgrounds associated with lower financial literacy. Like economic courses, other related skills should help students to gain better financial literacy.

4. Methodology

4.1 Data

Data come from students of some universities of Bangladesh. Respondents were selected randomly. A comprehensive questionnaire was made to collect data. The questionnaire had three segments. At first some demographic questions were assembled to collect student's characteristics related data. Some personal information of the students was collected from this segment. The first question was about the nationality of the students. This question helps us to differentiate domestic students from foreign students. The second question gives us the information about the gender of the respondents. Gender is a major construct of this study as we want to know about dependency of financial literacy in the gender of students. Third question was asked to know their age. As we assumed that age is positively related with financial literacy, this question provides information of age of the students. Then, information about their geographical area, level of education and major subject were collected from this first segment. All of this information is used as major inputs to prove the hypothesis of this study. The next segment includes some multiple choice questions which were generated to calculate the literacy score of students and the last segment was designed to calculate financial application score of respondents. Second segment includes 14 questions related to the basic financial knowledge. Each question has four options. Students can choose the right answer by giving tic mark. Students got one mark for the right answer of each question and zero for wrong answer. In case of no answer, we assume that the answer is wrong. The last segment comprises seventeen questions about financial application. The answer should be yes or no. If the answer is yes, they get one point and if no, they get zero. To collect data with this questionnaire, students are given a specified time. Some students gave their answers within this pre specified time, but some students took some more minutes to answer the full questionnaire.

Total sample size for this study was 290. Data were collected from January to April of 2023. To collect data, the data collection team visits some universities and the places where the university students live. Mostly data were collected from the northern and middle part of the country. A greater portion of the data comes from students of Hajee Mohammad Danesh Science and Technology University. But, to avoid biasness, some questionnaires are omitted from there.

4.2 Variables and models of the study

At first, the study identified the influence of factors to the financial literacy. Students' characteristics such as nationality, gender, educational level, student's location, major subject are independent factors and financial literacy is the dependent factor for this study.

The following regression model has been constructedto identify the influence factors to the financial literacy:

$$FL = \beta_0 + \beta_1 N_1 + \beta_2 G_2 + \beta_3 L_3 + \beta_4 LEDU_4 + \beta_5 FEDU_5 + \varepsilon \text{ .... } (1)$$

Where

- FL= Financial literacy
- β_0= Constant
- β_1 to β_5 = Coefficients
- N_1= Nationality
- G_2= Gender
- L_3= Location
- $LEDU_4$= Level of education
- $FEDU_5$= Field of education

ε = Error term

Age of students is also a very important characteristics but it was omitted from the model because we use the very important variable- level of education. Hopefully that can influence the financial literacy mostly. Moreover, these two variables are working as substitute variable in this regression analysis. We estimatethat, the higher level of education carriesa higher age of student.

Secondly, financial literacy was considered as independent factor when its influence was judged in its application in the financial market. But the financial literacy is not a mediating variable. Here we try to identify the influence of financial literacy and financial application. To conduct this analysis, both financial literacy and financial involvement scores were calculated. Employing financial application as dependent variable the association was reported.

The influence of financial literacy and financial applicationcan be estimated by the given model:

$$FA = \alpha + \beta FL + \varepsilon\text{.. } (2)$$

Where

- FA= Financial application

α = Constant
β= Coefficient
FL = Financial literacy
ε = Error term

Financial literacy score and application scores are calculated by summing all zeros (0) and ones (1). After that Microsoft Excel and SPSS 25 software were used to analyse data.

5. Results and Discussion

5.1 Descriptive statistics

From the descriptive statistics, we can observe the distributions and characteristics of the variables in the study. The majority of individuals have a nationality value of 1(Bangladeshi), with a mean of 1.10 and a standard deviation of 0.296. The mean gender value is 1.65 and a standard deviation is 0.478. The higher mean suggests a higher proportion of one gender in the sample. The sample comprises 290 observations, with a mean location, level of education and field of education value of 1.55, 1.52 and 1.58 respectively. The nearly equal mean suggests a roughly equal distribution between the two locations, level of education and field of education.

Table 1: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Nationality	290	1	2	1.10	.296
Gender	290	1	2	1.65	.478
Age Group	290	1	2	1.60	.490
Location	290	1	2	1.55	.499
Level of Education	290	1	2	1.52	.500
Field of Education	290	1	2	1.58	.494
Financial Literacy Score	290	2	13	6.83	2.243
Application Score	290	1	17	8.58	2.738
Valid N (list wise)	290				

The financial literacy score is ranging from 2 to 13. The average financial literacy score in the sample is 6.83, with a standard deviation of 2.243. This indicates a moderate level of financial literacy among the respondents, with some variability in scores. Again, the sample has an application score ranging from 1 to 17. The mean application score is 8.58, with a standard deviation of 2.738. This suggests a moderate level of application among the respondents, with a relatively wide range of scores.

5.2 The relationship between student characteristics and financial literacy

At first, the relationship between student characteristics (nationality, gender, location, level of education & field of education) and financial literacy was tested. Here all independent variables are categorical variable and dependent variable is continuous variable. After that, individual samples group differences are tested to prove the hypothesis. The ANOVA table for the model 1 is presented here

Table 2: ANOVA of regression

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	161.561	5	32.312	7.104	.000b
	Residual	1291.818	284	4.549		
	Total	1453.379	289			
a. Dependent Variable: Financial Literacy Score						
b. Predictors: (Constant), Field of Education, Location, Level of Education, Nationality, Gender						

The dependent variable of this study is financial literacy. It is regressed to the analysis variables to predict the influences of each on the test variable.

Table 3: Summery of the findings of Model 1

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.950	.906		4.360	.000
	Nationality	.533	.441	.070	1.210	.227
	Gender	-.354	.276	-.075	-1.284	.200
	Location	-.048	.256	-.011	-.189	.850
	Level of Education	.700	.254	.156	2.754	.006
	Field of Education	1.190	.262	.262	4.545	.000
a. Dependent Variable: Financial Literacy Score						

The p-value for the constant term is .000, which means that the relationship between the constant term and the financial literacy score is statistically significant. In other words, the constant term is significantly different from zero, suggesting that it plays a role in determining the financial literacy score. The p-value for the nationality variable is .227. Since this p-value is greater than the conventional significance level of .05, it suggests that there is not enough evidence to conclude a significant relationship between nationality and the financial literacy score. The p-value for the gender variable is .200. Similar to nationality, indicate insufficient evidence to support a significant relationship between gender and the financial literacy score. The p-value for the location variable is .850. It suggests that there is no significant relationship between location and the financial literacy score. The p-value for the level of education variable is .006. Since this p-value is less than .05, it indicates a statistically significant relationship between the level of education and the financial literacy score. The level of education variable is likely to have a significant positive impact on the financial literacy score. The p-value for the field of education variable is .000. Similar to the level of education, indicate a statistically significant relationship between the field of education and the financial

literacy score. The field of education variable is likely to have a significant impact on the financial literacy score. In summary, based on the provided p-values, it appears that the level of education and field of education have significant relationships with the financial literacy score, while the constant, nationality, gender, and location variables do not show significant associations.
As all the independent variables are categorical variables and in the model 1, the significant differences of each category on the dependent variable are tested. The one-way ANOVA descriptive test results of all independent samples are summarized in the following table.

Table 4: Group Statistics

Group Statistics					
		N	Mean	Std. Deviation	Std. Error Mean
Nationality	Bangladeshi	262	6.81	2.246	.139
	Non-Bangladeshi	28	7.04	2.236	.423
Gender	Female	102	7.12	2.117	.210
	Male	188	6.67	2.298	.168
Age	18-23	115	6.63	2.133	.199
	24-30	175	6.95	2.309	.175
Location	Rural	131	6.85	2.284	.200
	Urban	159	6.81	2.215	.176
Level of Education	Undergraduate	138	6.42	2.120	.180
	Graduate/Postgraduate	152	7.20	2.293	.186
Field of Education	Non-Business	121	6.07	2.218	.202
	Business	169	7.37	2.106	.162

5.3 Hypotheses Results

First hypothesis of the study was student's characteristics have significant influence on the financial literacy. We found that the regression result is significant ($p<.001$) to support H_1. After that the study aims to find out the significant differences between the groups of each independent variable. There are five hypotheses in the second category. The study tries to find is there any significant differences between the groups of each characteristic of students.

Table 5: One-Way ANOVA for independent variables

	Sum of Squares	df	Mean Square	F	Sig.
Nationality					
Between Groups	1.343	1	1.343	.266	.606
Within Groups	1452.037	288	5.042		
Total	1453.379	289			
Gender					
Between Groups	13.238	1	13.238	2.647	.105
Within Groups	1440.141	288	5.000		

Total	1453.379	289			
Location					
Between Groups	.179	1	.179	.035	.851
Within Groups	1453.200	288	5.046		
Total	1453.379	289			
Level of Education					
Between Groups	43.677	1	43.677	8.923	.003
Within Groups	1409.702	288	4.895		
Total	1453.379	289			
Field of Education					
Between Groups	117.794	1	117.794	25.401	.000
Within Groups	1335.585	288	4.637		
Total	1453.379	289			

The first category of second hypothesis is foreign students have more knowledge of finance than domestic students. The ANOVA results ($F_{1,288}$=.266, p> .05) suggest that there is no significant difference between the groups (Bangladeshi, Non-Bangladeshi). So, foreign students are not more knowledgeable than Bangladeshi students.The next hypothesis is male students have significantly higher levels of financial literacy than female students. Again the p value ($F_{1,288}$=2.647, p> .05) is not significant. So, we reject the alternative hypothesis and null hypothesis is accepted. There is no difference between male and female in achieving financial score. From the group statistics we found difference in mean value between male and female but the difference is not significant. In the third hypothesis, the second category(urban dwelling students) has significantly higher level of financial literacy than rural dwelling students. But from the ANOVA it is found that there is no significant difference between the two locations. The next hypothesis is postgraduate students have significantly higher levels of financial literacy than undergraduate ones. The result ($F_{1,288}$=8.923, p< .05) is significant. There is a significant difference between undergraduate and graduate/post graduate students. From the group statistics the mean value for undergraduate (Bachelor) is 6.42 and for graduate/post graduate (Master) is 7.20. So, the students who completed their graduation have more financial knowledge than undergraduate students. Lastly,the study hypothesized that business major students have significantly improved skill of financial literacy than non-business major students. The ANOVA result supports this hypothesis. From Table 5 we can see the p value is .000 that means students of business and students of non-business have significant difference in terms of financial literacy score. The mean value of financial literacy score of business students is M=7.37, SD=2.106 and non-business is M=6.07, SD=2.218. So, students of business have higher financial knowledge than non-business students. As business students learn finance courses, they can generate more knowledge of finance.

Table 6 shows the robust test of equality of means of field of education. In both Welch and Brown-Forsythe tests, the result is significant.

Table 6: Robust test result of field of education

Financial Literacy Score				
	Statistic a	df1	df2	Sig.
Welch	24.968	1	250.413	.000
Brown-Forsythe	24.968	1	250.413	.000
a. Asymptotically F distributed.				

Here five characteristics of students are used as independent variable. From these variables, only field of education has significant impact on financial literacy. The findings indicate a statistically significant positive relationship between the field of education and financial literacy. This means that the observed association is unlikely to have occurred by chance, and the relationship is considered meaningful. Again field of study has two categories- major in business and non-business. Between these two the business major students have more influence in financial literacy.

5.4 The relationship between financial literacy and financial application

The regression result of the model 2 does not support the H_3. The hypothesis was that there is a positive relation between financial literacy and involvement in financial activities. But we did not find any significant association between these two variables. In this part, the findings are represented and discussed.

Here, we analyse the relationship between financial literacy and financial application. The regression result is not significant which implies that financial literacy cannot influence student's financial application. Students whether have more or less financial knowledge; they frequently apply it in their practical life. Results of model 2 are given below

Table 7: Summery of the findings of Model 2

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.620	.513		18.756	.000
	Financial Literacy Score	-.152	.071	-.124	-2.129	.034
a. Dependent Variable: Application Score						

The findings indicate a non-significant relationship between financial literacy and financial application. Changes in the literacy score are not found to have a significant impact on the application of financial knowledge.

6. Conclusion

Financial literacy is not a new concept, but its importance is increasing in the emerging situations of economy. This study tries to find out the influential characteristics of university students that have impact in achieving financial knowledge. Findings suggest that the major subject is most influential factor in this context. Students of business can achieve more financial knowledge than non-business students. However, the implication of this knowledge in practical life is not significant. The knowledge cannot help them to do the right thing in right way. In this circumstance, the financial policymakers can help them to abstain from wrong investment or other financial involvements.

Good financial decision-making depends on basic understanding of financial concepts. The project helps to identify factors that determine the level of competency possessed by university students. This study helps students to understand the importance of financial literacy in preparing budget, investing in financial securities, analysing risk of projects, comparing between assets. University students are participating in entrepreneurial activities and they are almost ready to involve themselves in financial activities. To face the challenges of the highly competitive market, comprehensive learning or training in financial literacy should be provided for university students during their academic study. By achieving financial knowledge, students can make proper financial decisions. Therefore, financial literacy among the university students shall be made one of the major priorities among educational policymakers.

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