Financial Fragility, Changing Face of Academia and Their Role in the Dissemination of Financial Literacy

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Abstract

Financial decision making is affected by financial literacy, having its implications spread across communities, countries and the societies in general. The importance and fragility of financial literacy has been the subject of previous studies. However, current study dived deep into public and private universities to find their contribution. Longitudinal survey approach employed with multistage stratified random sampling technique, clustered to respondents' demographics. Financial literacy is evaluated based on simplicity, relevance, brevity and capacity of differentiation. Finding reveals that the students of the private sector became more capable of processing financial information after studying finance courses. Similarly, students having finance courses before joining universities were more financially literate as compared to others. Irrefutably, the study recommends improvement in curriculum design, teaching methodology and assessment. Higher educational institutions must improve curriculum and improvise teaching pedagogies. The findings of the study have paved the road for the dissemination of financial literacy for the growth of individuals, society and the economy.

Keywords: Financial literacy, Financial fragility, Financial well being, Academia.

Financial literacy is one of the most talked about things in the world in recent times. It encompasses financial skills, ability to calculate interest payments, money management and financial planning. It improves budgeting skills, saving habits, financial dependency, decision making and resource allocation in the economy. Financial literacy plays important role in the financial decision making of individuals and has caught the attention of researchers in recent years (Lusardi and Mitchell, 2017; Idris, Krishnan and Azmi, 2017; Ghaffar and Sharif, 2016; Sivaramakrishnan, Srivastava and Rastogi, 2017; Gao, 2017; Lusardi and Scheresberg, 2013). Financial landscaping that folks today has increased the responsibility for financial wellbeing. Financial decision has an impact on academic and non academic performance of students. Financial decision making depends on financial literacy and has implications for students, parents, teachers, universities, education board, the government and the economy of Pakistan. Low level of financial literacy was observed among the students of colleges and universities of developing countries (Yong, Yew, and Wee, 2018). Even many felt that they are not ready to make good financial decisions. Therefore, an in-depth understanding of the financial behavior of youth is vital for developing the level of financial literacy.

A plethora of research explored that financial literacy was driven by factors such as age (Lusardi, Mitchell and Curto, 2009; Lusardi and Scheresberg, 2013), computational ability, education (Lusardi and Mitchell, 2006; Van Rooij, Lusardi and Alessie, 2007; Boisclair, Lusardi and Michaud, 2017; Graham, Harvey and Huang, 2009), and gender (Montagnoli, Moro, Panos and Wright, 2017). It is evident that many individuals were not fully equipped in financial decisions and thus, made improper planning for retirement (Lusardi and Mitchell, 2007; Lusardi, 2008), and were less inclined to accumulate prosperity (Stango and Zinman, 2009). They were less inclined to take part in the stock markets (Rooij and Yoong, 2011), and were paying high interests on debts (Lusardi and Tufano, 2009). They also used high cost methods of borrowing (Lusardi and Scheresberg, 2013). Prior research not only documents generally low levels of financial literacy but also finds large heterogeneity in financial literacy across the population, suggesting that economically vulnerable groups are placed at further disadvantage by their lack of financial knowledge (Stolper and Walter, 2017). Therefore, previous literature focused on the level of financial literacy and how financially literate were the people of different countries to establish its importance with financial decision making. There was an increasing need to investigate whether the universities in developing countries are disseminating financial literacy? Therefore, current study dived deep into public and private sector universities to find their contributions for the dissemination of financial

literacy. The study also uncovered the impact of age, gender, semester and previous qualification on financial literacy.

Financial decision making is directly affected by the level of financial literacy, having its implications that are spread across communities, countries and the society in general. Pointing towards the lack of financial literacy across the world, it is important to curb this problem by adding finance related subjects to the school curriculum (Lusardi, 2015). In Pakistan people who had more financial knowledge generally saved more (Ghaffar and Sharif, 2016). However, the cost of higher education continues to spike and the implications of financial decisions taken in the latter teenage years tend to have a significant impact on individual economic prosperity (Gjorgijovska and Ruggeri, 2018). A financially literate generation would result in better economic interactions and policies. The responsibility of the universities and the government was to equip younger generation with enough financial knowledge so that they can manage their finances in the future.

The current longitudinal study contributes on three main strands of recent literature. Firstly, it checked the impact of institutional settings (public & Private) on financial literacy. Theses intuitional settings make ideal to study questions related to financial literacy. Secondly, study captured detailed information on impact of age, gender, previous qualification, semester and institutional settings on financial literacy. Thirdly, the study measure the initial level of financial literacy and its improvement for future decision making, there were substantial differences in financial literacy between two institutional settings. Therefore, current study paved the road for academia and established their extensive role in the dissemination of financial literacy for economic growth of individuals, society and the economy.

Literature Review

Gender and Financial Literacy

Significant difference exists between financial literacy of males and females with males having an upper hand (Adam, Boadu and Frimpong, 2018). Financial literacy had a significant impact on the financial knowledge of the participants which changed their savings and borrowing behavior (Sayinzoga, Bulte and Lensink, 2016). Further financial literacy was one of the crucial factors in explaining behavioral changes. Gender difference was observed in financial literacy surveys conducted among students in Italy. The results of these surveys showed that boys were more financially literate as compared to girls, and men had better financial understanding than women (Rinaldi, 2017). A study conducted in Britain on financial literacy showed that the results are independent of generic attitudes towards other types of inequalities e.g., based on gender, race or sexual orientation (Montagnoli, Moro, Panos and Wright, 2017). Similarly, financial literacy was particularly low in demographic groups such as women having less education. In Zimbabwe women had a significantly lower financial literacy level than males (Murendo and Mutsonziwa, 2017). Similarly, male advantage was seen in regards to computational ability while females were better in non-computational abilities (Adam, Boadu and Frimpong, 2018). Many researchers tried to establish the reason behind the gender difference in financial literacy but have failed to come across explanations to account for the observed gap (Bucher-Koenen et al. 2012; Chen and Volpe 2002; Mandell, 2008; Brown and Gaf, 2013; Mahdavi and Horton, 2014). Even financial literacy has been a subject of constant fluctuation across the populations. Similarly, in France it has been observed that education, gender, age and political affiliation were correlated with financial literacy (Arrondel, 2018). Gender disparity with respect to financial literacy was observed in Ghana. Out of the ten financial literacy questions asked, men answered seven correctly while female answered three out of the remaining, thus a clear male dominance was seen. Therefore, research suggested that policy makers should take a keen look at addressing this gender disparity as means for better economic development (Adam, Boadu and Frimpong, 2018). Therefore, on the bases of above arguments the study hypothesizes that:

Hypothesis (1): Male students are more likely to be financial literate as compare to female students.

Age and Financial Literacy

Financial illiteracy has serious repercussions for those who lack the understanding of evaluation a financial resource and are never in position to make retirement plan (Lusardi and Mitchell, 2006). Rich people when reaches near to their old age have less capacity to purchase stocks and options (Van Rooij, Lusardi and Alessie, 2007), and may borrow at high interest rates

(Lusardi and Tufano, 2009). Literature affirms that the level of financial literacy is related to a number of factors like education, age and the location (Akoto, Appiah and Turkson, 2017). Corresponding to the literature it is greater in businessmen, owners, university students and people having an age between 50 to 60 years. Research in France observed that education, gender, age and political affiliation were correlated with financial literacy (Arrondel, 2018). However, in western countries, the cost of higher education continues to spike and the implications of financial decisions taken in the latter teenage years tend to have a significant impact on the long-term individual economic prosperity (Gjorgijovska and Ruggeri, 2018). In Japan the prime determinants of financial literacy were educational level, age, income and occupational status (Yoshino, Morgan and Trinh, 2017). Therefore, in the light of the above arguments, we proposed the following hypothesis:

Hypothesis (2): Age has positive repercussions leads towards higher level of financial literacy.

Previous Qualification and Financial Literacy

Financial literacy tends to have many long-term financial benefits and it may very well wrap up an individual in deficits (Lusardi, 2008). Great thing about financial knowledge is that it lowers the expenses of obtaining, producing information and minimizes the obstructions for purchase in the equity markets (Haliassos and Bertaut, 1995). It was seen that people who had undermined the significance of compounding the interest rate, came up with large numbers of personal debt (Lusardi and Tufano, 2009). People at large, who cannot refinance their earnings successfully or even to incorrectly forecast the total amount where interest rates varies can pay significantly more by means of mortgage loan interest (Campbell, 2006). Among Canadian respondents, the young and the old, women, minorities, and those with lower educational attainment do worse, a pattern that has been consistently found in other countries as well (Boisclair, Lusardi and Mitchell, 2015). According to the public criticism in Germany, it was said that financial knowledge was insufficiently developed in the secondary school level (Happ and Forster, 2017). Out of the demographic variables only education and monthly income were important determinants in establishing financial literacy (Yıldırım, Bayram, Oguz and Gunay, 2017). More evidence on this matter can be seen when it was founded that prior experience with payday lending is related to increased loan aversion for community college students who did not borrow for college (Boatman and Evans, 2017). General previous education is positively correlated with savings behavior (Yoshino, Morgan and Trinh, 2017). In India, demographic factors along with socioeconomic factors like age, gender, marital status, and educational attainment ascertain the level of financial knowledge in the youth (Garg and Singh, 2018). Therefore, the above mentioned literature leads to the following hypothesis:

Hypothesis (3): Students would more likely to be financially literate if he/she has previous qualification on his background

Semester and Financial Literacy

Given the many approaches, where financial literacy impacts monetary behavior (Lusardi and Mitchell, 2014), it's important to understand the quantify and gauge people's understanding of fundamental financial concepts in addition to the degree to which financial competencies fall short amongst groups like ladies and the poor. The research had pointed out that individual with increased financial knowledge and educational credentials reported significantly lower with respect to experiencing a declining income shock during 2009 and had better spending capacity. Therefore, financial literacy could equip people to withstand macro-economic shocks with greater zeal. Moreover, knowledge of numeracy is significantly poor of the people with lower educational attainment (Jappelli, and Padula, 2013; Lusardi, 2012). This study concluded that high school students with poor financial background, with less English and numerical processing ability had a lower level of financial literacy. It was also recommended that financial education programs at the high school level are a key driver in improving the financial decision making in the population (Cameron, Calderwood, Cox, Lim and Yamaoka, 2014). Financial learning program led to an increase in financial knowledge in about one out of eight questions with an increase of financial knowledge of about 33% directly attributable to the program (Kalwij, Alessie, Dinkova, Schonewille, van der Schors and van der Werf, 2017). Therefore, on the basis of above arguments we propose the following hypothesis:

Hypothesis (4): There is positive relationship between raise in semesters and financial literacy.

University and Financial Literacy

Low stages of economic literacy have decrease financial savings rate and higher degree of financial literacy entailed to those people who had better knowledge of their financial circumstances and were capable enough to plan their future well (Boisclair, Lusardi and Michaud, 2014). The level of financial literacy was low in UK and Malaysia regions and government must ensure that proper measures to be taken to increase awareness of financial related matters (Janor et.al, 2017). A survey in Malaysia revealed that the level of financial literacy in college and university students was low (Yong, Yew, and Wee, 2018). Analyzing the future outlook of increasing financial literacy in India, it was pointed out that it is vital to add basic financial topics in the school level curriculum as it will enhance the investment behavior and this will ultimately result in financial well-being (Agarwal, Kureel and Yadav, 2017). It was seen that the consumers at large benefitted from the investment on financial literacy; this had allowed them to increase their returns on personal wealth (Japelli and Padula, 2014). The study further documents that investment in financial literacy and wealth is jointly determined and has a positive correlation over their life cycle (Amagir, Groot, Brink, & Wilschut, 2017). Literature also focused on educating teachers in order to reflect upon their knowledge and skills required to take well chart out financial decisions and try to explore the opportunities for financial literacy learning in the Australian curriculum (Sawatzki and Sullivan, 2017). From this point this study pursues to the need to know that whether the universities, which are part of the learning program in an individual's life, disseminate financial literacy effectively or not. Therefore, on the bases of above cited literature we propose the following hypothesis:

Hypothesis (5): The higher educational institutions have an impact on the dissemination of financial literacy.

Methodology

The study was open for the students who were enrolled in business degrees of Bachelor of Business Administration (BBA), Bachelors of Science Accounting and Finance BS(A&F) and Masters of Business Administration (MBA). The specific reason for the selection of said sample was the attainment of finance qualifications which are most relevant to financial literacy and the accessibility of the students in different universities. In order to ensure considerable representation from each university, the students were sampled on the bases of their gender, age, previous qualification and university. This study entailed primary research and was longitudinal in nature and employed multistage stratified random sampling technique. The respondents' data was clustered to respondents' gender, age, previous qualifications and university. The sample was collected from three government and two private universities with a proportion of 51.70% government and 48.30% private. The permission was taken from the head of departments (HODs) of the universities for the collection of data from the students. The average age of the respondents was approximately 20 years. The questionnaire also included information of the respondents such as name, current degree, semester, previous qualification, finance courses studied so far, age, gender, email and name of the university. Purposive sampling was used for sample selection. The respondents were undergraduates and masters level students having age between 16 to 33 years. The sample consists of 737 students of different universities of at time. Out of total number of 737 students 88.6% were bachelors and 11.4% were master's students. Out of total 737 students 61.2% were male and 38.8% were female students. To measure the impact of demographics on financial literacy excel and Statistical Package for the Social Sciences (SPSS) was used. This study used frequency tables, proportionate counts, correlations and cross tabulation techniques. Non-parametric Pearson's correlation coefficients were used for analyzing the relationship among the variables. Cross tabulation was used for grouping variables to understand the correlation among the variables. Cross tabulation technique helped to find number of correct responses with respect to gender, university and previous qualification. In the second phase the sample size was reduced to 594. The reason for the reduction in sample was that some of the respondents of the first phase became unavailable. It was either due to leaving the university, graduating or not being available at the time of data collection in the second phase. As a result, the second phase of study comprises of 594 students distributed as 373 (62.79%) male and 221 (37.21%) female. The sample in the second phase consisted of students from government (51.51%) and private (48.49%) universities with an average age of approximately 20 years.

Measurement of Financial Literacy

The study used Big Three Inventory (Lusardi and Mitchell, 2011) to measure basic financial literacy of the university students. The Big Three is comprised of knowledge of interest compounding, inflation and risk diversification. The current study used the basic financial literacy questionnaire in lined with (Lusardi and Mitchell, 2009; Rooij, Lusardi and Alessie, 2011; Scheresberg, 2013; Lusardi and Mitchell, 2014; Lusardi, 2015; Mitchell and Lusardi, 2015; Bucher-Koenen et.al, 2017; Boisclair, Lusardi and Michaud, 2017). The questionnaire helped to gauge the individuals' understanding regarding basic financial literacy which includes the knowledge of interest compounding, inflation and risk diversification.

Table 1. *Showing the Description of Questions*

Questions to measure Financial Literacy	Purpose
Question 1(Q1)	To measure 'knowledge of interest compounding'.
Question 2(Q2)	To measure 'knowledge of inflation'.
Question 3(Q3)	To measure 'knowledge of risk diversification'.

Q1= measure knowledge of interest compounding, Q2= measure knowledge of inflation, Q3= measure the knowledge of risk diversification

Table 2. *Showing the Description of Variables*

Variable	Description
Gender	Respondents provided their gender.
Age	Respondents provided their age in years
Education	Respondents provided information regarding their current degree
Semester	Respondents provided their current semester
Previous Qualification	Respondents provided their previous qualification
University	Respondents provided the name of their current university
E-mail	Respondents provided their email so that they can be contacted again.

Results and Analysis at the Start of Semester

Results of Interest Compounding

Table 3. *Showing the Knowledge of Interest Compounding*

Gender			Sectors		
			Private	Public	Total
Female	Q1	1.00	64.4%	59.4%	62.6%
		2.00	10.0%	5.7%	8.4%
		3.00	12.2%	6.6%	10.1%
		4.00	11.7%	17.9%	14.0%
		5.00	1.7%	10.4%	4.9%
			100.0%	100.0%	100.0%
Male	Q1	1.00	78.4%	79.6%	79.2%
		2.00	6.3%	6.9%	6.7%
		3.00	3.4%	6.5%	5.3%
		4.00	6.3%	4.7%	5.3%

			Private	Public	Total
		5.00	5.7%	2.2%	3.5%
			100.0%	100.0%	100.0%
Total	Q1	1.00	71.3%	74.0%	72.7%
		2.00	8.1%	6.6%	7.3%
		3.00	7.9%	6.6%	7.2%
		4.00	9.0%	8.4%	8.7%
		5.00	3.7%	4.5%	4.1%
	Total		100.0%	100.0%	100.0%

The first option i.e. "more than Rs. 102" is the correct answer. Q1= Question No.1 (which measure the knowledge of interest compounding)

The empirical results for this study in table (3) showed that 72.7% out of 737 respondents answered the first question correctly, whereas 14.5% incorrectly answered the question. 8.7% did not know the answer while remaining 4.1% refused to answer. The results showed that gender has an impact on level of basic financial literacy as 79.2% male and 62.6% female respondents answered correctly. While 12% of the male and 18.5% of the female respondents answered incorrectly. 5.3% of male and 14% of female did not know the answer. 3.5% of male and 4.9% of female respondents refused to answer. The results indicate that male students have better understanding of interest compounding as compared to female. Further, the result showed that 74% respondents of public universities correctly answered the question. 71.3% students of private universities correctly answered the question related to knowledge of interest compounding. Therefore, the students of public universities showed a higher understanding of the knowledge of interest compounding.

Results of Knowledge of Inflation

Table 4. *Showing the Knowledge of Inflation*

Gender			Sectors		
			Private	Public	Total
Female	Q2	1.00	15.0%	17.1%	15.8%
		2.00	15.0%	6.7%	11.9%
		3.00	44.4%	32.4%	40.0%
		4.00	21.7%	37.1%	27.4%
		5.00	3.9%	6.7%	4.9%
			100.0%	100.0%	100.0%
Male	Q2	1.00	12.0%	19.3%	16.4%
		2.00	15.4%	14.9%	15.1%
		3.00	53.7%	46.9%	49.6%

			Private	Public	Total
		4.00	12.6%	13.1%	12.9%
		5.00	6.3%	5.8%	6.0%
			100.0%	100.0%	100.0%
Total	Q2	1.00	13.5%	18.7%	16.2%
		2.00	15.2%	12.6%	13.9%
		3.00	49.0%	42.9%	45.9%
		4.00	17.2%	19.7%	18.5%
		5.00	5.1%	6.1%	5.6%
			100.0%	100.0%	100.0%

The third option i.e. "less than today" was the correct option, Q2= Question No.2 (which measures the knowledge of inflation)

The empirical finding of the study from table (4) showed that 45.9% out of the total respondents answered the second question correctly while 30.1% answered incorrectly. 18.5% respondents did not know the answer while 5.6% refused to answer. The results showed that gender has an impact on knowledge of inflation. The results for male and female participants were different as, a total of 49.6% of the male and 40% of the female respondents answer correctly. 31.5% of the male and 27.7% of the female respondents answered the question incorrectly. 12.9% of the male respondents and 27.4% of the female respondents did not know the answer. 6% of the male and 4.9% of the female respondents refused to answer the question. This indicates that the male respondents have a higher knowledge of inflation than the female respondents. Furthermore, the result showed that 49% respondents of private universities correctly answered the question. 42.9% students of private universities correctly answered the question related to knowledge of inflation. Therefore, the students of private universities showed a higher understanding of the knowledge of inflation.

Results of Knowledge of Risk Diversification

Table 5. *Showing the Knowledge of risk diversification*

Gender			Sectors		
			Private	Public	Total
Female	Q3	1.00	17.8%	30.2%	22.4%
		2.00	50.0%	42.5%	47.2%
		3.00	27.8%	25.5%	26.9%
		4.00	4.4%	1.9%	3.5%
			100.0%	100.0%	100.0%
Male	Q3	1.00	19.4%	35.3%	29.1%
		2.00	57.7%	39.6%	46.7%

		3.00	17.1%	20.4%	19.1%
		4.00	5.7%	4.7%	5.1%
			100.0%	100.0%	100.0%
Total	Q3	1.00	18.6%	33.9%	26.5%
		2.00	53.8%	40.4%	46.9%
		3.00	22.5%	21.8%	22.1%
		4.00	5.1%	3.9%	4.5%
	Total		100.0%	100.0%	100.0%

The second option i.e. "False" was the correct option, Q3= Question No.3 (Measures the knowledge of risk diversification)

With reference to table (5), 46.8% out of 737 respondents answered the third question correctly while 26.5% answered incorrectly. 22.1% respondents did not know the answer and 4.6% respondents had refused to answer. The results showed that gender has an impact on knowledge of risk diversification. A total of 46.6% of the male and 47.2% of the female respondents answered the question correctly. 29% of the male and 22.4% of the female respondents incorrectly answered the question. 19.1% of the male while 26.9% of the female respondents did not know the answer. 5.3% of the male respondents and 3.5% of the female respondents refused to answer. This indicated that female students had slightly more understanding of risk diversification. The results showed students of private universities had better knowledge of risk diversification as 53.8% students of private universities had correctly answered the question and only 40.4% students of public universities had correctly answered the question.

Impact of Age on Financial Literacy at the Start of Semester

Table 6. *Showing the Correlation between age and financial literacy*

		Correlations		
		Q1	Q2	Q3
Age	Pearson Correlation	-.043	.059	.003

**. Correlation is significant at the 0.01 level (2-tailed). Q1=Question1, Q2=Question2, Q3=Question3

Age had a negative and insignificant correlation with knowledge of interest compounding as ($r = -0.043$.) Age had a positive and insignificant correlation with the knowledge of Inflation as ($r = 0.059$) and knowledge of risk diversification as ($r = 0.003$).

Impact of Semester on Financial Literacy at the Start of Semester

Table 7. *Showing the correlation between semester and financial literacy*

		Correlations		
		Q1	Q2	Q3
Semester	Pearson Correlation	-.020	.009	.127**

**. Correlation is significant at the 0.01 level (2-tailed). Q1=Question1, Q2=Question2, Q3=Question3

　　　　It was observed that Semester had a negative correlation and insignificant relationship with knowledge of interest compounding as (r = -0.020). Semester had a positive and insignificant relationship with knowledge of inflation as (r = 0.009). Semester had a positive and significant correlation with knowledge of risk diversification as (r = 0.127, P<0.01).

Impact of Previous Qualification on Financial Literacy at the Start of Semester

Table 8. *Showing the Knowledge of Interest Compounding with respect to Previous Qualification*

		Pre eng	A levels	I Com	Pre med	BBA	BS AF	B. Com	ICS	Total
Q1	1	72.6%	71.7%	68.6%	73.3%	75.0%	75.0%	80.0%	70.6%	72.7%
	2	8.6%	5.5%	8.6%		6.3%	8.3%	5.0%		7.3%
	3	6.1%	10.3%	2.9%	6.7%	6.3%	8.3%	10.0%	11.8%	7.2%
	4	8.8%	8.3%	11.4%	13.3%	6.3%		5.0%	17.6%	8.7%
	5	3.9%	4.1%	8.6%	6.7%	6.3%	8.3%			4.1%
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

　　　　In accordance with table (8) the highest level of understanding of interest compounding was shown by the students whose previous qualification was B. Com with 80% of them answering the question correctly. The lowest understanding of interest compounding was shown by students who have previously studied I COM with only 68.6% of them correctly answered the question.

Table 9. *Showing the Knowledge of Inflation with respect to Previous Qualification*

		Pre eng	A levels	I Com	Pre med	BBA	BS AF	B. Com	ICS	Total
Q2	1	17.7%	11.0%	20.0%	20.0%	15.6%	16.7%	17.5%	5.9%	16.1%
	2	15.0%	13.1%	14.3%	6.7%	15.6%	8.3%	10.0%	5.9%	13.8%
	3	43.3%	50.3%	54.3%	26.7%	43.8%	50.0%	62.5%	29.4%	45.7%
	4	18.1%	19.3%	5.7%	33.3%	18.8%	25.0%	10.0%	47.1%	18.5%

	5	5.9%	6.2%	5.7%	13.3%	6.3%			11.8%	5.8%
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

According to table (9) the students who have previously studied B. Com had the highest knowledge of inflation as 62.5% of them correctly answered question number two. The lowest knowledge of inflation was shown by the students whose previous qualification was pre medical as only 26.6% of them correctly answered the question.

Table 10. *Showing the Knowledge of Risk Diversification with respect to Previous Qualification*

		Pre eng	A levels	I Com	Pre med	BBA	BS AF	B. Com	ICS	Total
Q3	1	26.3%	17.2%	22.9%	33.3%	34.4%	33.3%	42.5%	52.9%	26.5%
	2	45.1%	51.7%	60.0%	33.3%	56.3%	50.0%	42.5%	23.5%	46.8%
	3	23.8%	24.8%	11.4%	26.7%	9.4%	8.3%	15.0%	23.5%	22.1%
	4	4.8%	6.2%	5.7%	6.7%		8.3%			4.6%
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

According to table (10) the highest knowledge of risk diversification was shown by students whose previous qualification was I. Com as 60% of them correctly answered question number three. The lowest knowledge of risk diversification was shown by respondents whose previous qualification was ICS as only 23.5% of them correctly answered the question.

Results and Analysis at the End of Semester

A total of 594 students of different public and private universities from Islamabad participated in the second phase of the study. The major section of students was from bachelors 86.9% and 13.1% were from MBA. There were a total of 62.8% male and 37.2% female respondents.

Results of Interest Compounding

Table 11. *Showing the Knowledge of Interest Compounding*

Gender			Sectors		Total
			Private	Public	
Female	Q1	1.00	75.5%	63.5%	71.5%
		2.00	6.8%	12.2%	8.6%
		3.00	12.9%	17.6%	14.5%
		4.00	4.8%	5.4%	5.0%
		5.00		1.4%	0.5%

			100.0%	100.0%	100.0%
Male	Q1	1.00	84.4%	78.8%	80.9%
		2.00	5.0%	10.4%	8.3%
		3.00	8.5%	4.8%	6.2%
		4.00	2.1%	4.3%	3.5%
		5.00		1.7%	1.1%
			100.0%	100.0%	100.0%
Total	Q1	1.00	79.9%	75.1%	77.4%
		2.00	5.9%	10.8%	8.4%
		3.00	10.8%	7.9%	9.3%
		4.00	3.5%	4.6%	4.0%
		5.00		1.6%	0.8%
	Total		100.0%	100.0%	100.0%

The first option i.e. "More than Rs. 102" was the correct answer. Q1=Question1, Q2=Question2, Q3=Question3

Table (11) which showed the results regarding the knowledge of interest compounding. 77.4% correctly answered the first question means they have the knowledge of interest compounding. While 17.7% incorrectly answered the question, 4% did not know the answer while remaining 0.8% refused to answer. 80.9% of the male and 71.5% of the female respondents answered correctly while 14.5% of the male and 23.1% of the female respondents answered incorrectly. 3.5% of the male and 5% of the female did not know the answer. 1.1% of the male and 0.5% of the female respondents refused to answer. This indicated that male students had better understanding of the knowledge of interest compounding. Further 79.9% students of private universities correctly answered the question and 75.1% students of public universities correctly answered the question. This showed that the students of private universities had a higher knowledge of interest compounding in the second phase.

Table 12. *Showing the Results of Financial Literacy gender-wise*

	Total Correct	Male Correct
Interest Compounding	77.4%	80.9%
Inflation	60.9%	64.5%
Risk Diversification	59.7%	60.8%

Result of Knowledge of Inflation

Table 13 *Showing the Knowledge of Inflation*

			Sectors		
Gender			Private	Public	Total
Female	Q2	1.00	6.8%	18.9%	10.9%

		2.00	21.8%	24.3%	22.6%
		3.00	59.2%	45.9%	54.8%
		4.00	10.2%	10.8%	10.4%
		5.00	2.0%		1.4%
			100.0%	100.0%	100.0%
Male	Q2	1.00	8.5%	12.6%	11.0%
		2.00	12.8%	16.5%	15.1%
		3.00	71.6%	60.2%	64.5%
		4.00	4.3%	7.4%	6.2%
		5.00	2.8%	3.5%	3.2%
			100.0%	100.0%	100.0%
Total	Q2	1.00	7.6%	14.1%	11.0%
		2.00	17.4%	18.4%	17.9%
		3.00	65.3%	56.7%	60.9%
		4.00	7.3%	8.2%	7.8%
		5.00	2.4%	2.6%	2.5%
	Total		100.0%	100.0%	100.0%

The third option i.e. "Less than today" was the correct option. Q2=Question 2

Table (13) showed the level of knowledge of inflation. 60.9% of the total respondents answered the second question correctly while 28.9% answered incorrectly. 7.8% did not know the answer while 2.5% refused to answer. A total of 64.5% of the male and 54.8% of the female respondents answer correctly. 26.1% of the male and 33.5% of the female respondents answered the question incorrectly. 6.2% of the male respondents and 10.4% of the female respondents did not know the answer. 3.2% of the male and 1.4% of the female respondents refused to answer the question. This indicates that the male respondents have a higher knowledge of inflation than the female respondents. Further, the results showed that 65.3% respondents from private universities answered the question correctly while only 56.7% students from public universities answered the question correctly. This implies that the students from private universities had a higher knowledge of inflation than students of public universities in the second phase of the study.

Result of Knowledge of Risk Diversification

Table 14. *Showing the Knowledge of risk diversification*

Gender			Sectors		Total
			Private	Public	
Female	Q3	1.00	20.4%	36.5%	25.8%
		2.00	62.6%	48.6%	57.9%
		3.00	13.6%	13.5%	13.6%
		4.00	3.4%	1.4%	2.7%
	Total		100.0%	100.0%	100.0%
Male	Q3	1.00	17.0%	35.5%	28.5%
		2.00	76.6%	51.1%	60.8%
		3.00	5.7%	11.7%	9.4%
		4.00	0.7%	1.7%	1.3%
	Total		100.0%	100.0%	100.0%
Total	Q3	1.00	18.8%	35.7%	27.5%
		2.00	69.4%	50.5%	59.7%
		3.00	9.7%	12.1%	11.0%
		4.00	2.1%	1.6%	1.9%
	Total		100.0%	100.0%	100.0%

The second option i.e. "False" was the correct option. Q1=Question1, Q2=Question2, Q3=Question3

Table (14) analyzed the understanding of risk diversification which showed that 59.7% out of 594 respondents answered third question correctly while 27.5% answered incorrectly. 11% respondents did not know the answer and 1.9% respondents had refused to answer. 60.8% of the male and 57.9% of the female respondents answered the question correctly. 28.5% of the male and 25.8% of the female respondents incorrectly answered the question. 9.4% of the male while 13.6% of the female respondents did not know the answer. 1.3% of the male respondents and 2.7% of the female respondents refused to answer. This indicated that male students had slightly more understanding of risk diversification. Further, the results depicted that private university students had the highest level of knowledge of risk diversification as 69.4% of the respondents answered correctly. The students of public universities had a lower knowledge of risk diversification indicated by proportion of correct answers being 50.5%.

Impact of Age on Financial Literacy at the End of Semester

Table 15. *Showing the impact of age on financial literacy in phase 2*

		Correlations		
		Q1	Q2	Q3
Age	Pearson Correlation	-.011	-.055	-.014

**. Correlation is significant at the 0.01 level (2-tailed). Q1=Question1, Q2=Question2, Q3=Question3

Age had a negative and insignificant correlation with knowledge of interest compounding as (r = -0.011), knowledge of Inflation (r = -0.055) and knowledge of risk diversification (r = -0.014).

Impact of Semester on Financial Literacy at the End of Semester

Table 16. *Showing the impact of semester on financial literacy*

		Correlations		
		Q1	Q2	Q3
Semester	Pearson Correlation	.060	.006	.122**

**. Correlation is significant at the 0.01 level (2-tailed). Q1=Question1, Q2=Question2, Q3=Question3

It was observed that semester had a positive and insignificant correlation with knowledge of Interest compounding (r= 0.060) and knowledge of Inflation (r = 0.006). Semester had a positive and significant correlation with Knowledge of Risk Diversification (r= 0.122, P<0.01).

Impact of Previous Qualification on Financial Literacy at the End of Semester

Table 17. *Showing the Knowledge of Interest Compounding with Respect to Previous Qualification*

		Pre Eng	A Levels	I Com	Pre med	BBA	BS AF	B. Com	ICS	Total
Q1	1.00	75.9%	82.4%	79.2%	64.3%	83.3%	90.9%	78.4%	53.8%	77.4%
	2.00	8.7%	5.9%	12.5%		13.3%		8.1%	23.1%	8.4%
	3.00	10.4%	6.7%	8.3%	21.4%	3.3%	9.1%	5.4%	15.4%	9.3%
	4.00	4.3%	5.0%		7.1%			5.4%		4.0%
	5.00	0.6%			7.1%			2.7%	7.7%	0.8%
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 17. showed that the highest understanding of interest compounding was shown by the students whose previous qualification was BS accounting and finance with 90.9% of them answering the question correctly. The lowest understanding of interest compounding was shown

by students who have previously studied ICS with only 53.8% of them correctly answered the question.

Table 18. *Showing the Knowledge of Inflation with respect to Previous Qualification*

		Pre Eng	A Levels	I.Com	Pre med	BBA	BS (A&F)	B.Com	ICS	Total
Q2	1.00	11.0%	8.4%	4.2%	7.1%	13.3%	27.3%	18.9%	7.7%	11.0%
	2.00	19.7%	13.4%	12.5%	35.7%	13.3%	18.2%	13.5%	23.1%	17.9%
	3.00	57.1%	67.2%	79.2%	50.0%	73.3%	54.5%	62.2%	53.8%	60.9%
	4.00	9.0%	9.2%	4.2%				5.4%	7.7%	7.8%
	5.00	3.2%	1.7%		7.1%				7.7%	2.5%
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

According to table (18) the students who had previously studied ICS had the highest knowledge of inflation as 79.2% of them correctly answered question number two. The lowest knowledge of inflation was shown by the students whose previous qualification was pre medical as only 50% of them correctly answered the question.

Table 19. *Knowledge of Risk Diversification with respect to Previous Qualification*

		Pre Eng	A Levels	I Com	Pre med	BBA	BS (A&F)	B. Com	ICS	Total
Q3	1.00	27.8%	19.3%	20.8%	35.7%	33.3%	45.5%	37.8%	38.5%	27.5%
	2.00	59.1%	64.7%	62.5%	50.0%	63.3%	54.5%	59.5%	30.8%	59.7%
	3.00	11.9%	13.4%	12.5%	7.1%	3.3%			23.1%	11.0%
	4.00	1.2%	2.5%	4.2%	7.1%			2.7%	7.7%	1.9%
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

According to table (19) the highest knowledge of risk diversification was shown by students whose previous qualification was A levels as 64.7% of them answered the question correctly. The lowest knowledge of risk diversification was shown by respondents whose previous qualification was ICS as only 30.8% of them correctly answered the question.

<div align="center">**Discussion**</div>

The findings of this study showed positive correlation between age, knowledge of inflation, risk diversification and a sizeable gender difference with respect to financial literacy in line with the cited literature (see Lusardi and Mitchell, 2017). The results indicate that male students have better understanding of the knowledge of interest compounding as compared to female results are in line with the findings of (Arrondel, 2018). Demographic factors along with socioeconomic factors like age, gender, marital status, and educational attainment have impact on the level of financial knowledge in the youth as proved by (Garg and Singh, 2018). The lowest

knowledge of inflation was shown by the students whose previous qualification was pre medical as only 26.6% of them correctly answered the question. Financial literacy programs had been effective in increasing financial literacy and financial decision making and the findings are in line with the studies of (Lusardi, Samek, Kapteyn, Hung, Heinberg and Glinert, 2017). Students from private universities had a higher knowledge of inflation and risk diversification. Students of public universities showed a higher understanding of the knowledge of interest compounding while lower knowledge of risk diversification in line with findings of Siew et.al (2017).

Conclusion

Review of literature and findings of the study accentuates the importance of financial literacy. It enhances the employability of graduates with the changing dynamics of market. Financially literate students would be able to enjoy career growth therefore, must be embedded in school, college and university curriculum. It must be the core priority of every educational institution for the capacity development of the students. The findings of this study showed positive correlation between age, knowledge of inflation and risk diversification and a sizeable gender difference with respect to financial literacy. Males are more financially literate as compared to females in line with the findings of (Lusardi, Mitchell and Curto, 2010; Lusardi and Mitchell, 2009; Lusardi and Tufano, 2009; Hung, Parker and Yoong, 2009). However, the major reason could be the lack of self-confidence (Bucher-Koenen et al. 2012), and customs prevailing in the society of Pakistan. Further, education also impacts financial literacy. Students having BBA, BS(A&F) and B.Com qualifications had better knowledge of interest compounding and inflation. However, students of FSC, ICS, I.Com had better knowledge of risk diversification. Therefore, previous education in schools and colleges is a major determinant of financial literacy and every passing semester increases the financial knowledge. Further, the study proved that private universities are more efficient in inculcating financial knowledge as compared to public. The findings of the study have paved the road for academia and established their extensive role in the dissemination of financial literacy for economic growth of individuals, society and the economy.

References

Adam, A. M., Boadu, M. O., & Frimpong, S. (2018). Does gender disparity in financial literacy still persist after retirement? Evidence from Ghana. International Journal of Social Economics, 45(1), 18-28.

Adam, A. M., Frimpong, S., & Boadu, M. O. (2017). Financial literacy and financial planning: Implication for financial well-being of retirees. Business and Economic Horizons, 13(2), 224-236.

Agarwal, M. P., Kureel, R. C., & Yadav, S. (2017). A Study on Future Plan for Increasing Financial Literacy Among People. Global Journal of Finance and Management, 9(1), 29-38.

Akoto, G. O., Appiah, K. O., & Turkson, J. K. (2017). Financial literacy of cocoa farmers in Ghana. International Journal of Accounting and Finance, 7(1), 11-30.

Amagir, A., Groot, W., Maassen van den Brink, H., & Wilschut, A. (2017). A review of financial-literacy education programs for children and adolescents. Citizenship, Social and Economics Education, 2047173417719555.

Arrondel, L. (2018). Financial Literacy and Asset Behaviour: Poor Education and Zero for Conduct?. Comparative Economic Studies, 60(1), 144-160.

Boatman, A., & Evans, B. J. (2017). How Financial Literacy, Federal Aid Knowledge, and Credit Market Experience Predict Loan Aversion for Education. The ANNALS of the American Academy of Political and Social Science, 671(1), 49-68.

Boisclair, D., Lusardi, A., & Michaud, P. C. (2014). GFLEC Working Paper Series.

Boisclair, D., Lusardi, A., & Michaud, P. C. (2017). Financial literacy and retirement planning in Canada. *Journal of Pension Economics & Finance*, *16*(3), 277-296.

Boisclair, D., Lusardi, A., & Michaud, P. C. (2017). Financial literacy and retirement planning in Canada. Journal of Pension Economics & Finance, 16(3), 277-296.

Bucher-Koenen, T., Lusardi, A., Alessie, R., & van Rooij, M. (2012). How financially literate are women? Some new perspectives on the gender gap.

Bucher Koenen, T., Lusardi, A., Alessie, R., & Van Rooij, M. (2017). How financially literate are women? An overview and new insights. Journal of Consumer Affairs, 51(2), 255-283.

Cameron, M. P., Calderwood, R., Cox, A., Lim, S., & Yamaoka, M. (2014). Factors associated with financial literacy among high school students in New Zealand. International Review of Economics Education, 16, 12-21.

Campbell, J. Y. (2006). Household finance. The journal of finance, 61(4), 1553-1604.

de Bassa Scheresberg, C. (2013). Financial literacy and financial behavior among young adults: Evidence and implications. *Numeracy*, *6*(2), 5.

Chen, H., & Volpe, R. P. (2002). Gender differences in personal financial literacy among college students. Financial services review, 11(3), 289.

Gao, T. (2017). Numeracy, Financial Literacy, and Investment Behaviors (Doctoral dissertation, The Ohio State University).

Garg, N., & Singh, S. (2018). Financial literacy among youth. International Journal of Social Economics, 45(1), 173-186.

Ghaffar, S., & Sharif, S. (2016). The Level of Financial Literacy in Pakistan.

Gjorgijovska, J., & Ruggeri, K. (2018). Assessment of Economic and Financial Competency (Asset): A Practical Measure of Financial Literacy for Young Adults.

Graham, J. R., Harvey, C. R., & Huang, H. (2009). Investor competence, trading frequency, and home bias. Management Science, 55(7), 1094-1106.

Haliassos, M. and Bertaut, C. C.: 1995, Why Do so few Hold Stocks?, The Economic

Happ, R., & Förster, M. (2017). The importance of controlling for socioeconomic factors when determining how vocational training and a secondary school economics class influence the financial knowledge of young adults in Germany. Zeitschrift fur okonomische Bildung, 6, 122-146.

Hung, A., Parker, A. M., & Yoong, J. (2009). Defining and measuring financial literacy.

Idris, F. H., Krishnan, K. S. D., & Azmi, N. (2017). Relationship between financial literacy and financial distress among youths in Malaysia-An empirical study. Geografia-Malaysian Journal of Society and Space, 9(4).

Janor, H., Yakob, R., Hashim, N. A., Zanariah, Z., & Wel, C. A. C. (2017). Financial literacy and investment decisions in Malaysia and United Kingdom: A comparative analysis. Geografia-Malaysian Journal of Society and Space, 12(2).

Jappelli, T., & Padula, M. (2013). Investment in financial literacy and saving decisions. Journal of Banking & Finance, 37(8), 2779-2792.

Jappelli, T., & Padula, M. (2014). Investment in financial literacy, social security, and portfolio choice. Journal of Pension Economics and Finance, 14 (04), 369–411. Retrieved from https://doi.org/10.1017%2Fs1474747214000377 doi: 10.1017/ s1474747214000377

Kalwij, A. S., Alessie, R., Dinkova, M., Schonewille, G., van der Schors, A., & van der Werf, M. (2017). The effects of financial education on financial literacy and savings behavior: Evidence from a controlled field experiment in Dutch primary schools. USE Discussion paper series, 17(05).

Lusardi, A. (2008). Financial literacy: an essential tool for informed consumer choice? (No. w14084). National Bureau of Economic Research.

Lusardi, A. (2012). Numeracy, financial literacy, and financial decision-making (No. w17821). National Bureau of Economic Research.

Lusardi, A. (2015). Financial literacy skills for the 21st century: evidence from PISA. Journal of consumer affairs, 49(3), 639-659.

Lusardi, A. (2015). Financial literacy: Do people know the ABCs of finance?. Public understanding of science, 24(3), 260-271.

Lusardi, A., & Mitchell, O. S. (2006). Baby boomer retirement security: The roles of planning, financial literacy, and housing wealth (No. w12585). National Bureau of Economic Research.

Lusardi, A., & Mitchell, O. S. (2007). Baby boomer retirement security: The roles of planning, financial literacy, and housing wealth. Journal of monetary Economics, 54(1), 205-224.

Lusardi, A., & Mitchell, O. S. (2008). Planning and financial literacy: How do women fare? (No. w13750). National Bureau of Economic Research.

Lusardi, A., & Mitchell, O. S. (2009). Financial literacy: Evidence and implications for financial education. Trends and issues.

Lusardi, A., & Mitchell, O. S. (2011). Financial literacy and planning: Implications for retirement wellbeing (No. w17078). National Bureau of Economic Research.

Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. Journal of economic literature, 52(1), 5-44.

Lusardi, A., & Mitchell, O. S. (2017). How Ordinary Consumers Make Complex Economic Decisions: Financial Literacy and Retirement Readiness. Quarterly Journal of Finance, 7(03), 1750008.

Lusardi, A., & Scheresberg, C. D. B. (2013). Financial literacy and high-cost borrowing in the United States (No. w18969). National Bureau of Economic Research.

Lusardi, A., & Tufano, P. (2009). Teach workers about the perils of debt. Harvard Business Review, 87(11), 22-24.

Lusardi, A., Mitchell, O. S., & Curto, V. (2009). Financial literacy among the young: Evidence and implications for consumer policy (No. w15352). National Bureau of Economic Research..

Lusardi, A., Mitchell, O. S., & Curto, V. (2010). Financial literacy among the young. Journal of consumer affairs, 44(2), 358-380.

Lusardi, A., Samek, A., Kapteyn, A., Glinert, L., Hung, A., & Heinberg, A. (2017). Visual tools and narratives: New ways to improve financial literacy. Journal of Pension Economics & Finance, 16(3), 297-323.

Mahdavi, M., & Horton, N. J. (2014). Financial knowledge among educated women: Room for improvement. Journal of Consumer Affairs, 48(2), 403-417.

Mandell, L. (2008). Financial literacy of high school students. Handbook of consumer finance research, 163-183.

Mandell, L. (2008). The financial literacy of young American adults: Results of the 2008 National Jump $ tart Coalition survey of high school seniors and college students. Washington, DC: The Jump $ tart Coalition for Personal Financial Literacy.

Mitchell, O. S., & Lusardi, A. (2015). Financial literacy and economic outcomes: Evidence and policy implications. The journal of retirement, 3(1), 107.

Montagnoli, A., Moro, M., Panos, G. A., & Wright, R. (2017). Financial literacy and attitudes to redistribution.

Murendo, C., & Mutsonziwa, K. (2017). Financial literacy and savings decisions by adult financial consumers in Zimbabwe. International Journal of Consumer Studies, 41(1), 95-103.

Montagnoli, A., Moro, M., Panos, G. A., & Wright, R. (2017). Financial literacy and attitudes to redistribution.

Rinaldi, E. E. (2017). Gender differences in financial literacy in Italy. *Challenges in ensuring financial competencies*.

Sawatzki, C. M., & Sullivan, P. A. (2017). Teachers' Perceptions of Financial Literacy and the Implications for Professional Learning. Australian Journal of Teacher Education, 42(5), 4.

Sayinzoga, A., Bulte, E. H., & Lensink, R. (2016). Financial literacy and financial behaviour: Experimental evidence from rural Rwanda. The economic journal, 126(594), 1571-1599.

Sivaramakrishnan, S., Srivastava, M., & Rastogi, A. (2017). Attitudinal factors, financial literacy, and stock market participation. International Journal of Bank Marketing, 35(5), 818-841.

Stango, V., & Zinman, J. (2009). Exponential growth bias and household finance. *The Journal of Finance*, *64*(6), 2807-2849.

Stolper, O. A., & Walter, A. (2017). Financial literacy, financial advice, and financial behavior. Journal of Business Economics, 87(5), 581-643.

Van Rooij, M., Lusardi, A., & Alessie, R. (2007). Financial literacy and stock market participation (No. w13565). National Bureau of Economic Research.

Van Rooij, M., Lusardi, A., & Alessie, R. (2011). Financial literacy and stock market participation. Journal of Financial Economics, 101(2), 449-472.

Yıldırım, M., Bayram, F., Oğuz, A., & Günay, G. (2017). Financial Literacy Level of Individuals and Its Relationships to Demographic Variables. Mediterranean Journal of Social Sciences, 8(3), 19.

Yoong, J. (2011). Financial illiteracy and stock market participation: Evidence from the RAND American Life Panel. *Financial literacy: Implications for retirement security and the financial marketplace*, *76*.

Yong, C. C., Yew, S. Y., & Wee, C. K. (2018). Financial knowledge, attitude and behaviour of young working adults in Malaysia. *Institutions and Economies*, *10*(4).

Yoshino, N., Morgan, P. J., & Trinh, L. Q. (2017). Financial Literacy in Japan: Determinants and Impacts.