Effect of Financial knowledge and Lifestyle on Financial Literacy of students using T-test

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***Abstract*—This study aims to examine the relationship between financial literacy and financial behavior of the lifestyle of a student and also determines differences in financial literacy when a student is more financially educated and knowledgeable. This research uses quantitative data collection techniques using questionnaires. Sample used were 35 students consisting of students of the Goa University. Data was analyzed using classical exploratory data analysis and the inferences were conducted using the t test of statistical hypotheses testing. Research shows that financial literacy has no effect on the financial education.**

***Index Terms*—financial literacy, financial knowledge, financial education, lifestyle and behaviour,Student T-test**

I. Introduction

Financial literacy is closely related to financial management [5]. The financial behavior starts from a person's behavior in the decision making process. Responsible financial behavior should be owned by every individual, family and well-managed society [2]. The higher the level of one's financial literacy, the better financial management of a person. Financial management includes planning, management and financial control activities to achieve financial prosperity. Management is an activity of managing finances efficiently while control is an activity to evaluate whether financial management is in accordance with what was planned or budgeted [5]. Skills and knowledge in managing one's assets effectively are very important for each individual to support his or her well-being.

Financial literacy also directly correlates with positive financial behavior such as timely bill payments, loan installments, and savings before spending, spending smartly and using credit cards wisely. This can be of particular concern to adolescents, which is emphasized in students. Students are in a very complex time, during their studies at the University, they must learn to be financially independent and responsible for the decisions that they make. College is the first time for most students to manage finances independently without full supervision from parents. Students are in a transition period from financial dependence and hence during the college period students must also make plans, which will affect their welfare and success in the future [5] . Students who are financially independent tend to save more, make better financial decisions, have higher credit scores and reduced financial stress. Students of the next generation are expected to be able to have high financial literacy. Good financial literacy will shape students' financial intelligence. With high financial intelligence, students are able to manage finances well through an all-hedonic lifestyle. This can help them become more responsible and financially savvy consumers. That way, students will develop into a generation that is able to control their finances properly and correctly, which in general will have the mental effect to create the next generation that is anti-corruption [5].

A. *Student t-test*

A t-test is a type of statistical analysis used to compare the averages of two groups and determine whether the differences between them are more likely to arise from random chance. It is often used in hypothesis testing to determine whether a process or treatment actually has an effect on the population of interest, or whether two groups are different from one another. The term "t-statistic" is abbreviated from "hypothesis test statistic". In statistics, the t-distribution was first derived as a posterior distribution in 1876 by Helmert and Lüroth. Although it was William Gosset after whom the term "Student" is penned, it was actually through the work of Ronald Fisher that the distribution became well known as "Student's distribution" and "Student's t-test".

1) *Usage of Test:*

a) Running a t-test helps you to understand whether the differences are statistically significant. They tell you what the probability is, that the differences you found were down to chance. If that probability is very small, then you can be confident that the difference is meaningful. A t-test is used when the sample size is less than 30 and the population variance is unknown and is usually done under null hypothesis.*:*

b) A t test can only be used when comparing the means of two groups(a.k.a. pairwise comparison) especially when you collect a small, random sample. The t test is a parametric test of difference, it makes the same assumptions about your data as other parametric tests. The t test assumes your data:*:*

- are independent
- are (approximately) normally distributed
- have a similar amount of variance within each group being compared (a.k.a. homogeneity of variance)

2) *Types of t-test:*

a) : Independent Samples T-Test (or Two-Sample T-Test): Used to compare the means of two independent groups to determine if they are statistically different from each other. Example: Compare the test scores of students who received tutoring (Group A) versus those who did not (Group B) to see if tutoring had a significant impact on scores.

b) : Paired Samples T-Test (or Dependent T-Test): Used to compare the means of the same group at two different time points or under two different conditions. Example: Measure the blood pressure of individuals before and after a medication treatment to determine if the medication had a significant effect on blood pressure within the same group of individuals.

c) : One-Sample T-Test: Used to compare the mean of a single group to a known or hypothesized population mean. Example: A researcher wants to determine if the average time taken by individuals to complete a task is significantly different from 10 minutes (known population mean). The researcher collects data on completion times and conducts a one-sample t-test to assess this difference.

3) T-Test Formula: The formula for the t-test statistic in an independent samples t-test is given by:

$$t = \frac{\overline{X}_1 - \overline{X}_2}{S_p \times \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

where, X_1 and X_2 are the sample means of the two groups. S_p is the pooled standard deviation, calculated as:

$$S_p = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

Here, $S_1{}^2$ and $S_2{}^2$ are the sample variances of the two groups, n_1 and n_2 are the sample sizes of the two groups.

A larger t value shows that the difference between group means is greater than the pooled standard error, indicating a more significant difference between the groups.

You can compare your calculated t value against the values in a critical value chart e.g., Student's t table to determine whether your t value is greater than what would be expected by chance. If so, you can reject the null hypothesis and conclude that the two groups are in fact different.

II. LITERATURE STUDY

A. Financial Literacy

Financial literacy is a basic need to avoid financial problems [5]. It shows the ability of individuals to utilize their resources to achieve and improve welfare. The emergence of financial problems is not only because of the low level of income, but also can come from a lack of knowledge of someone in managing their finances [5]. Personal financial literacy is the ability to read, analyze, manage and communicate about personal financial conditions that affect material well-being. This includes the ability to make financial choices, discuss money and financial issues without any inconvenience, plan for the future and respond competently to life events that affect financial decisions on a daily basis, including the general economy [5].

B. Financial Education

Financial literacy has a profound impact on students, influencing various aspects of their academic journey, personal development, and future prospects. Personal finance is not a required subject in most schools. Money management education in college can help students understand the value of money. Effective and efficient learning will help students to have the ability of understanding, assessing and acting in their financial interests. This can help students gain skills of saving, investing and avoiding debt which can help enable them to implement learning outcomes from college in their daily life and the future.

C. Financial knowledge

Students interest in learning financial concepts, understanding budgeting, saving, and investing prepares them for academic expenses, in stock markets, mutual funds. This reduces financial stress, fosters responsible financial behaviors as they transition into adulthood and navigate post-education challenges. Students gain this knowledge by interacting with peers and watching paid or free courses on the web. Financial knowledge enhances student finance immensely by promoting budgeting, reducing debt, maximizing scholarships, and making informed borrowing decisions.

D. Lifestyle and Expenditure

Lifestyle is the way people spend their time activities,interests that they consider important in their environment,and what they think about themselves and the environment. It is a pattern of life, use and time that a person has. Lifestyle shows how a person locates his opinion, and chooses products and services and various other choices when someone chooses alternatives in a group of products [5].

Financial literacy plays a critical role in shaping lifestyle choices, opportunities, and overall financial well-being. By acquiring knowledge and skills in areas like budgeting, debt management, investing, and risk management, individuals can make informed decisions that support their desired lifestyle and long-term financial goals. If someone spends without understanding or tracking their expenses, they may not realize how it impacts their overall financial health. On the other hand, being aware of and managing expenditure helps improve financial literacy. These efforts to make oneself exist in a certain way and different from other groups is lifestyle.

E. Factors influencing Financial Literacy

The emergence of financial problems is not only because of the low level of income, but also can come from a lack of knowledge of someone in managing their finances. Apart from this Gender, Lifestyle, Pocket Money, Parents' Income,

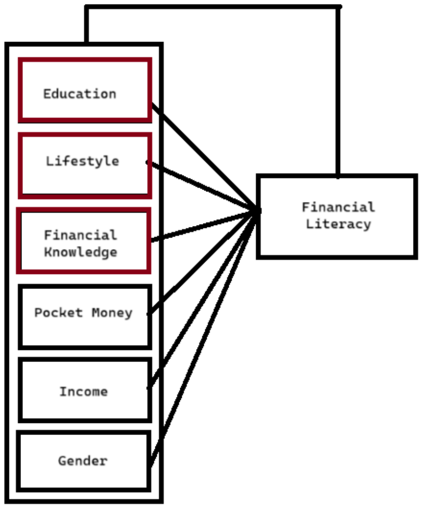

Fig. 1. Factors affecting Financial Literacy of students

and Financial Learning together have a significant effect on financial literacy.

The research concentrates on factors that influence financial literacy and student financial behavior.Based on the framework of the thinking developed, the hypothesis formulated in this study is as follows:

- H_1: Lifestyle has a significant effect on financial literacy
- H_2: Financial Education in College has a significant effect on financial literacy
- H_3: Financial Knowledge from peers/ courses online has significant effect on financial literacy

The research was focused on lifestyle and financial learning at Goa University for student financial literacy and student financial behavior that the object of research was students in the university. It is realized that existence of good knowledge about finance from an early age can help students have a prosperous life in the future.

III. METHODOLOGY

This research is a quantitative and nature explanatory research, which is a notch research explaining each variable studied and the relationship between the variables. This research was conducted at Goa Business School. Data is collected using a questionnaire Questionnaire which included a total of 37 questions. Questions were divided into 4 sections to understand each of the variables involved in testing the hypothesis. The population is the target students of Goa University, both from finance and non finance domain. Random samples were collected of 34 students consisting of students from the institution. Dataset was stored in an excel sheet to perform the necessary analysis. A survey was conducted to observe the phenomenon of student financial behavior.

A. Research Variables

- Financial Literacy (Y) - Financial literacy in this study is individual knowledge about finance and the ability of individuals to make effective financial decisions [5].
- Lifestyle/ Behaviour (X1) - The lifestyle in this study is a daily lifestyle that is run by a student during his education with technology and trends that are growing rapidly [5].
- Financial Education (X2) - College education of students in financial domain.
- Financial Knowledge (X3) - Students interest and knowledge in their personal finances gained from interacting with peers, mentors or from other reliable resources.

B. Data Analysis Method

A basic exploratory data analysis (EDA) was conducted to analyze the data. Graphs were used to visualize and gain better insights from the data. Columns representing the Financial Literacy, Lifestyle and Behaviour, Education and Financial knowledge were created. These were developed from the questionnaire data by using the scoring method. Statistical measures of central tendency of each group were observed in the analysis.

C. Hypothesis Test

In the classic assumption test, hypothesis testing can be done using Hypothesis tests.A T-test was conducted to determine the effect of each independent variable on the dependent variable. The Independent Samples T-Test (or Two-Sample T-Test) was used to compare the means of two samples to determine if they are statistically different from each other. scipy.stats.ttestrel from the SciPy library was used to perform the T-test in python and results were confirmed by calculations.

IV. RESEARCH RESULTS

A. Data analysis report

Data analysis observations from the questionnaire responses particular to Goa University students were as follows:

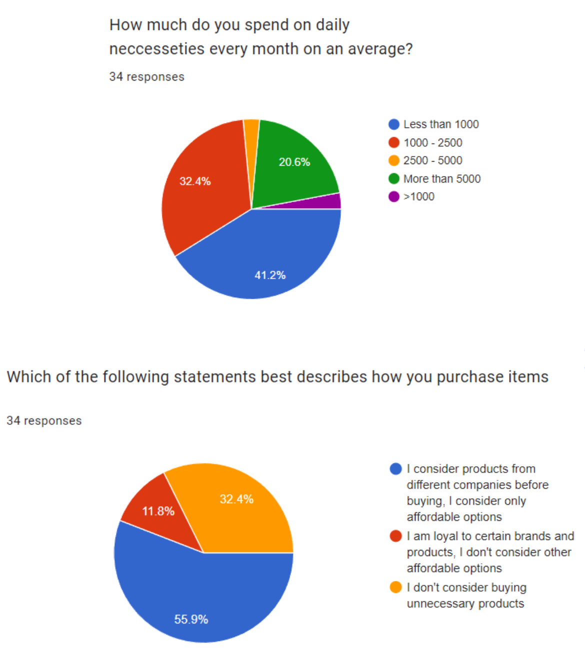

Fig. 2. Lifestyle related questions in the questionnaire for students

Responses to questions pertaining to lifestyle and behavior choices of students are analysed in the form of pie charts.

Questions regarding students domain of study and level of education were also noted.

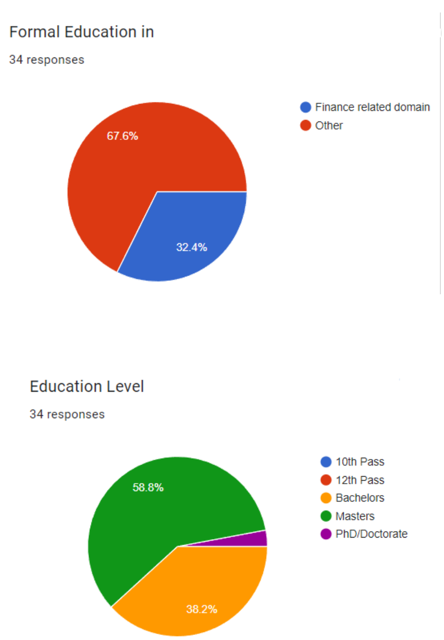

Fig. 3. Education level questions in the questionnaire for students

Questions regarding Financial Literacy like 'Do you make day-to-day decisions about your own money?','Do you (personally, or with your family) have any financial goals?', etc. were included to get a score for Financial Literacy.

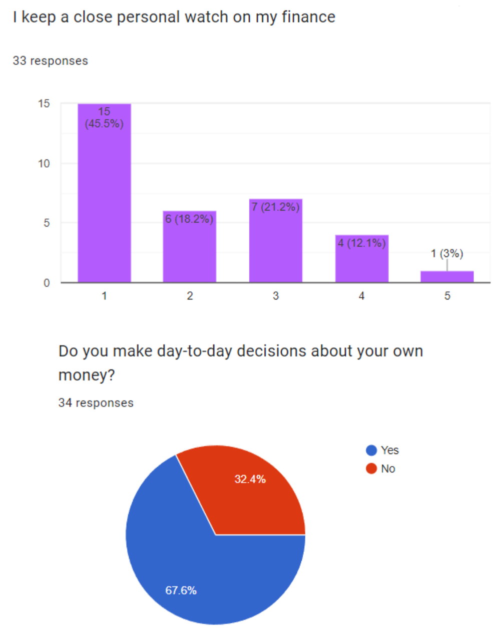

Fig. 4. Questions observing Financial Literacy of students and the decisions they make in their day to day life

Similarly questions regarding Financial knowledge were also considered e.g., 'Do you have any informal education in finance ?', 'Do you have any informal education in finance ?','Have you heard of any of these types of financial products', etc. Responses were analysed and a score for financial knowledge was allocated.

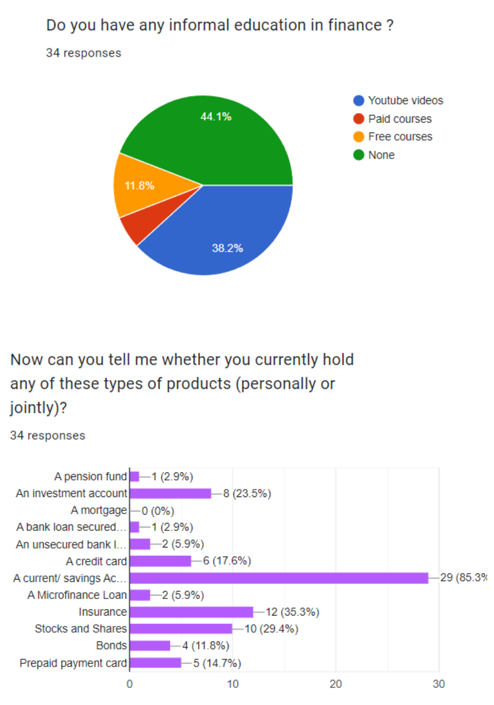

Fig. 5. Financial knowledge responses in the questionnaire for students

B. T-test results

The t-test is conducted to determine the effect of each independent variable on the dependent variable; partial hypothesis testing is intended to test the significant effect of independent variables

TABLE I
T-TEST RESULTS

Variables	*Model*	*T statistic*	*p value*	*Result*
X1	Lifestyle	0.941	0.823	Accept H_1
X2	Education	-4.178	0.00010	Reject H_2
X3	Financial Knowledge	3.772	0.999	Accept H_3

Dependent Variable: Financial Literacy

The results are then confirmed using manual calculations using the formula stated above.

V. DISCUSSION

A. Impact of Lifestyle on Financial Literacy:

Financial literacy has a significant effect on the financial behavior of students of the Goa University. This means that financial literacy conducted by the student does have a influence on financial behavior. Based on the t test results obtained, the hypothesis is accepted. Therefore, financial literacy students are have an effect and significant impact on the financial behavior of students in Goa University with great influence. Survey in this study provide data that the financial literacy of students included in either category or have a high tendency for their financial planning. The majority of respondents strongly agree that the benefits of personal financial planning is to prepare financial needs and goals of the future. The results are consistent the research that has been conducted by the financial literacy level questionnaire. Furthermore this study are consistent with previous work which states that the level of financial literacy has great effect on the financial management.

B. Impact of Financial Learning (Education and Knowledge) on Financial Literacy :

Financial Knowledge and interest in learning in this study has a value that accepts H_3, so that means it does have a significant effect on Financial Literacy.The quality of learning processes when one is interested to gain knowledge has a positive effect on economic rationality and economic morality of student. Financial knowledge thus has a significant positive effect on financial attitudes. This proves that personal finance programs have a positive impact on the level of financial literacy and the level of self-efficacy. In this study, the influence of learning in college on financial literacy aspects was low than the effect of learning from peers and self interest in learning from online courses. This can be interpreted that the process of learning financial management is considered quite good, and the introductory learning process of accounting is considered good.The H_2 hypothesis was rejected, so it can be understood that college education, getting financial management learning, and introducing accounting, can improve student financial literacy but not to such an extent as an interested student would in gaining financial knowledge on their own.

VI. CONCLUSION

Conclusions can be drawn as follows:

1) Lifestyle/Behaviour (X1): From the results that have been investigated show that Financial Literacy (Y) significantly influences Lifestyle /Behaviour of a student in College
2) Education (X2): It is observed that College Education does not significantly impact Financial Literacy (Y).
3) Financial Knowledge (X3): A students knowledge and interest in knowing and learning finance and having conversations about finances and goals with peers appears to significantly affect Financial Literacy of an individual.

There are some suggestions that should be considered in research on financial literacy, lifestyle and behavioral finance, which are as follows:

The study only focused on analyzing the impact of financial learning and lifestyles on the financial behavior of students. Further research could be added to other variables such as peers, pocket money, and the family environment that could also affect student financial behavior.

This study only uses a sample on the faculty and the university just so it would likely be different if the research was done elsewhere and then compared,subsequent research is highly expected as research on financial literacy, lifestyle and behavior of student finance is still not explored in India. This study can then be used for samples from various faculties and universities, to measure financial literacy, lifestyle and financial behavior of students.

Students are advised to always learn sensitive financial information in order to have high financial literacy so as to avoid of financial issues in the future.

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