Factors Influencing Spending Behavior Among BAAF Students in Kolej Poly-Tech MARA Bangi

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Abstract
Purpose: The purpose of this study is to help BAAF students understand the importance of financial literacy and financial management so that they can avoid and even handle upcoming financial issue that is deemed to happen to them soon with ease.
Design/methodology/approach: In this study, a questionnaire was chosen to collect information from the intended audiences. A questionnaire is a collection of questions that have been adapted from earlier studies and are pertinent to the subject of the research. To examine the influence of study variables, the survey used a Google form and was distributed to BAAF students online via WhatsApp. The questionnaire is prepared based on a 4 – point Likert Scale Method from point 1 refers to strongly disagree to point 4 refers to strongly agree. The questionnaire is split up into three parts whereby part A is for demographic data such as gender, age, current year of study, average monthly allowance, average monthly expenses, allowances from parents and sources of allowances. Meanwhile, part B is for inquiries about independent factors which entails measuring how the four factors that influence BAAF students' spending habits. These four components are financial literacy, students' lifestyle, parental income, and peer pressure. Lastly, part C is for inquiries about the variable that respondents believe is the most influenced factor in their spending habits.
Findings: The findings uncovered a wide range of factors that contribute to the spending behavior of BAAF students, including financial literacy, parental income, lifestyle choices, and peer influence. Notably, financial knowledge and lifestyle choices emerged as the two most influential internal factors that shape the spending habits of BAAF students. The survey data revealed that 31% of the respondents attributed their spending behavior to their financial knowledge, while 47 out of 100 respondents acknowledged that their lifestyle choices affect their spending habits. These findings highlight the complex nature of BAAF students' spending behavior, which is influenced by a variety of internal and external factors.
Research limitations/implications: The limitation of the study is the small sample size which only focus on students at Kolej Poly-Tech MARA. Future research can explore on larger population which cover youth in Malaysia. Future research can look on other independent variables that affect spending behavior among youth in Malaysia in wider.
Practical implications: The study aims to contribute to the existing body of knowledge by identifying the factors affecting students spending behavior.
Originality/value: The research builds additional literature and knowledge in the fields

Keywords: Financial Management, Lifestyle, Parental Income, Peers Influence

Introduction

A global recession is expected to occur in 2023. According to Roy (2022), the rate of global growth is rapidly declining, and as more nations experience recession, this rate is expected to continue. It is feared that if these trends continue, the effects will be severe for those living in emerging markets and developing economies. Economic crisis affects people's lives in a variety of ways, including increased unemployment, bankruptcy and decreased economic activity. The most dominant effect is bankruptcy. The economic downturn in Malaysia has led people to experience bankruptcy with approximately 240,000 people declaring bankruptcy quarterly, with one percent of them being under the age of 25 in 2013 (Diana-Rose, et al., 2015). The matter is how people spend their money, which may well contribute to Malaysia's rising bankruptcy rates.

Literature Review

Relationship between knowledge of financial knowledge and spending behavior

According to (Falahati, et al., 2012), being able to control one's financial behavior is a requirement for success in life. Financial literacy is one of the most crucial measures of a person's financial satisfaction and spending habits. There is a significant relationship between financial management knowledge and the spending habits of university students (Kamis, et al., 2020). In summary, if the knowledge is provided, pupils are able to make sensible financial decisions.

Researchers had carried out an earlier investigation. It was shown that among university students, there is a correlation between financial management knowledge and spending habits. Following (Gutter, et al., 2010), it was discovered that financial behavior and financial understanding are directly and negatively correlated. It caused a rise in financial awareness, which is a way to develop self-responsibility and raise the standard of living. Students who comprehend the idea of financial management more fully are therefore better equipped to make wise financial decisions. This is demonstrated by their capacity to effectively manage their personal finances and plan their investment strategies.

Relationship between students' lifestyle and spending behavior

Lifestyle demonstrates how individuals live, spend their money, and utilize their time. Thus, it can be said that a person's pattern of activities, hobbies, and spending habits, as well as how they manage their time, are all examples of their lifestyle (Zahra & Anorga, 2021). Students' spending patterns have changed because of lifestyles changes and technological improvement (Kamis, et al., 2020). The researchers also noted a significant difference between student lifestyles now and those in the past. For instance, in the past, students would buy books, stationery, clothes, and other similar items for their study. While over this period, students' needs have increased, necessitating the use of laptops and other technology, particularly cellphones.

Students need to know their wants and their needs in order to have a good spending behavior. This is because some students tend to spend most of their money on unnecessary things such as overpriced coffees and expensive clothes. The students need great self-control to stop engaging in reckless spending. Self-control refers to a person's capacity to suppress urges and maintain behavioral control in the absence of external cues. The ability to automatically manage one's habits, impulses, emotions, and wants with the goal of controlling one's

behavior is known as self-control. When forced to choose between spending money and saving money, one must exercise self-control.

Relationship between parental income and spending behavior

University graduates still depend on their parents' income because they have not yet started working for themselves to support themselves. (Chang, et al., 2019) found that the majority of university students between the ages of 18 and 25 who reside far from their homes enroll in full-time studies. Therefore, how parents spend their money in this situation greatly affects how students spend their own. Additionally, the amount that students spend increases with the parent's income. The results of the study show a strong correlation between parents' income and students' spending patterns.

According to Mayer (2002), on the other hand, reached a different conclusion. This study discovered a bad association between these two parameters. When parents' income rises, children's spending tends to decline. Most students still rely on their parents for financial assistance while they are in college. The researcher discovered that although family income increases, children's spending does not always rise at the same rate. This is because children choose to save more and spend less even when their parents' income increases because their behavior and thinking have been conditioned since childhood. As a result, the parent's income and spending patterns diverge over time.

Relationship between peer influence and spending behavior

Certain patterns of purchasing intentions and behavior arise and evolve as a youngster develops into a young adult. Peers are crucial in influencing one's attitudes, beliefs, and behavior because students spend most of their time in college with their peers (Makgosa & Mohube, 2007). In addition to that, a new environment will have students establish, test and refine their new psychological identity while adjusting to college life which will generate a major developmental transition.

According to Laursen & Veenstra (2021), the influence of peers on university students' spending habits is highly correlated. It is only logical for the relationship to be highly correlated as people naturally identify with and compare themselves to their peers when they consider how they want to be and perhaps even presume what they should be. Hence, students will try to achieve self-expectations by spending on unnecessary things to fulfil their expectations. Students have numerous opportunities to observe and be influenced by the consumption levels of their peers and relevant others. According to Chavali (2020), students have a significant influence and demand for various products and play an important role in consumption because they do not have any basic financial commitments such as paying rent or bills and have sufficient purchasing power. This should be more of the reason for the students to be spending more.

Method

A population of respondents from KPTM Bangi BAAF students will be the subject of this study. This population is divided into the Year 1, Year 2, and Year 3 subgroups. The following three subgroups will be chosen to take part in this study. Probability sampling is the type of sampling that is used in this study.

In this study, a questionnaire was chosen to collect information from the intended audiences. A questionnaire is a collection of questions that have been adapted from earlier studies and

are pertinent to the subject of the research in order to examine the influence of study variables. The survey will be used on a Google form and distributed to BAAF students online via WhatsApp. The questionnaire is prepared based on a 4 – point Likert Scale Method from point 1 refers to strongly disagree to point 4 refers to strongly agree.

The respondents' completed questionnaire is finished using Microsoft Excel. Data can be evaluated and interpreted in a variety of ways using Microsoft Excel. Numerous sources could have provided the information.

Findings

As Question 1 stated, "I have knowledge in financial management", it shows that 54 out of 100 (54%) respondents agree to this statement. Meanwhile, 1 out of 100 (1%) strongly disagrees with the statement. This shows that even though most respondents tend to agree to the statement, not everyone agrees to it.

Table 1: Relationship between financial management and spending behavior

No of question	Percentage				Total number of respondents	Standard deviation	Mean
	1	2	3	4			
Q1	1%	14%	54%	31%	100	0.6780	3.1604
Q2	2%	18%	41%	39%	100	0.8023	3.1509
Q3	9%	25%	39%	27%	100	0.9167	2.8113
Q4	2%	22%	43%	33%	100	0.7974	3.0472
Q5	0%	3%	38%	59%	100	0.5884	3.5377
Q6	2%	22%	50%	26%	100	0.7491	2.9717

In Question 2 "I keep track of my expenses", 41 out of 100 (41%) respondents agree to this statement making it the highest choice of answer. Only 2 out of 100 (2%) respondents strongly disagree with this statement and 18 out of 100 (18%) just disagree with this statement.

Question 3 stated that "I am self-disciplined in spending a portion of money from my allowance". 41 out of 100 (41%) respondents agree to this statement making them a group of disciplined respondents in spending a portion of money from their allowances. 9 out of 100 (9%) respondents strongly disagree with this statement as they think otherwise.

Based on Question 4 "I focus on spending on my needs rather than on my wants", 2 out of 100 (2%) respondents tend to strongly disagree with this statement as they may have a different thought on this. Meanwhile, 43 out of 100 (43%) respondents agree with this statement.

Question 5 stated that "I believe it is important to think and plan about my expenses". 59 out of 100 (59%) respondents strongly agree with this statement as they believe it is important to think and plan about their expenses. Nevertheless, 3 out of 100 (3%) respondents disagree with this statement.

Last but not least, Question 6 stated that "I always spend my money wisely", half of the respondents (50%) agree with the statement. Meanwhile, 2 out of 100 (2%) respondents strongly disagree with this statement and 22 out of 100 (22%) just disagree with this statement.

Table 2: Relationship between students' lifestyle and spending behavior

No of question	Percentage				Total number of respondents	Standard deviation	Mean
	1	2	3	4			
Q1	18%	37%	29%	16%	100	0.9737	2.4057
Q2	30%	39%	19%	12%	100	0.9654	2.1038
Q3	12%	33%	36%	19%	100	0.9235	2.5943
Q4	9%	28%	42%	21%	100	0.8951	2.7453
Q5	26%	25%	21%	28%	100	1.1643	2.4623

Apparently in Question 1, "I love to buy the latest fashion in shoes, clothes and accessories" the mean for this question is 2.4057 means that most of the respondents are at between scale of 2 and 3. 37 out of 100 which is the highest scale answered by the respondents disagree that they always buy the latest fashion items. This means that most of the respondents only buy fashion items when they are needed.

In Question 2, "I own the latest model of cellular phones and gadgets" the lowest answer scale is at 4 with 12% means that from 100 respondents, only 16 students are having the latest model of phones or gadget meanwhile the two highest answer scale are at 1 and 2 with 30% and 39%. This showed that 69 students out of 100 disagree with the question and they only use their current phones or gadgets if they still can be used.

For Question 3, "I always dine out with friends in restaurants or fast foods" the lowest percentage is at scale of 1 with 12% and the data showed that only 12 out of 100 respondents strongly disagree that they always eat with their friend at restaurants or fast- food restaurants. The mean for this question is at 2.5943 means that most of the respondents likely to dine out with their friends at the restaurants or fast-food restaurants. The highest is at the scale of 3 with 36% means that 36 respondents agree with the question.

Based on Question 4, "I always shop online", the mean for this question is the highest among all the questions with 2.7452 and has the lowest standard deviation with 0.8951. This data showed that most of the respondents agree with the question. It can be proven with 42 out of 100 respondents agree and 21 out of 100 respondents strongly agree that they always shop online. The lowest answer scale is at 1 with only 19% of the respondents strongly disagree for the question.

Finally, for Question 5 "I always spend on sport activities" the question has the highest standard deviation with 1.1643. This question has the closest gap among all the questions with 28% for strongly agree and 26% respondents strongly disagree. 25 out of 100 respondents choose to disagree and 21 out of 100 respondents choose to agree. This showed that the respondents are coming from different type of lifestyle.

The biggest mean among the questions, 2.7830, was found for question 1, "My parents give me allowances to spend." The results show that 38 out of 100 respondents, or most of them, chose scale 3 (agree) for question 1. One might infer from this that even though some BAAF students receive their allowance from other sources, the majority still receive it from their parents. Question 1 also get the highest standard deviation whereby 1.0691.

Table 3: Relationship between parental income and spending behavior

No of question	Percentage				Total number of respondents	Standard deviation	Mean
	1	2	3	4			
Q1	17%	16%	38%	29%	100	1.0691	2.7830
Q2	51%	27%	18%	4%	100	0.8924	1.7547
Q3	64%	15%	12%	9%	100	0.9900	1.6226
Q4	38%	35%	18%	9%	100	0.9562	2
Q5	21%	31%	37%	11%	100	0.9292	2.3679

The standard deviation for question number 2, "My parents control my spending," was 0.8924, which was the lowest of all the questions. The mean average to question 2 was 1.7547, with 51 out of 100 respondents choosing scale 1 (strongly disagree) as their response. Moreover 27 out of 100 respondents choosing scale 2 (disagree) as their answer. Only 22 out of 100 respondents that parents control their spending. These findings indicate that most of their parents did not monitor their expenditures and that they were given financial freedom during their student life.

From the question 3 was "My parents give me their credit/debit card to spend" shows that the mean for this question was 1.6226. Total number of 64 out of 100 responders to this question chose the scale of "strongly disagree," which is where most respondents fell. The lowest scale for this question was scale 4 (agree) whereby 9 out 100 respondents can get their parents' credit/debit card to spend on their daily life. On this question the standard deviation was 0.9900. This question indicates that most of the KPTM students did not have access their parents' credit/debit card to spend on their daily basis.

The answer to Question 4 "I ask my parents' permission before spending" reveals that the mean value was 2 and the standard deviation was 0.9562. The total number of 38% of respondents (38 out of 100) choose scale 1(strongly disagree) as their option, indicating that most respondents did not ask their parents before spending money on something they wanted. In contrast, 35% of respondents (35 out of 100) selected scale 2 (disagree) as their response. Just 27 out of 100 respondents in total seek their parents' approval before spending money on wants and needs.

Lastly, the question 5 indicates that "I follow my parents' spending behavior" get the second highest mean whereby 2 and the standard deviation was 0.9292. In this question the total 52 out of 100 respondents deny that they follow their parents spending behavior whereby 21% choose scale 1 (strongly disagree) and 31% choose scale 2 (disagree). Meanwhile the total number of 48 out of 100 respondents stated that they follow their parents spending behavior whereby 37% (37 out of 100) was choosing scale 3 (agree) and 11% (11 out of 100 respondents) choosing scale 4 (strongly agree) as their response.

Based on the table above, it sums up the standard deviation for each question from question 1 to question 4. The results above showed that it is most unlikely the respondent agree on the relationship between peer influence and spending behavior. From the table above, researcher would spot the highest value of mean which is 2.4245 that represent Question 5 "I barely can say no to my friends' invitation" while the lowest value of mean is Question 4 "Following my friends' spending behavior even though I cannot afford it" with a value of 1.8302. Other than that, the highest value for standard deviation is Question 5 "I barely can say no to my friends'

invitation" with a value of 1.0506 while the lowest value of standard deviation is Question 2 "I spend my budget the way my friends' do" with a value of 0.8991.

Table 4: Relationship between peers' influence and spending behavior

No of question	Percentage				Total number of respondents	Standard deviation	Mean
	1	2	3	4			
Q1	24%	35%	27%	14%	100	0.9891	2.3113
Q2	23%	50%	17%	10%	100	0.8991	2.1415
Q3	28%	32%	26%	14%	100	1.0170	2.2642
Q4	49%	28%	14%	9%	100	0.9997	1.8302
Q5	23%	29%	29%	19%	100	1.0506	2.4245

Apparently, in Question 1 "I am easily influenced by my friends' spending behavior" there are not much of agreement from the respondents. In fact, 35 from 100 (35%) of the respondent disagree that they are easily influenced by their friends' spending behavior. This shows that they stand firm with their own principle. The highest score can be seen at scale 2. however, the lowest score can be seen at scale 4 with 14 (14%) respondent that agrees to the statement.

In Question 2 "I spend my budget the way my friends' do", half of the respondent disagree on spending their budget the way their friends' do. 50 from 100 respondent voted the scale 2 which they disagree to the statement. While 10 (10%) of the respondent agree to the statement. This is probably because they have wanted to be in the same level as their friends. Moreover, in Question 3 "I constantly compare my expenditure with my peers" have a majority of disagree with 32 respondents and in line with 28 respondents that strongly disagree. The highest score is on scale 1 and 2. this shows that the respondents have high self- esteem in managing their money. However, there are also large number that agrees with the statement with 26 respondents while 14 of the respondents agrees with the statement with the lowest score on scale 4.

Based on Question 4 "Following my friends' spending behavior even though I cannot afford it", the respondents strongly disagree on the statement. On the scale 1, there are 49 respondents with majority of it while the lowest of number respondent is on scale 4 with 9 respondent that agrees on the statement. This is probably because of peer pressure that lead to some of the respondent followed their friends' spending behavior even though they cannot afford it.
In Question 5 "I barely can say no to my friends' invitation" shared the same number of majority of respondents with 29 of respondents who disagree and 29 of respondents who agrees to the statement. The shared scores are in scale 2 and 3. However, the lowest number respondent is on scale 4 with 19 respondents who agrees on the statement. This too, probably because of trying to keep to their friends' level.

Discussion and Conclusion
In the study, the researchers have discussed on the relationship between financial knowledge, students' lifestyle, parental income, and peer influence in regards of spending behavior. Hypothesis testing has been conducted to identify the relationship of all the independent variables and spending behavior.

First and foremost, it was found that financial knowledge has significant relationship in deciding BAAF students' spending behaviors. The data showed that the p- value for students' financial knowledge is 0.058. Hence, there is a significant relationship between financial knowledge and spending behavior. It is mean that the students with high knowledge in financial management have a positive spending habit. They know how to manage the spending wisely compared to those who lack of financial knowledge.

More than that, the hypothesis testing on students' lifestyle and spending behavior also has been accepted. The data showed that the p-value for students' lifestyle is 0.071. It shows that students spending behavior is strongly affected by their lifestyle. Students nowadays tend to spend more as compared to students before. Students' needs nowadays have increased, necessitating the use of laptops and other new technologies.

Additionally, parental income is another factor which has been tested to know the relationship with students spending behavior. Out of 100 respondents, 12 respondents choose that their parental income affected their spending behaviors. The p- value for parental income is 0.001. This data proved that relationship between parental income and spending behavior is rejected. Parental income was not an influential factor that affect students spending behavior. On top of that, 10 out of 100 respondents choose that peer influence affected their spending behaviors. The p- value for the peer influence is 0.01 and the hypothesis that there is relationship between peer influence and spending behavior is rejected. The finding indicates that peer influence does not necessarily impact BAAF students spending habits. The significant of the above finding is the financial knowledge is the most dominant factor which affect students spending behavior. A good financial knowledge is needed by students as a guidance for them to spend wisely. Spending habits nowadays will determine their financial success in the future.

References

Abdul Jamal, A. A. et al., 2015. The Effects of Social Influence and Financial Literacy on Savings Behavior: A Study on Students of Higher Learning Institutions in Kota Kinabalu,Sabah.

InternationalJournal of Business and Social Science, 6(11(1)), pp. 110-120.

Alekam, J. M. E., Md. Salleh , M. S. . B. & Mohd. Mokhtar, S. S. b., 2018. The Effect of Family, Peer, Behavior, Saving and spending Behavior on Financial Literacy among Young Generations. INTERNATIONAL JOURNAL OF, 7(1), pp. 310-323.

Bucciol, A. & Veronesi, M., 2013. Teaching Children to Save and Lifetime Savings: What is the BestStrategy?. Journal of Economic Psychology, 45(10), pp. 1-17.

Danes , S. M. & Tahira , H. K., 1987. Money Management Knowledge of College Students.

Journalof Student Financial, 17(1), pp. 1-14.

Kapantouw, C. & Mandey, S. L., 2015. The Influence of Attitudes, Subjective Norms, and Lifestyle on Purchasing Decisions Asus Mobile Phones In Gamezone Computer Megamall Manado. Jurnal EMBA, 3(2), pp. 706-718.

Laursen, B. & Veenstra, R., 2021. Toward understanding the functions of peer influence: A summary and synthesis of recent empirical research. JOURNAL OF RESEARCH ON ADOLESCENCE,, 31(4), pp. 890-907.

Agarwal, G., 2021. A Comprehensive Guide on Microsoft Excel for Data Analysis. [Online] Available at: https://www.analyticsvidhya.com/blog/2021/11/a-comprehensive-guide-on- microsoft-excel-for-data-analysis/

[Accessed 22 Nov 2022].

Arora, S. K., 2022. What is Data Analysis? Methods, Techniques & Tools. [Online]Available at: https://hackr.io/blog/what-is-data-analysis-methods- techniques-tools [Accessed 22 November 2022].

Bona, J. T. C., 2018 . FACTORS AFFECTING THE SPENDING BEHAVIOR OF COLLEGE

STUDENTS. Journal of Fundamental and Applied Sciences , 10(3s), pp. 142-152.

Bona, J. T. C., 2018. Factors Affecting The Spending Behavior Of College Students. Journal of Fundamental and Applied Sciences.

Chang, L. Y. et al., 2019. Spending Behavior Among University Students.

Chavali, K., 2020. SAVING AND SPENDING HABITS OF YOUTH IN SULTANATE OF OMAN. Journal of Critical Reviews, 7(2), pp. 718-722.

Diana-Rose, Ashhari, M. & Zariyawati, 2015. Factors affecting youth bankrupty in Malaysia,

Serdang, Selangor,: Perpustakaan Sultan Abdul Samad, Universiti Putra Malaysia, .

Falahati, L., Sabri, M. F. & Paim, L. H. J., 2012. Assessment a model of financial satisfaction predictors: Examining the mediate effect of financial behavior and financial strain.. World AppliedSciences Journal, 20(2), pp. 190-197.

Gutter, M., Copur, Z. & Garrison, S., 2010. Financial capabilities of college students from states withvarying fianancial education policies. Denver: National Endownment for Financial Education.

Kamis, J. et al., 2020. The Influence of Money Attitude Towards Spending Behavior AmongUniversiti Selangor (Unisel) Students. Selangor Science &Technology Review, 4(1), p. 7.

Kelly, K., 2022. What is Data Analysis? Methods, Process and Types Explained. [Online]Available at: https://www.simplilearn.com/data-analysis-methods-process-types-article [Accessed 23 Nov 2022].

Kumar , D. S., Sudin, H., Othman, J. & Salehuddin, S., 2022. The Influence Spending Behavior Among Univesity Students In Malaysia. Asian Journal of Accounting and Finance , 4(3), p. 30.

Makgosa, R. & Mohube, K., 2007. Peer Influence on young adults' products purchase decision. Academic Journals, pp. 1-8.

Mayer, S. E., 2002. The influence of parental income on children's outcomes.

Nano, D., Llukani, T. & Polo, A., 2015. The Impact Of Family Income On Students Financial Attitude. European Journal of Economics And Business Studies, pp. 83-88.

Noor Zaihan, D., 2016. DETERMINANTS OF SAVING BEHAVIOR AMONG GENERATION Y,

Sintok: Universiti Utara Malaysia.

Roy, N., 2022. The World Bank. [Online]

Available at: https://www.worldbank.org/en/news/press-release/2022/09/15/risk-of-global-recession- in- 2023-rises-amid-simultaneous-rate-hikes [Accessed 21 Nov 2022].

Rutberg, S. & Bouikidis, C. D., 2018. Focusing on the Fundamentals: A Simplistic Differentiation Between Qualitative and Quantitavie Research. Nephrology Nursing Journal, 45(2), pp. 209-213. Sorooshian, S. & Tan, S. T., 2014. Spending Behavior Of A Case Of Asian University Students.. Asian Social Science, 10(2),

pp. 64-69.

Town, P., 2022. rule one investing. [Online]

Available at: https://wp.ruleoneinvesting.com/blog/financial-control/spending-money-wisely/ [Accessed 11 October 2022].

Zahra, D. R. & Anorga, P., 2021. The Influence of Lifestyle, Financial Literacy, and Social Demographics on Consumptive Behavior. Journal of Asian Finance, Economics and Business, 8(2), pp. 1033-1041.

Gliem, J.A. and Gliem, R.R., 2003. Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales. Midwest research-to-Practice Conference in Adult, Continuing, and community education.

Mehni, M.B. and Mehni, M.B., 2023. Reliability analysis with cross-entropy based adaptive Markov chain importance sampling and control variates. Reliability Engineering & System Safety, 231, p.109014