



PERSONAL FINANCIAL PLANNING AND MANAGEMENT APPS (PFPMA)

Bryan Khoo Wei Jian, Sivaguru A/L Subarmaniyan

and Dr. Mike Ong Teong Joo

ABSTRACT

This paper discusses and highlights financial problems faced by everyone in the world. Factors such as spending behaviour and financial literacy are discussed in detail in this paper, along with current efforts to combat financial illiteracy. From this, a solution is proposed in the form of a mobile application, which can help users of all age range to budget, spend smart, and take advantage of discounts and promotions. To further justify the need of this solution, the author performed an online survey, in which participants pointed towards in favour of the proposed solution. This solution will be created in hopes of increasing the financial management capabilities of many individuals.

Key words: Financial Literacy, Financial Illiteracy, Spending Behaviour, Mobile Application, Budget, Financial Management.

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1. INTRODUCTION

The definition of financial saving is a subjective one since different people value money differently. In some cases, people take granted and only live for 'now' rather than keeping their futures in mind. This is evident in an article from Fox News, where (Khalil, 2019) writes that a Chinese man sold one of his kidneys in order to afford the newly launched iPhone 4 and iPad 2 back in April 2011. The author went on to mention that 7 years on after the fact, he is now bed ridden due to organ failures. Malaysia's former Deputy Finance Minister Datuk Othman Aziz claims that a study conducted in 2017 shows that only 6% of Malaysians have enough savings to last them for only six months and will struggle financially should they lose their jobs (The Star Online, 2017). This is not only happening in Malaysia. According to an online article by CNBC, 21% of working Americans are not saving at all for long term goals

(Elkins, 2019). This shows that bad financial management and impulsive purchasing is happening all around the world.

On top of saving for the future, one should also spend wisely. Just because an individual spends less, doesn't mean that he or she spends smart. For example, sometimes people may opt to stock up on instant noodles or eat at their local 'mamak' stall regularly to save some extra cash. However, at times, it may be better to fork out a little more for something of more quality. According to a news article from (NST, 2018), an 18 year old scholar from Taiwan died from eating instant noodles night after night. This shows that some people are willing to sacrifice their health, just so they can save a little more money. In this case, it is better if the boy spent a little more money and time to go out and have proper meals.

Therefore, the developer intends to propose a beneficial mobile application for users of all social groups. The proposed Personal Financial Planning and Management Application is aimed to encourage personal budgeting and improve spending habits. It is clear that the problem exists and there are many personal financial management apps on the market, however, the proposed solution will look to provide a twist to existing solutions by providing an all-in-one solution where users can budget, browse online shopping products from multiple stores, and browse coupons and promotions. The advantage of this is to allow for user convenience. If a user is a careful buyer and keeps tabs on their finances, it will be useful for the user to view available funds to use in a single app, rather than going on multiple apps and comparing the individual's disposable income with the online product from multiple shopping apps. Other than that, it encourages smart spending by displaying online product prices in ascending order to show the many alternatives to get the cheapest price. The user can also look at deals and promotions they would otherwise miss out on. This app will be made in the best interests of the users and would hopefully improve personal finance management among users.

2. LITERATURE REVIEW

2.1 Spending Behaviour

Spending behaviour is one of the affecting factors that causes financial suffering. A study by (Bona, 2017) in Philippines shows that students, predominantly females, spends most on school-related items such as school supplies, tuition fees, and project and assignments. More than anything, this shows that supplies needed for schools are increasing and students should look at alternative ways to adapt to the ever increasing cost of resources. In the Idukki district of India, a study on college students found that majority of respondents spends most on expensive clothes and footwear (Mathews, 2017). Meanwhile in Malaysia, a study shows that students spends their money mostly on food and transportation (Md Razak, et al., 2014), while (Sorooshian & Tan, 2014) found that phone expenses are the most significant in terms of spending behaviour. To add to that, it is important to note that some statistics from Sorooshian and Tan's research stood out among the rest. According to the journal, 33% of respondents prefers to wear expensive clothing and purchase a car. Another noteworthy statistic is that only 15% of respondents rather spend on study supplies than going clubbing. It is important to emphasize that everyone has their own spending preferences and are entitled to do so. However, there may be questions raised about the financial literacy of these students and whether their money could be better spent elsewhere or be saved in a bank.

To provide analysis of the findings, spending behaviours all around the world may vary based on economical position. This is confirmed by (Ramya & Mohamed Ali, 2016) who mentions that economic factors can influence consumer behaviour because of personal income, family income, or even other economic factors such as inflation and tax. The authors also went on to mention that income expectations are also an economical factor that

influences consumer behaviour. It is when an individual spends on more goods when they are expecting an increase in their income. This is supported by (Mokhtar, et al., 2018) who found that 83.7% of survey respondents in Malaysia allowed their expenses to be higher than their income. This is rather alarming that Malaysians are not taking their savings seriously.

Having said that, some of the obtained information may lack in some regard. The sample size and variety of respondents may not be enough to understand the full picture of the problem. Therefore, while the information was very insightful, more tests must be done to ensure better understanding of the problem.

Students are not alone in this problem. Working adults have it too. (Koon & Jupri, 2015) found that 104 out of 150 Generation Y Malaysians survey respondents suffer from financial distress and that bad spending behaviour is the root for their financial distress. Even though the authors did not elaborate the extent of bad spending practices of the respondents, it can be suggested that latest trends and impulsive buying could be the culprit. On the other hand, a research on spending habits and financial literacy among employees of different gender found that women are more likely to plan before spending than men (Andriani & Nugraha, 2018). However, according to the research, the differences between men and women are not very significant. Both genders surveyed and showed that financial literacy were low. However, most are willing to spend on necessities due to needing to deal with monthly bills. This indicates that while working adults are somewhat financially knowledgeable, improvements still can be made.

2.2 Financial Literacy

Financial literacy is the knowledge of financial topics and the awareness of financial planning, money management, and other similar subjects that may be acquired by an individual (Tschache, 2009). A study on financial literacy in Malaysia which aims at topics such as risk management, retirement planning, and cash flow management shows mixed results (Mokhtar, et al., 2018). Statistics drawn from the research are aplenty. According to the study, some statistics includes that 92.7% are aware that one must save before spending, however, 83.7% of respondents allows expenses to be higher than income, about 43% of respondents says they can solely rely on EPF, while 81% are aware that they may have to continue working after retirement, and 57% feels that they do not need insurances. The author continues by recommending the improvements of financial education as it is key to develop financial literacy among the public. (Firli, 2017) agrees by writing that one of the factors of financial literacy is financial knowledge which are also influenced by other factors, such as age, life expectations, and motivations. Another study also indicates that financial education is the biggest influencing factor to financial literacy (Isomidinova & Kartar Singh, 2017). (Yong, et al., 2018) also supports this notion by stating that financial education deals great influence on financial literacy and emphasizes that providing youth with proper financial education are of utmost importance.

In another study, (Lusardi, 2019) uses a universal concept to measure financial literacy. The three concepts are understanding interest rates calculation and interest compounding, understanding inflation, and understanding risk diversification. According to the author, these concepts were turned into a standard set of questions and later dubbed the “Big Three” by Lusardi and Mitchell and are used all around the globe. From the findings of the journal which includes 15 countries, financial literacy is at a critical level where only around 30% of respondents are able to correctly answer all three questions. The author also noted from the findings that respondents of countries that have experienced deflation are less likely to understand the concept and effects of inflation. Furthermore, understanding of risk diversification are the lowest among the “Big Three”.

The pattern of the findings are clear as day. Financial knowledge leads as one of the defining factors of financial literacy. This indicates that education and exposure to tools and knowledge are essential in combating financial illiteracy. It is important to make use of available technologies in an attempt to reduce financial illiteracy in this technological age.

2.3 Efforts to Combat Financial Literacy

Current efforts on combating financial literacy are abundant. One major effort is through financial education. (Alsemgeest, 2015) makes an argument for and against financial education. On one hand, financial education can help people manage finances more effectively by understanding financial concepts, terms, and calculations. By doing this, it can lead to a more successful life in terms of personal wealth. The author also writes that problems of increasing debt levels, loan sharks, and low saving rates calls for the need of financial education. However on the other hand, the author writes that consumers' habits are different and everyone processes information in their own ways. Therefore, materials for financial education that are generic and are taught in a structured manner will do little to help. This is consistent with a paper written by (Brimble & Blue, 2015). Brimble and Blue also mentions that financial education are generic and aimed at low income adults. The pair added that it is unrealistic for participants and encourages the teachings to be realistic and to apply a more holistic approach.

(Alsemgeest, 2015) suggests that financial education must take into account the specific country's current economic status, the availability of financial advisors, and focuses on the non-cognitive and affective factors of money management. Another suggestion takes a more "governmental route" to establish an institute in conjunction with academics, industry players, and policy makers that acts and functions as a financial literacy development hub (Murugiah, 2016). The author also suggests that media can play a role in combating financial literacy by producing a television show that encourages smart spending. There examples in the past that prove this suggestion to be useful. A show entitled "Oh My English" was produced to help Malaysians improve their English speaking and writing skills. The show allowed the audience to be interactive and it also provided an interesting story plot, making it fun and interesting for the audiences. Based on past shows as mentioned, the formula can be reused to produce a television show on improving personal finance, which has a high chance of succeeding based on past evidence.

Using a software approach, (Mumpuni & Sukarno, 2014) proposed a web application for managing personal finances. According to the proposal, the system will manage personal transactions, manage loans, manage budgeting, manage investments, manage goals, and compile a report of savings. The software aims to provide a user friendly platform for people to manage their finances. Similarly, another personal financial management web application was also proposed by (Akther & Akter, 2012). Its aim is to track personal finances by managing budgets, managing loans, producing reports, and many other managing functions. From first impressions, the two aforementioned proposal are somewhat similar in terms of functionalities. Furthermore, (Sequeira, et al., 2012) developed a Financial Management Information System where the kinds of users include the owner, data entry operators, and guests which includes the director, dean, and etcetera. The main purpose of the information system is for corporate level operations where companies can add and display annual budgets, view and enter approved payment bills, displaying registers, and many more. The development of this system can help organizations track their finances in an orderly and efficient manner. However, the system is targeted to manage corporate finances only and will do little to help the average person.

The mentioned efforts to combat bad personal financial management are aplenty and provides its own benefits to its own set of target audiences. A solution from a software point of view makes sense in this age of rapidly growing technology. However from the solutions, none of them proposed a solution on a mobile application and none elaborated on the benefits and convenience an on-the-go finance management application will bring to the table. Having said this, an area of opportunity opens with the possibility of providing a top quality financial assistant in the form of a mobile application.

2.4 Summary

In this chapter, the developer dove into the pressing issues of poor financial management and literacy. The developer found that the matter is a problem throughout the world, and not only in Malaysia. The fact that inflation and other factors that plague finances are always on the rise and that people are still not taking their finances seriously are alarming. The factors described in detail were bad spending behaviour, which is the pattern in which an individual spends his or her income, and poor financial literacy, which is the knowledge of financial topics and personal finance. These were backed up by substantial data and statistics from different educational sources. The developer also touched on the current efforts being made to prevent such issues from increasing. Those efforts include financial education, the roles of governmental workers such as financial advisors, different forms of media to take advantage of, as well as software solutions proposed by a few academic papers.

3. MATERIALS AND METHODS

3.1 Introduction

Research methods are essential in every type of research projects. Research methods are a way of gathering wanted data to support the usefulness of a proposed project. For this project, the developer intends to elicit information from different types of social groups by using different data gathering techniques. After receiving a certain amount of responses over time, the developer will analyse the findings and justifications will be made on whether the proposed project is able to solve the problem. Additionally, as the problem becomes clearer, the developer will understand how the project deliverables will benefit the people, thus improving the quality of the system.

The developer has considered a few methods for data gathering. After much consideration, the developer has decided that the methods to be used for this project are questionnaires and interviews. The reason for choosing these methods are abundant. Questionnaires is one of the most widely used data gathering method due to its simplicity. Especially in this day and age, questionnaires can be done online which provides much convenience to the collector as they need not be present at the time of collection. Respondents also benefit from the convenience, as they can participate in the questionnaire anywhere and anytime. Furthermore, another advantage of questionnaires is that data gathered are usually numerical and straightforward to analyse (Cohen, et al., 2007). However, questionnaires can only elicit information that are closed-ended and answers cannot be elaborated. Additionally, questionnaires cannot capture human facial emotions, which are important as it may tell a different story when answering questions. Because of this, interviews will also be conducted to elicit information. Interviews are a good way to capture information as human emotions are present at the time of collection. Interviews also allow the interviewee to elaborate upon answers and give a more subjective answer to the questions. Additionally, interviews allow the interviewer to ask follow-up questions to erase any hint of ambiguity or to receive even more input on the matter.

Questionnaires and interviews could be described as ‘polar opposites’, however by conducting both research methods, a balance is struck and inputs from both sets of respondents will prove to be important to the quality of this project.

3.2 Design

3.2.1 Questionnaire

When constructing the questionnaire, the developer took the length of the questionnaire into account. It is important to keep the questionnaire as simple and short as possible. This is to retain interest in answering the questions. If the questionnaire is too lengthy, respondents may not be bothered to complete it and abandon the questionnaire halfway through answering it. Therefore, the developer has decided that there should be an estimation of 20 questions. This will strike the balance of keeping the respondents interested, while also having sufficient data to analyse.

The questions are the bread and butter of the questionnaire. Questions constructed should be short, precise, and built without any hint of ambiguity. The questions should also be closed-ended. This means that questions should mainly be asked to elicit ‘yes’ or ‘no’ answers as well as ‘strongly disagree’ to ‘strongly agree’. Sometimes, respondents can be asked to elaborate the answer, however, the developer wishes to avoid that as it may more likely produce redundant or dishonest answers. Having said this, the questions will be constructed with the aim to gain insight and figure out if the problem indeed exists. The questionnaire will be split into 4 sections. Section A for identifying a respondent’s demographic profile, Section B to study spending habits of respondents, Section C to study saving habits of respondents, and finally, Section D to study the technological resources available to the respondents. The studying of spending and saving habits is to make sense of their current habits and to find out if poor personal finance management is prevalent among the questionnaire participants. From this, the developer will provide justification on the usefulness of the project to solve the problem.

Table 1 Questionnaire Questions And Its General Objectives

Questions	Objectives
Section A - Demographics	
1. What is your gender? 2. What is your age? 3. What is your employment status? 4. What is your monthly income?	<ul style="list-style-type: none">• To understand the demographics of participants.• To see if the answers may be skewed in one direction because of it.
Section B - Spending Habits	
1. I often spend most on things I enjoy. (Ex: Entertainment, Travelling, Fashion) 2. I often spend on things I need. (Ex. Food, Shelter) 3. I spend to de-stress and make myself feel happy. 4. I usually spend most of my money once I receive my source of income. 5. I set aside a specific amount of what I can	<ul style="list-style-type: none">• To understand the spending habits of the participants.• To study if participants are aware of their spending.• To point out the bad spending habits of participants.• To point out the good spending habits of participants.• To study if participants spend smartly.• To study the shopping/spending preferences of the participants.

<p>spend from my savings.</p> <p>6. I often keep track on what I spend. (Ex. Write down notes, keep receipts, etc)</p> <p>7. I often go shopping at malls and shops.</p> <p>8. I often shop online.</p> <p>9. I often compare prices from different shops before purchasing.</p> <p>10. I consult my current savings before purchasing something.</p> <p>11. I often seek out discount codes.</p> <p>12. I am usually unaware of current discounts and promotions.</p> <p>13. I spend most on:</p> <ul style="list-style-type: none"> - Food - Entertainment - Clothing - Others: _____ 	
Section C – Saving Habits	
<p>1. How much from your income/allowance do you save monthly?</p> <p>2. Do you keep track of your savings?</p> <p>3. Do you set a goal for amount saved per month?</p> <p>4. Do you think tools to assist in money saving is beneficial? (Ex. A budgeting app)</p> <p>5. Do you use a tool to assist you in saving money? (Ex. A budgeting app)</p> <p>6. Do you actively save money for a desired item/service?</p>	<ul style="list-style-type: none"> • To understand the saving habits of the participants. • To study whether participants practice good saving habits. • To study if participants are actively using budgeting tools. • To study if participants are aware of their savings.
Section D – Technological Resources	
<p>1. Do you own a smartphone?</p> <p>2. How often do you use your smartphone?</p> <p>3. Do you think that smartphones applications are useful and convenient?</p>	<ul style="list-style-type: none"> • To understand the technological resources available to the participants. • To study smartphone usage habits of participants. • To study how smartphones are essential to participants in everyday life.

3.2.2 Interview

Interviews are also one of the most popular ways to elicit information from respondents. Generally, an interview can last up to 30 minutes to 1 hour. However, it is difficult to gather participants who are willing to spend around 30 minutes on an interview that may not provide any benefit to them. Therefore, the interview will be timed in a way that will last an estimation of 20 minutes. This is to maintain the interview as short as possible, while gathering enough information from the interviewees. However, with the dynamic nature of an interview, the length could be extended to 30 minutes depending on how well the interview is progressing.

The questions of an interview are unlike questionnaires. Dissimilar from questionnaires, human emotion are present when answering questions. Emotions play a big part in answering questions. Some may seem enthusiastic when answering, or some may look disinterested, which may indicate that answers may not be as genuine as one would like. Because of this, emotions can be analysed to tell how an interviewee feels about the interview and its questions. Interviews are also encouraged to be open-ended and to elicit personal opinions to provide a deeper insight into the situation. Additionally, follow-up questions can be asked to provide a better level of understanding on the given answers and could also provide additional information on the matter. Similarly, follow-up questions can also help in erasing ambiguity of interviewees' answers. Having said this, questions will be structured in a way that allows interviewees to elaborate and provide personal opinion on the question. The main objectives of these questions are to understand money problems that interviewees faced, and to also receive feedback on financial aiding mobile applications. Based on these questions, the developer will have a clearer view of the matter at hand, and understand if enhancing the tools for financial aid will provide benefit to all users.

Table 2 Interview Questions and Its Objectives

Questions	Objectives
1. What are your shopping preferences?	<ul style="list-style-type: none"> To understand the participants' opinions on shopping physically and online shopping. To study the participants' shopping etiquette.
2. Do you sometimes partake in impulse buying? What are your views on this matter?	<ul style="list-style-type: none"> To study if participants indulge in bad spending habits. To study the opinions of impulsive spending. To study if the participants have a level of financial literacy.
3. What do you think are the benefits of discounts and promotions?	<ul style="list-style-type: none"> To study if participants are aware of the benefits of taking advantage of discounts and promotions.
4. Do you have a method for budgeting? If yes, please elaborate.	<ul style="list-style-type: none"> To study if participants have a current method of budgeting. To study if participants are taking responsibility by keeping track of their finances. To study the financial literacy of participants. To study the saving habits of participants.

5. What are your opinions on apps that aid in financial management and planning?	<ul style="list-style-type: none"> To gather feedback on the usefulness of apps that aid in financial management and planning. To figure out if the proposed mobile application can impact the participants in a positive manner.
6. In this economic climate, do you see yourself having enough savings for future endeavours?	<ul style="list-style-type: none"> To study if participants' current habits of spending and saving will result in a good future.

3.3 Summary

Research methods provide a means of retrieving useful information regarding a certain topic. There are many examples of beneficial research methods, such as observation, interviews, questionnaires, and many more. For this project however, the developer has chosen 2 methods which will provide sufficient benefits to the project. The chosen methods include questionnaires and interviews. Questionnaires provide the developer with a quick and easy mean of gathering useful and precise information. On the other hand, interviews provide the developer with information that may be subjective and will differ with every interviewee. The objectives of both the methods are to understand the issues that respondents are facing, and also provide insight on how a tool for helping in personal finance will help in reducing these problems. To do this, the structure of each method must be short and interesting, so that the respondents do not feel burdened and abandon answering halfway through.

4. RESULTS AND DISCUSSIONS

4.1 Analysis of Data

4.1.1 Questionnaire Analysis

A questionnaire was conducted where a total of 70 respondents took part in answering the respective questions. This questionnaire aims to understand the saving habits and spending habits of the respondents. An analysis will then be done to further understand the answers given.

4.1.1.1 Section A – Demographics

This section is to study the demographic profile of each respondent.

1. What is your gender?

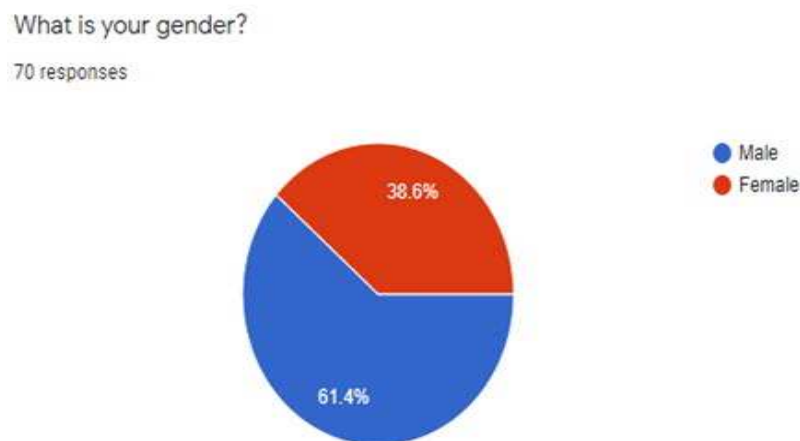


Figure 1 Section A Question 1

Analysis: The respondents of this questionnaire are mostly male with 61.4%, while female respondents are at 38.6%

2. What is your age?

What is your age?

70 responses

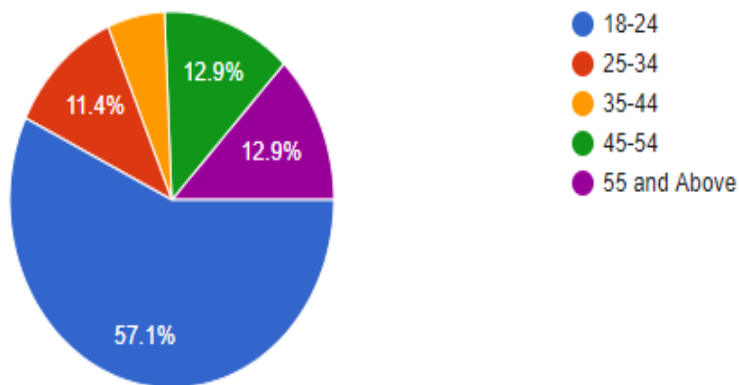


Figure 2 Section A Question 2

Analysis: The majority of the respondents are between 18 to 24 years of age at 57.1%, while the 45 to 54 years old and the 55 and above demographics comes second, both at 12.9% respectively.

3. What is your employment status?

What is your current employment status?

70 responses

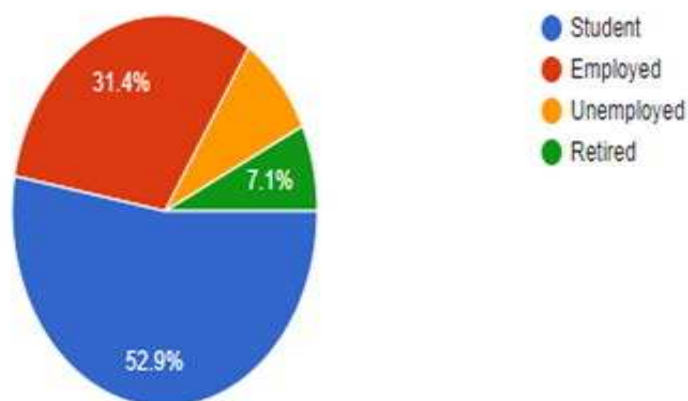


Figure 3 Section A Question 3

Analysis: The majority of respondents are students at 52.9%, while respondents who are employed are at 31.4%, respondents who are unemployed are at 8.6%, and respondents who are retired are at 7.1%.

4. What is your monthly income?

What is your monthly income?

70 responses

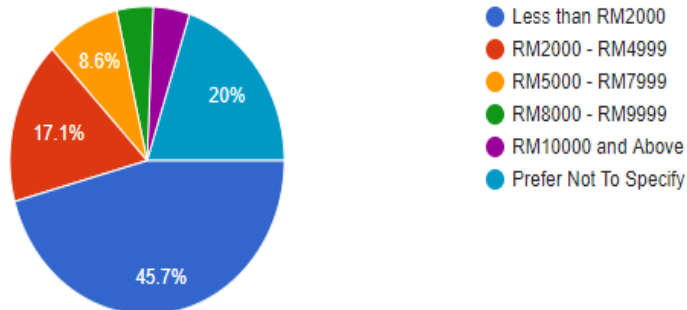


Figure 4 Section A Question 4

Analysis: The majority of respondents have a monthly income of RM2000 or less, while 20% of respondents preferring not to specify, and respondents who earn RM2000 to RM4999 are at third at 17.1%.

4.1.1.2 Section B – Spending Habits

This sections aims to study the spending habits of respondents. (1 – Strongly Disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly Agree)

In this section, all questions except one uses a bar chart to analyse findings. The x-axis consists of numbers 1 through 5. 1 being ‘Strongly Disagree’, 3 being ‘Neutral’, and 5 being ‘Strongly Agree’. For the analysis, 1 and 2 will be grouped together as ‘Disagree’, 4 and 5 will be grouped together as ‘Agree’, and 3 will remain as ‘Neutral’. This makes it easier to analyse the findings without getting too complicated with the percentages.

1. I often spend most on things I enjoy. (Ex: Entertainment, Travelling, Fashion)

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70 responses

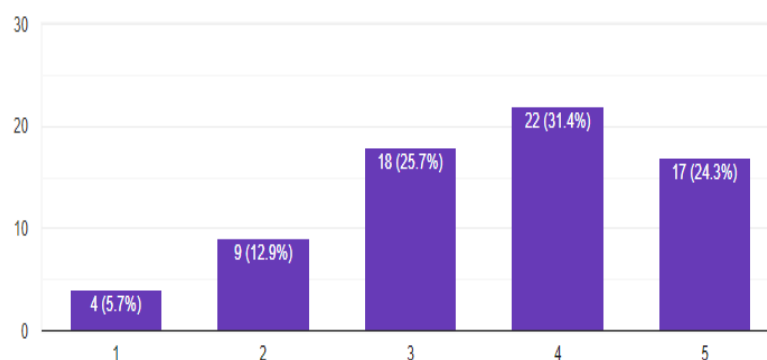


Figure 5 Section B Question 1

Analysis: It appears that most respondents enjoy spending for enjoyment. This is, of course, a preference among respondents. However, Section A has shown that majority of respondents

are having less than RM2000 for their income, meaning that often spending on enjoyable things would put them in a difficult position, financial-wise. It is good to enjoy yourself once in a while, but it is important to not jeopardize one's financial stability because of it.

2. I often spend on things I need. (Ex. Food, Shelter)

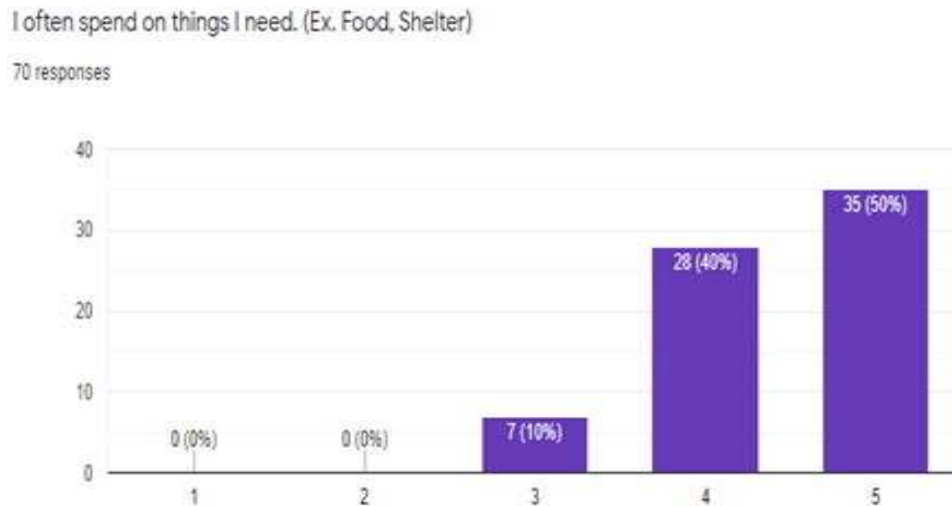


Figure 6 Section B Question 2

Analysis: The majority of respondents show good priorities, with 90% of them agreeing to spend often on necessities. This shows that respondents have a grasp of good financial management.

3. I spend to de-stress and make myself feel happy.

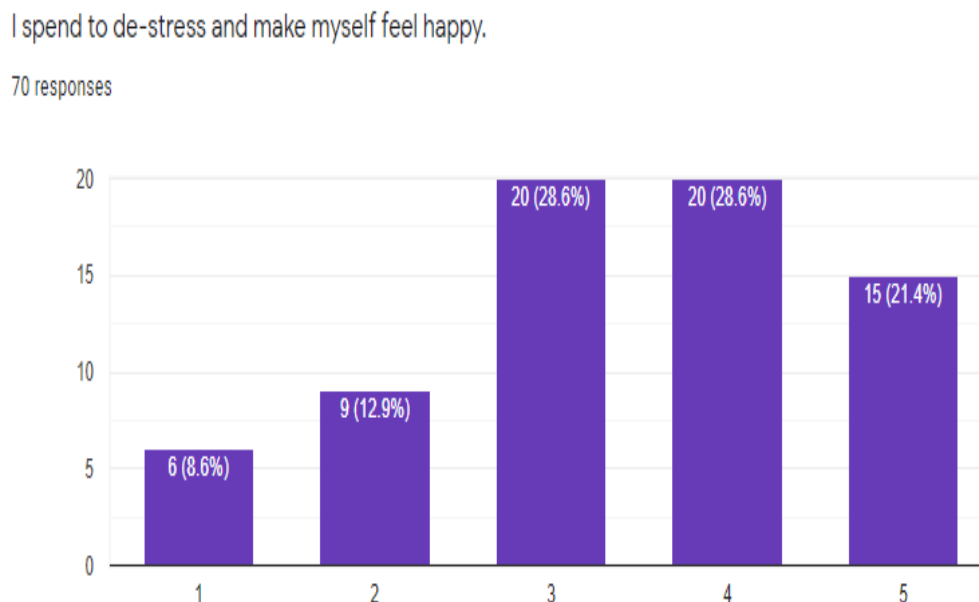


Figure 7 Section B Question 3

Analysis: 50% of respondents agreed to this question, while 21.5% disagreed to this question, and 28.6% of respondents remain neutral. The majority of respondents admit to making themselves happy and cheerful by shopping. This is called 'Retail Therapy', which is an unhealthy habit when it comes to one's finances. This may not be a smart way to unwind

when doing many other things may provide the same sensation. For example, listening to music, going for a walk, or going out with friends may provide a similar sense of cheerfulness.

4. I usually spend most of my money once I receive my source of income.

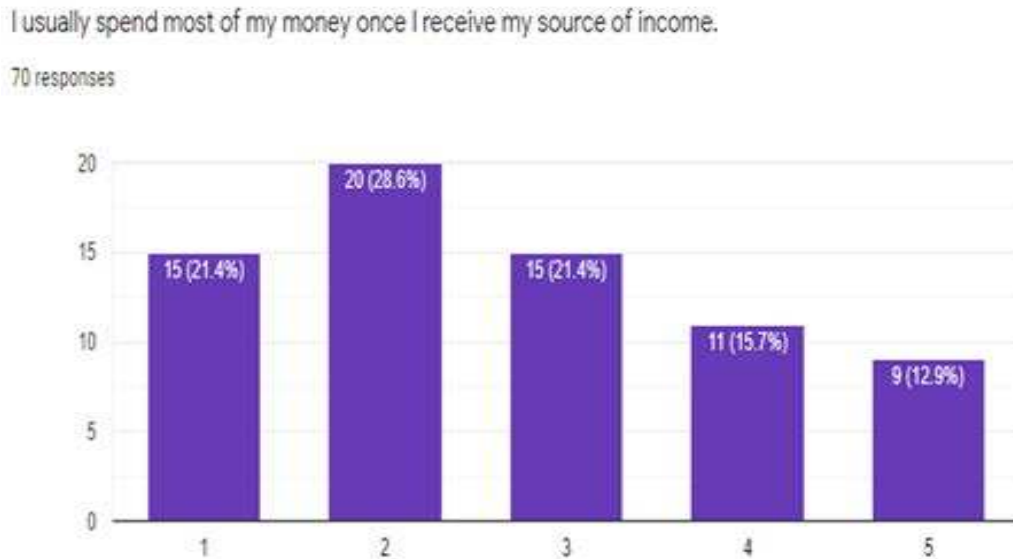


Figure 8 Section B Question 4

Analysis: The majority of respondents disagree with this question. This is a good sign that some form of good financial management practices are followed. However, it is somewhat alarming that there are some who still agrees to spend most of their money once it comes in. This shows that there are still problems of personal finance within society.

5. I set aside a specific amount of what I can spend from my savings.

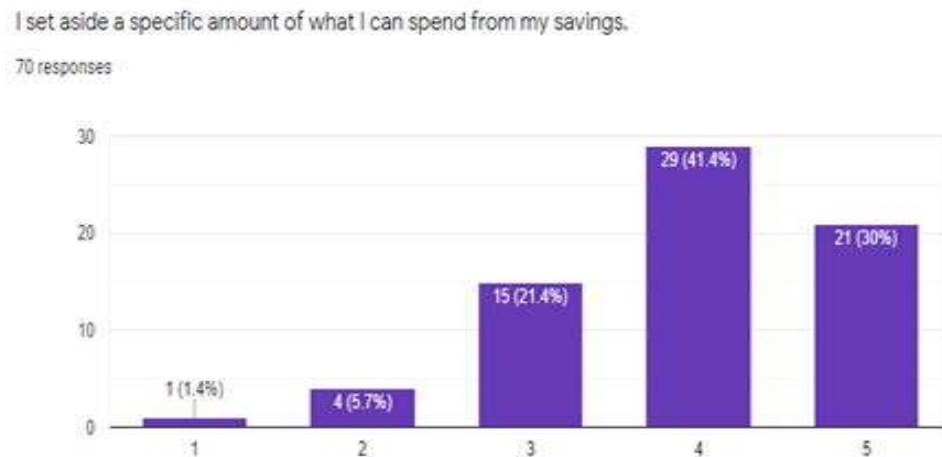


Figure 9 Section B Question 5

Analysis: Again, the majority of respondents show good financial practices, as most set aside a specific amount to spend. Since most of the respondents are already practicing this, the proposed mobile application can provide them with a convenient platform to continue this good practice.

6. I often keep track on what I spend. (Ex. Write down notes, keep receipts, etc)

I often keep track on what I spend. (Ex. Write down notes, keep receipts, etc)

70 responses

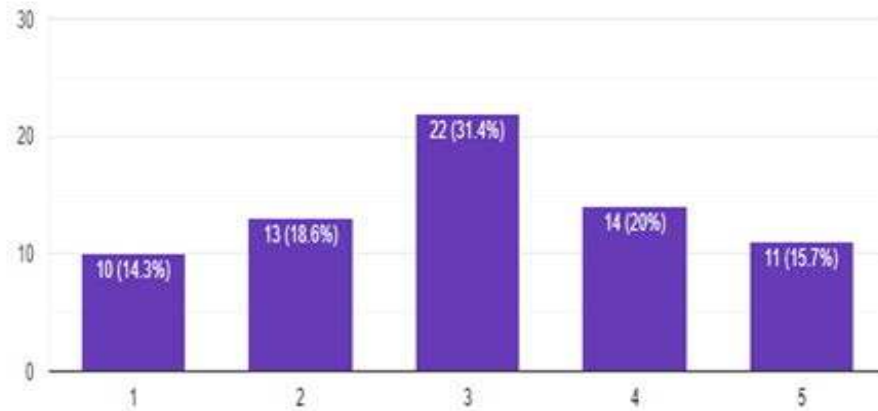


Figure 10 Section B Question 6

Analysis: From the bar chart, the answers seems somewhat even, with respondents who agrees slightly edging respondents who disagrees. In the chart, it shows that most respondents are neutral to the practice of keeping track on spending. This could mean that they sometimes do and sometimes do not practice it. It can be said that this is also a financial problem that is faced by many people, where an individual's spending is not tracked, therefore, they would not know where their money is going to. If money is lost, most may not even notice.

7. I often go shopping at malls and shops.

I often go shopping at malls and shops.

70 responses

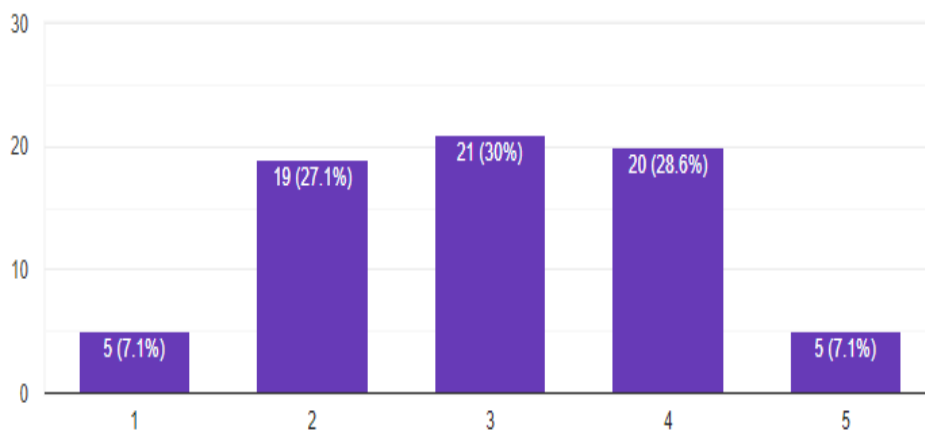


Figure 11 Section B Question 7

Analysis: Yet again, the chart shows that respondents who often shops at physical shops barely edges respondents who do not. This may be due to preferences, with working adults or students having various amount of free time to spend. Because of this, they could either prefer to shop at malls or not at all.

8. I often shop online.

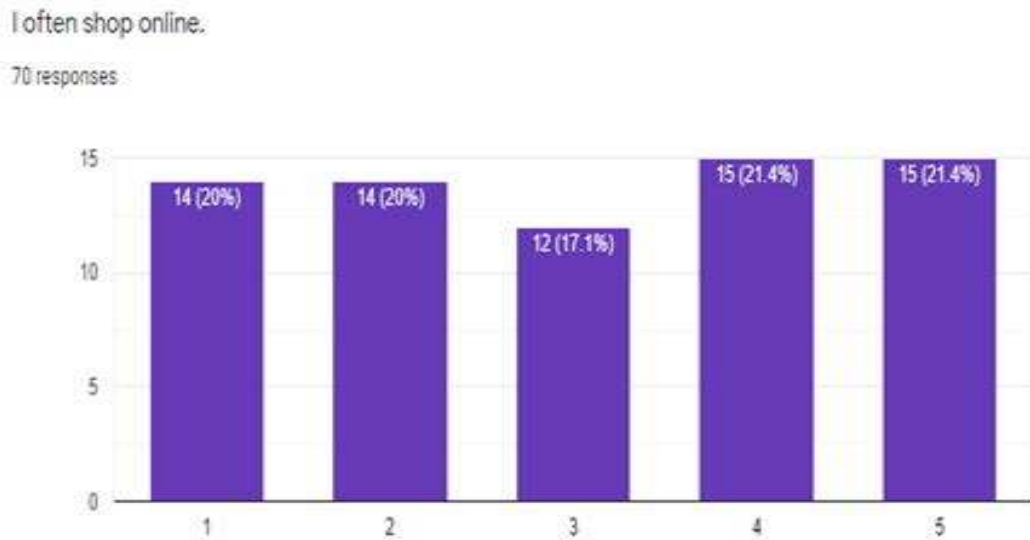


Figure 12 Section B Question 8

Analysis: Again, the respondents seemed split on this question. Respondents who like shopping online slightly edges respondents who do not. The 17.1% of respondents who feels indifferent may shop from time to time. Based on the demographics taken in Section A, preference of online shopping may vary according to the monthly income or employment status of each respondent.

9. I often compare prices from different shops before purchasing.

I often compare prices from different shops before purchasing.

70 responses

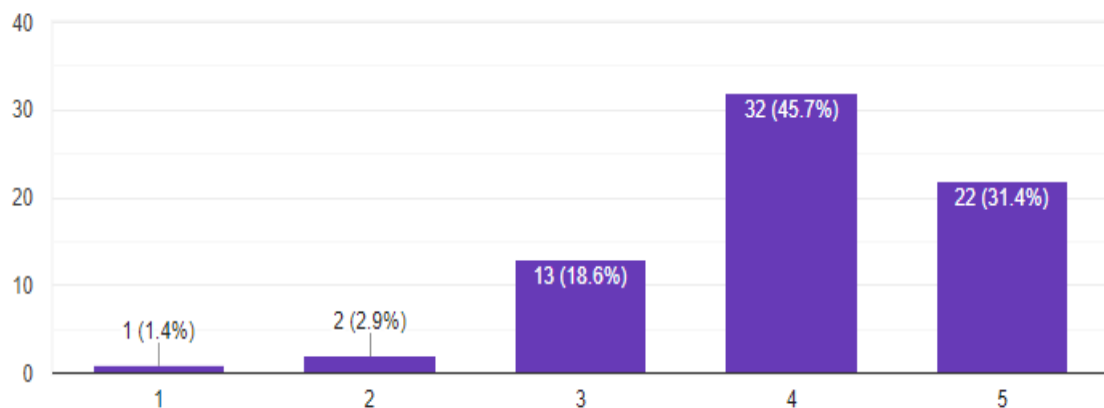


Figure 13 Section B Question 9

Analysis: From the chart, majority of respondents compare prices before purchasing. This is a good practice as it minimizes an individual's spending. However, respondents may find it troublesome to go into many different shops, or if shopping online, going through multiple apps to find the best price.

10. I consult my current savings before purchasing something.



Figure 14 Section B Question 10

Analysis: The majority of respondents are in favour of consulting savings before spending or purchasing something. This is good practice, however, those who are not using any tools, may find it troublesome to check bank accounts and such.

11. I often seek out discount codes.

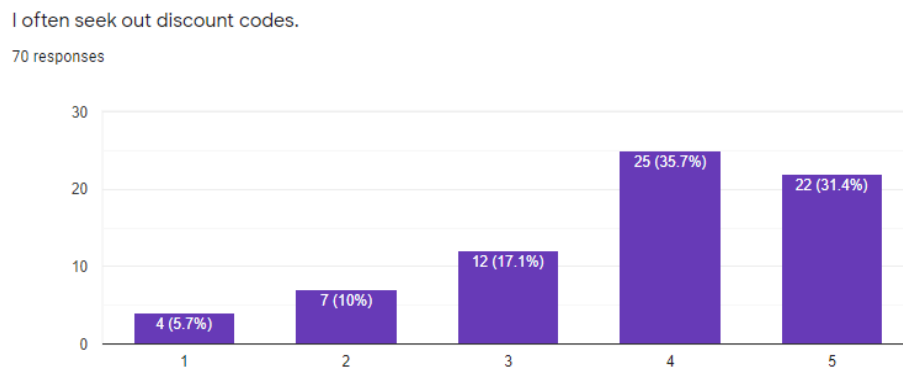


Figure 15 Section B Question 11

Analysis: The majority of respondents seek out discounts and promotions, which is ideal if an individual intends to save money. However, some are indifferent or disagree to this notion. It may be due to laziness and not being too bothered.

12. I am usually unaware of current discounts and promotions.



Figure 16 Section B Question 12

Analysis: From the previous question, most respondents seemed to seek out for discounts often. However, the chart for this question shows that most respondents are usually unaware of such discounts and promotions. This may be due to it not being exposed to the public as much, meaning that most people may miss out on good opportunities to save money.

13. I spend most on:

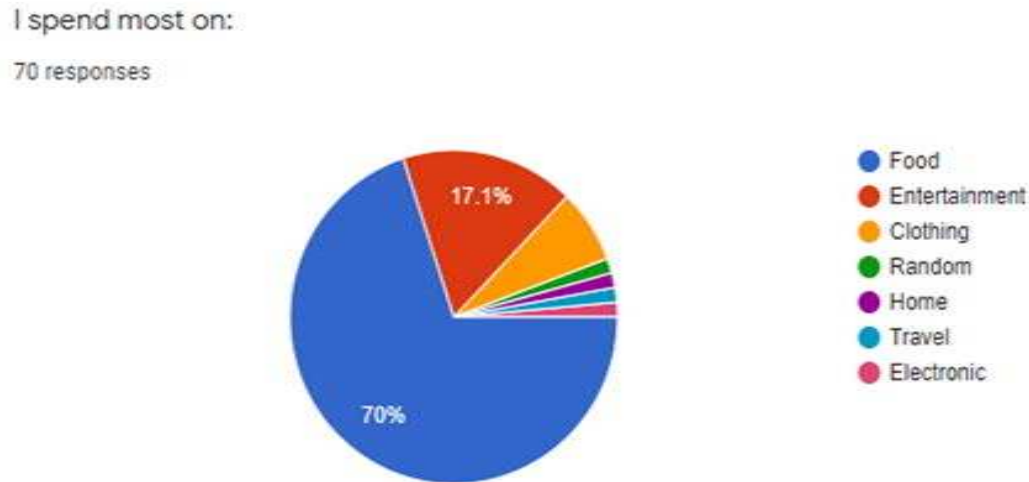


Figure 17 Section B Question 13

Analysis: This pie chart shows that the majority of respondents spend most on food. Food is a necessity in everyday life, however, some people may overspend on food. The second in the pie chart is entertainment, at 17.1%. Then, clothing at 7.1%.

4.1.1.3 Section C – Saving Habits

This section aims to study the saving habits of respondents.

1. How much from your income/allowance do you save monthly?

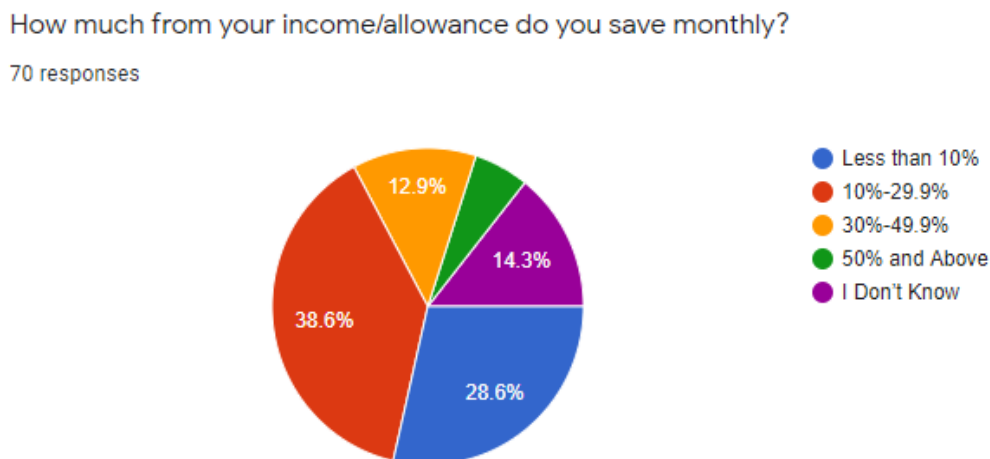


Figure 18 Section C Question 1

Analysis: This question shows how much respondents are saving each month based on their income or allowance. Most save 10% to 29.9% of their income. However, the most stand-out statistic is that 14.3% do not know how much they save. It is not a good habit to be unaware of one's savings.

2. Do you keep track of your savings?

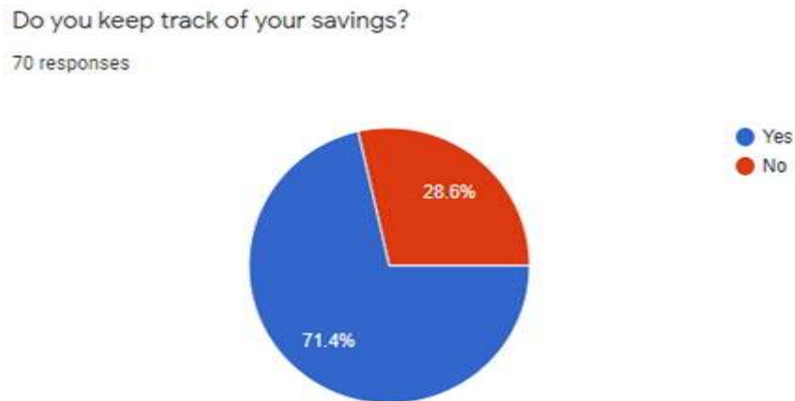


Figure 19 Section C Question 2

Analysis: This questions shows that the majority of respondents usually keep track of savings, however, there are still 28.6% of them who does not track their own savings. Again, this is a problem as one should track their own savings in order to control one's expenses.

3. Do you set a goal for amount saved per month?

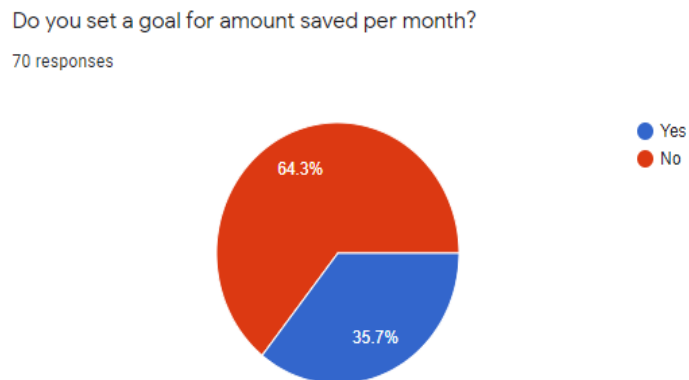


Figure 20 Section C Question 3

Analysis: Most respondents does not have a goal to save per month. This could be a good way to increase one's savings for uses in the future, but many are not doing it.

4. Do you think tools to assist in money saving is beneficial? (Ex. A budgeting app)

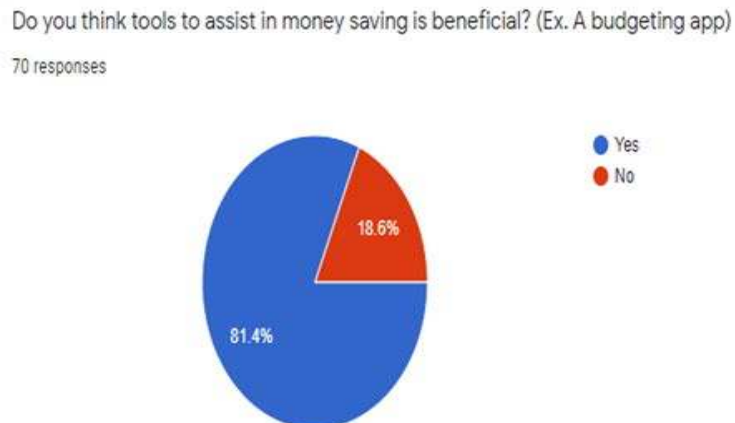


Figure 21 Section C Question 4

Analysis: 81.4% of respondents show an interest in a financial aiding tool. Most think that it is beneficial and may be of good use to them respectively.

5. Do you use a tool to assist you in saving money? (Ex. A budgeting app)

Do you use a tool to assist you in saving money? (Ex. A budgeting app)

70 responses

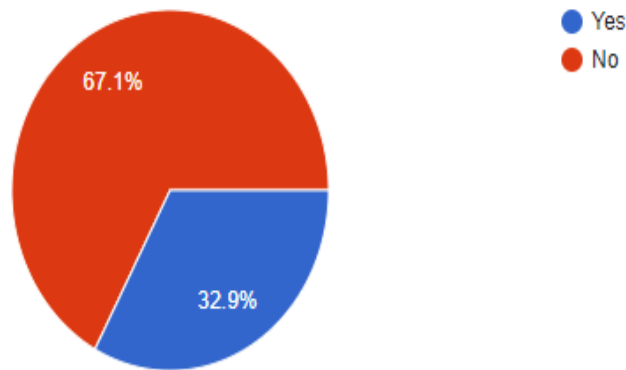


Figure 22 Section C Question 5

Analysis: Contrary to the previous question, most respondents do not currently use a financial aiding tool. This may be due to the applications on the market not being of interest to them.

6. Do you actively save money for a desired item/service?

Do you actively save money for a desired item/service?

70 responses

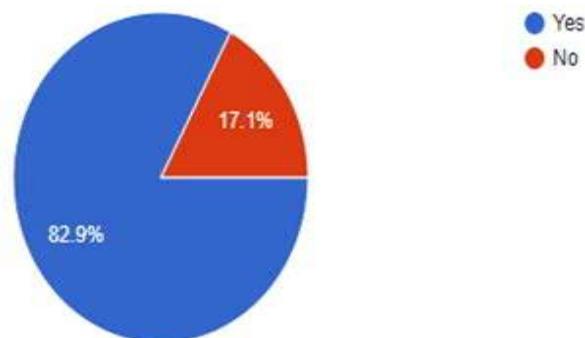


Figure 23 Section C Question 6

Analysis: Most respondents answered in favour of saving money or a specific item. By doing this, respondents need to keep track of savings, which is consistent with Question 2 of Section C.

4.1.1.4 Section D – Technological Resources

This section aims to study the technological resources that are available to the respondents.

1. Do you own a smartphone?

Do you own a smartphone?

70 responses

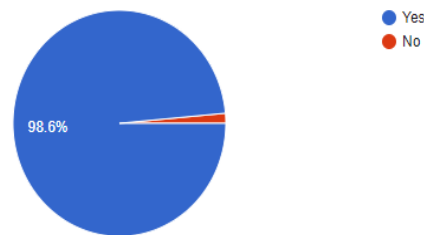


Figure 24 Section D Question 1

Analysis: According to the pie chart, almost all the respondents own a smartphone, meaning that the proposed mobile application can be accessed by most people.

2. How often do you use your smartphone?

How often do you use your smartphone?

70 responses

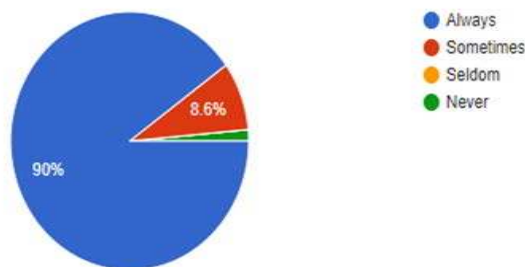


Figure 25 Section D Question 2

Analysis: The pie chart shows that the usage of smartphones are high, with 90% of respondents admitting to using it all the time. This supports the creation of a mobile application.

3. Do you think that smartphones applications are useful and convenient?

3. Do you think that smartphones applications are useful and convenient?

70 responses

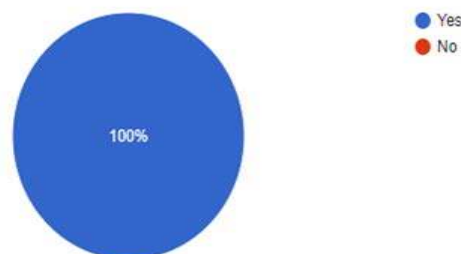


Figure 26 Section D Question 3

Analysis: All respondents says that smartphone applications are useful and convenient. Yet again, a mobile application solution is justified.

The analysis of this questionnaire proved that bad financial habits still exists within society. However, respondents also shown some degree of responsibility with their earnings, with some displaying good habits in terms of saving and spending. According to some of the information gathered, the Personal Finance Management and Planning Application may prove useful to respondents. For example, majority of respondents from Section B, Question 12, shows that they are unaware of most discounts and promotions. This can be solved with one of the features of this proposed application, where discounts and promotions will be displayed for users. Additionally, majority of respondents from Section B, Question 9, shows that they compare prices among multiple shops. This can be made convenient with a feature from the proposed application, where users can browse multiple online stores in one place to compare prices. Other than that, respondents who are actively practicing good financial management habits can be done, or even improved with the help of the app as well. This mobile application can serve users as a platform to practice good financial management and planning on top of having a few more features that provides huge convenience to users. According to Section C, Question 5, most users are not currently using a budgeting tool. Therefore, the good habits instilled within the respondents can be transferred to this app, and the bad habits can be eradicated with the features this app provides.

4.1.2 Interview Analysis

The total of 3 interviewees were interviewed with the main differences being their employment status. This is to gather different opinions from people with different financial situations. By doing this, it can give a good sense of understanding of how differing financial status of different individuals can affect their financial habits.

4.1.2.1 Interview 1

Name: Bryan Gomez

Age: 22

Employment Status: Unemployed

The interviewee seemed interested and facial expression tells that he listened and answered intently.

Question 1: What are your shopping preferences?

Answer: “It depends what I need. If I need to buy something urgently, I will usually go to a physical shop to buy things. If I can wait, I usually browse and purchase it online. Usually, I also shop online for convenience and also it is usually cheaper. Whereas for physical shops, usually you’ll have to wait for seasonal promotions, which I may not be aware of it all the time.”

Analysis: From the interviewee’s answer, it can be interpreted that online shopping is a preferred option to the interviewee. The interviewee states that it is usually cheaper and more convenient when shopping online, which explains how online shopping may be favoured by many people. It may be interpreted that online shopping may be cheaper due to the many stores available online, which allows users to pick and choose which ever item is cheaper or suits them the most. The convenience factor, of course, is the ability to shop at the comfort of one’s own home. Also, although the interviewee is aware of the benefits of online shopping, he is not usually aware of promotions or discounts available. Should a platform that notifies users of discounts and promotions, the interviewee could take advantage and save more.

Question 2: Do you sometimes partake in impulse buying? What are your views on this matter?

Answer: “No. I will always think twice or sometimes thrice when buying something. I will have the urge, but I will think if I really need it. I feel that the people who impulse buy cannot control themselves. However I feel that those who have lots of money are free to do whatever they want with it, but for people like me who lack income, it is hugely irresponsible. For people to shop impulsively is a bad habit”

Analysis: This answer shows that the interviewee is responsible with his money and is able to control himself. However, the interviewee understands that there are people who are having bad spending habits. The interviewee said it is “hugely irresponsible” for someone to impulse buy when they have little income. Because of this, it can be said that people are spending on the wrong things at the wrong time, and may suffer financially in the future due to short-term pleasure. It can be concluded that poor spending habits have become a part of many people’s lives and actions should be taken against it.

Question 3: What do you think are the benefits of discounts and promotions?

Answer: “I think that it helps people save money and helps people with low income.”

Analysis: The interviewee feels that discounts and promotions are helpful to many people. This shows that the interviewee is aware of the benefits it brings, however in Question 1, the interviewee hinted that his awareness of such promotions are lacking.

Question 4: Do you have a method for budgeting? If yes, please elaborate.

Answer: “Yes. I set aside a specific amount to save for every week, but I only do so if I am saving up for something I want. I think that people need good discipline to budget.”

Analysis: The interviewee states that he uses a method to budget, however, it is only when the interviewee aims to buy something he wants. It is good that the interviewee practices this, however, with a little more effort, the interviewee could do it regardless of intent, and practice better money saving. The interviewee also stressed that to budget, one needs good self-discipline. The project could entice the users with its features, since it fits the interviewee’s needs of saving for a specific item to buy.

Question 5: What are your opinions on apps that aid in financial management and planning?

Answer: “I think that it is helpful and good. I am currently not using any because the one I previously used was overwhelming with unnecessary features. It would be good if you could develop a good app for saving because I think your idea has potential.”

Analysis: The interviewee mentions that financial management apps could bring benefits to users. The interviewee stated that he was overwhelmed by an app he previously used. This could mean that current apps on the store does not satisfy and does not give what the user wants. Having said that, the interviewee seemed to be interested in the proposed application of this project. This shows good initial signs that this application might prove useful to users.

Question 6: In this economic climate, do you see yourself having enough savings for future endeavours?

Answer: “It would be difficult especially in the beginning. Because the minimum wage here is too low which makes buying houses challenging. But if I continue to be persistent, I am confident that I can.”

Analysis: In this answer, the interviewee expressed concerns of saving for the future due to external factors such as low wages. However, the interviewee stays positive and says it is possible. To do this, good financial practices must be done to achieve his goal.

Overall Analysis: All in all, the interviewee expressed multiple concerns and problems from a financial point-of-view. Although the interviewee sometimes practices good financial management, the proposed mobile application may be of great use to the interviewee.

4.1.2.2 Interview 2

Name: Muhammad Haziq bin Hassan

Age: 23

Employment Status: Student

The interviewee seemed slightly down, however provided cooperation willingly and honestly during the course of the interview.

Question 1: What are your shopping preferences?

Answer: “I quite like shopping. I often shop both physically and online actually. Things like clothes, shoes, and expensive electronics like phone I would buy physically to test it out before buying. Random things that are not too expensive, such as cheap electronics, I would buy online because it has better deals.”

Analysis: From the answer, it can be interpreted that the interviewee likes to shop at physical and online shops based on the items needed by the interviewee. The interviewee suggests that purchasing things online can lead to better deals, however should the interviewee purchase things like phones and clothing, he would prefer to try it on first before buying. From this, it can be said that purchasing online items can lead to favourable prices if compared to purchasing at physical shops.

Question 2: Do you sometimes partake in impulse buying? What are your views on this matter?

Answer: “Yes, I do. Like I said, I shop based on sales. For me, if I have money and if I see something I like, I would buy it on the spot. For me, I feel like it’s a bad habit. Sometimes, the things I buy, after a few weeks I may have forgotten about it. And if I need to buy essentials like groceries, I won’t have enough money. It’s leaning towards to my wants than my needs.”

Analysis: The interviewee partakes in impulsive buying. However, the interviewee realizes that it is a bad habit that hurts him financially. Due to this, the interviewee fails to prioritize his needs from his wants. This problem is bad and the interviewee needs to take self-initiative to correct his poor financial habits.

Question 3: What do you think are the benefits of discounts and promotions?

Answer: “I can save money, and when I buy something at a discounted price, the initial price from that discounted item becomes extra money for me to use.”

Analysis: Based on the answer, the interviewee seemed aware of the benefits of discounts and promotions. The interviewee views buying items and a discounted price as ‘extra money’ that could be spent elsewhere. It is good that the interviewee feels this way. However, if extra money becomes available, unless it is used to spend on something urgent or important, one should not have the notion that they have extra money to simply splash elsewhere, rather one should view it as extra funds for necessary things such as groceries.

Question 4: Do you have a method for budgeting? If yes, please elaborate.

Answer: “So far, my method of budgeting is writing on a piece of paper on a book to track my budget. But I feel that it is inefficient for me to do that because it is quite slow and not easily accessible. For example, I might forget the book while I am shopping and I’ll forget my budget.”

Analysis: Based on the answer given, the interviewee’s current mode of budgeting is very inefficient. Using a book to keep track is a valid method, however with the help of technology, budgeting can be done very conveniently and easily. With gadgets like smartphones, information about current budget can be kept in one spot, with only a touch away. Having said this, it seemed as though the interviewee understands this as well.

Question 5: What are your opinions on apps that aid in financial management and planning?

Answer: “I think it would be really helpful given my circumstances. It will be portable since it would be on my phone, and it makes it easily accessible to me.”

Analysis: The interviewee seemed to understand that apps to aid in financial management and planning can provide benefits based on his current situation. From the answer, the interviewee seemed keen to upgrade from a paper-based solution to a mobile-based solution.

Question 6: In this economic climate, do you see yourself having enough savings for future endeavours?

Answer: “As of now, because of my impulsive spending and inefficient budgeting method, I am not saving enough as I should have. So, I am a little uncertain and leaning towards no.”

Analysis: The answer of this question is somewhat alarming. The interviewee admits that he is not saving enough for his future with his current habits. However, this is a good first step for the interviewee to admit his bad habits. Having said that, changes in lifestyle and habits must be done in order to survive in the future.

Overall Analysis: Based on this interview, it can be concluded that the interviewee suffers from bad financial habits and is having concerns of saving up for the future. The interviewee is also using an inefficient method for budgeting. However, the interviewee acknowledges this and will look to correct his behaviour. From the answers given, it can be said that the proposed mobile application will greatly assist in getting the interviewee on the right track towards a healthy financial habit and lifestyle.

4.1.2.3 Interview 3

Name: Anonymous

Age: 54

Employment Status: Employed

The interviewee seemed calm and answered the questions confidently with precision.

Question 1: What are your shopping preferences?

Answer: “Online shopping. Because if I want the thing, I don’t have to go to the shops to look for the item and to compare the price. Because some items may not be available at certain shops, which makes it more difficult to look for what I want. With online shopping, I can just compare item prices from a few apps with their reviews so that I can make an informed decision.”

Analysis: Based on the answer, the interviewee clearly prefers online shopping over going to physical shops. The main points the interviewee gave was the convenience that online shopping gives. For working adults, there could be very little free time to go out, that may be one of the factors that the interviewee prefers online shopping.

Question 2: Do you sometimes partake in impulse buying? What are your views on this matter?

Answer: “Very rarely. Only when I think when the item is discounted or if I need to have it. My views on it is that it is not healthy because it makes you spend unnecessarily.”

Analysis: The interviewee displays good financial habit by not impulsively buying. The interviewee shows good self-control and mentions that impulsive buying is not healthy and could lead to financial instability.

Question 3: What do you think are the benefits of discounts and promotions?

Answer: “You can get the item you want at a cheaper price. You also end up saving some money.”

Analysis: The interviewee expressed the benefits of discounts and promotions. The interviewee understands that discounted items can help people save money.

Question 4: Do you have a method for budgeting? If yes, please elaborate.

Answer: “Yes. I use an excel spreadsheet to indicate fixed monthly expenditures with a view of my net monthly savings. But the con of this is that I have to access a desktop to update in periodic basis.”

Analysis: The interviewee mentioned the use of an excel spreadsheet to budget. Of course, this is a valid method to budget, however, it may not be the most efficient. The interviewee even explained the con of using an excel spreadsheet, which is only able to update the spreadsheet on a desktop. This process can be made more efficient and easier with a mobile application. Should the interviewee use an app, the details of savings and expenditure can be moved into the app and it provides a convenient, on-the-go application which can be accessed and edited at any place and any time. This could lead to encouragement in savings, since everything is so easily accessible.

Question 5: What are your opinions on apps that aid in financial management and planning?

Answer: “Since almost everybody has a smartphone, a financial managing app would be a convenient budgeting tool to use on-the-go. It will also make it easy for the user to update anytime they want and to know their savings and expenditure position by just looking at their phone.”

Analysis: The interviewee expressed the convenience of using a financial managing app on a smartphone. As mentioned in the previous question, a convenient application on the smartphone will allow easy access and could even encourage people to save more. In this technological age, it makes no sense to not take advantage of opportunities such as this.

Question 6: In this economic climate, do you see yourself having enough savings for future endeavours?

Answer: “Yes, but it is also important to have enough savings for unexpected emergencies.”

Analysis: The interviewee seemed confident in having saved enough for retirement. This could be because of the interviewee being a full-time working adult with years of working

experience. Additionally, the interviewee also stressed about the importance of having backup savings for emergency situations.

Overall Analysis: Based on this interview, it can be seen that the interviewee is responsible of their own money. However, the interviewee's means of budgeting may seem a little inefficient. Because of this, there may be certain functionalities that may not be accessible at a given time. Again, the Personal Financial Planning and Management App may assist the interviewee in saving money and budgeting because the functionalities of the app suits the interviewee's preferences and needs.

4.2 Summary

A research was conducted by using questionnaires and interviews with the aim of understanding financial problems among participants and also to justify the usefulness of the proposed mobile application. The questionnaire received a total of 70 respondents, which showed some evidence of financial problems in society, and allowed for justification of the application. For example, majority of respondents are unaware of current discounts and promotions, majority likes to spend on needs to make themselves feel happier, and majority feels that an app that aids in financial management and planning is beneficial. This is able to justify the needs of the application, which helps fix these problems. Additionally, some respondents also showed some degree of responsibility of their own savings and displayed good financial practices, for example, majority consult their savings before purchasing and majority keep track of their savings. These good habits can also be transferred by using the application as a platform for easy use and storage of information.

A total of 3 interviewees were questioned and some showed good financial habits, such as some having a method of budgeting, even though it may seem inefficient, while some liked to indulge in impulsive buying. The demographics of the interviewees were focused on the employment status of the individual. The aim of this is to get differing opinions and point-of-views from people of different backgrounds. Unsurprisingly, this led to varying answers which gave the developer a good sense of understanding when analysing the answers given.

This research can be deemed a success, with the project being seemingly helpful and useful towards users based on the answers collected from the participants of this research. Because of this, the proposed requirements of this project shall remain the same.

5. CONCLUSION

Many things were achieved at the end of this paper. The developer managed to complete the proposal of the project fairly early on, allowing for more time to work on the paper. In addition, much research was done, including academic research, where data from past journals were analysed and studied, and technical research, where the technical aspects of this project were defined. Also, research methods were used to conduct a research and was analysed to justify the usefulness of the project.

During the duration of this research, there were many challenges faced and certain parts of the research took longer than others. For instance, the Literature Review was tough to do. The research performed took quite a while as the developer intended to ensure that the research was done convincingly and in a sufficient manner.

As for the questionnaires and interviews, should the developer have more time, more participants could be added to provide a bigger data pool to analyse. Also, there are certain gaps that could be filled and improved upon should the developer have more time. For example, the demographics of the questionnaire may not be balanced. Because of this, the results may be skewed in one direction, which is not ideal. As for the interview, a retired person could also be interviewed in order to get the perspective of a retired person. However,

time restraints made it unable to further explore these areas. These research gaps may be explored and improved further in the future.

All in all, the paper can be considered as a success, with requirements being met on time and the process being somewhat smooth.

REFERENCES

- [1] Akther, M. & Akter, N. (2012) Design and Development of Online Personal Finance Management System. [Online]. pp. 1-48.
- [2] Alsemgeest, L. (2015) Arguments for and against financial literacy education: where to go from here?. *International Journal of Consumer Studies*. [Online]. 39(2). pp. 1-7.
- [3] Andriani, D. & Nugraha, N. (2018) Spending habits and financial literacy based on gender on employees. *IOP Conference Series Materials Science and Engineering*. Bandung, 2018. Bandung: IOP. [Online]. 407(1). pp. 1-6.
- [4] Bona, J. T. C. (2017) Spending Behavior Among College Students. *Sci. Int.* [Online]. 29 (4). pp. 749-753..
- [5] Brimble, M. & Blue, L. (2015) A Holistic Approach to Financial Literacy Education. *ACRN Journal of Finance and Risk Perspectives Special Issue of Social and Sustainable Finance*. [Online]. 4(3). pp. 34-47.
- [6] Cohen, L., Manion, L. & Morrison, K. (2007) *Research Methods in Education*. [Online]. Abingdon, Oxon: Routledge.
- [7] Elkins, K. (2019) Here's how many working Americans aren't saving any money for retirement or emergencies at all. [Online].
- [8] Firli, A. (2017) Factors that Influence Financial Literacy: A Conceptual Framework. *1st Annual Applied Science and Engineering Conference*. Bandung, 2017. Bandung: IOP. [Online]. pp. 1-7.
- [9] Isomidinova, G. & Kartar Singh, J. S. (2017) Determinants of financial literacy: a quantitative study among young students in Tashkent, Uzbekistan. *Electronic Journal of Business & Management*. [Online]. 2(1). pp. 61-75.
- [10] Khalil, S. (2019) Broke Teen Who Sold Kidney For an iPhone Now Bedridden For Life. [Online].
- [11] Koon, F. Y. & Jupri, N. B. (2015) Factors That Lead To Financial Distress Of Generation Y In Malaysia. *International Journal of Accounting & Business Management*. [Online]. 3(2). pp. 109-120.
- [12] Lusardi, A. (2019) Financial literacy and the need for financial education: evidence and implications. *Swiss Journal of Economics and Statistics*. [Online]. 155(1). pp. 1-8.
- [13] Mathews, M. J. (2017) An Analysis On Spending And Saving Pattern Of College Students In Indukki District. *International Journal of Management (IJM)*. [Online]. 8(3). pp. 199-203.
- [14] Md Razak, M. I., Abidin, N. E., Mohd Yusof, M. A., Sakarji, S. R. & Mohd Nor, K. (2014) Spending Trends among Youth in Malaysia. *Journal of Economics and Development Studies*. [Online]. 2(1). pp. 277-288.

- [15] Mokhtar, N., Moga Dass, T. A/L., Sabri, M. F. & Ho, C. S. F. (2018) A Preliminary Evaluation of Financial Literacy in Malaysia. *Journal of Wealth Management & Financial Planning*. [Online]. 5. pp. 3-16.
- [16] Mumpuni, M. & Sukarno, S. (2014) Design and Implementation Money Management Web Based Application for Personal and Family Proposed for CV. X. *The 5th Indonesia International Conference on Innovation, Entrepreneurship, and Small Business (IICIES 2013)*. Bandung, 21st February 2014. Bandung: Elsevier Ltd. [Online]. pp. 444-459.
- [17] Murugiah, L. (2016) The Level of Understanding and Strategies to Enhance Financial Literacy among Malaysian. *International Journal of Economics and Financial Issues*. [Online]. 6(S3). pp. 130-139.
- [18] NST. (2018) Boy who ate instant noodles every day for years dies of stomach cancer. [Online].
- [19] Ramya, N. & Mohamed Ali, S. A. (2016) Factors affecting consumer buying behaviour. *International Journal of Applied Research*. [Online]. 2(10). pp. 76-80.
- [20] Sequeira, A. H., Swathi Pai, B. & Surekha, V. (2012) Financial Management Information System. *SSRN Electronic Journal*. [Online]. pp. 1-11.
- [21] Sorooshian, S. & Tan, S. T. (2014) Spending Behaviour of a Case of Asian University Students. *Asian Social Science*. [Online]. 10(2). pp. 64-69.
- [22] The Star Online. (2017) Most M'sians don't have enough for a rainy day. [Online].
- [23] Tschache, C. A. (2009) Importance of Financial Literacy and Financial Literacy Content in Curriculum. [Online]. pp. 1-58.
- [24] Yong, C. C., Yew, S. Y. & Wee, C. K. (2018) Financial Knowledge, Attitude and Behaviour of Young Working Adults in Malaysia. *Institutions and Economies*. [Online]. 10(4). pp. 21-48.