INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES
Vol 13, Issue 16, (2023) E-ISSN: 2222-6990

The Behavioral Dynamics of Financial Vulnerability

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To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v13-i16/18769 DOI:10.6007/IJARBSS/v13-i16/18769

Published Date: *07-10-2023*

Abstract
The rising costs of raw materials and logistics, as well as the persistent unpredictability surrounding pandemic, continue to constitute a substantial threat to the Malaysian economy. The uncertain nature of the labour market results in job loss, leaving individuals financially vulnerable. According to data from the Department of Insolvency, more than 50% of bankruptcies in Malaysia involved young adults. Therefore, this study was carried out among young adults in Malaysia to identify the predictors of financial vulnerability, through financial socialization and locus of control with the moderation of education level. Multi-stage sampling and self-administrative survey were employed to choose respondents from public sectors and private sectors. 1002 data were collected and the researcher employed the Structural Equation Modeling using Partial Least Square (PLS-SEM) to take into account the relationships between multiple variables. The result generated from the current study shows a significant relationship between Financial Socialization as well as Locus of Control towards Financial Behaviour. Through the analysis, there is also an evidence of Financial Behaviour significantly associated with Financial Vulnerability. In conclusion, the findings provide insight and make aware the young individuals in Malaysia to possess healthy financial behaviour to practice equitable financial management and avoid being vulnerable.
Keywords: Financial Vulnerability, Financial Behaviour, Socialization, Locus Control, Young Adults

Introduction
The COVID-19 pandemic and the subsequent increase in the cost of living have had significant impacts on the income stability of Malaysians. This is evident from the rise in the unemployment rate from 2.3% in May 2019 to 5.3% in May 2020, as reported by the

Department of Statistics Malaysia. Despite a slight improvement, the unemployment rate remained high at 4.8% in January 2021. As a result, many individuals have experienced a decrease in their regular income due to the limited economic activities of businesses. The prevalent sense of financial insecurity among households and consumers has contributed to the growing problem of financial vulnerability.

The Malaysian economy is facing a major threat due to the steadily rising costs of raw materials and logistics, compounded by the ongoing unpredictability surrounding the COVID-19 outbreak. The unstable employment market and concerns over price increases have been identified as the key contributing factors to this situation. Although Malaysia is transitioning into an endemic phase and has reopened its borders, the path to recovery remains uncertain. It is imperative to promote radical innovation as individuals, households, and businesses endeavour to adapt and reconfigure themselves in the new endemic environment, in order to improve the outlook for the future. Financial vulnerability can arise when individuals experience a loss of employment or other significant changes in their financial circumstances, leading them to adopt unsustainable financial behaviors. This sense of exposure to financial instability occurs when individuals are unable to effectively manage their finances and cope with financial challenges (Mogaji, 2020). Acknowledging potential changes in individuals' financial behaviors is crucial, regardless of the duration, timing, or complexity of the vulnerability experienced. This is highlighted by Mogaji (2020) as an important consideration in effectively managing financial vulnerability. During times of financial stress, it is crucial to empower individuals to overcome challenges by fostering proper financial behavior. Financial vulnerability may arise as a result of unexpected income shocks, and it may recur over time. To enhance individuals' ability to navigate such situations, it is important to provide adequate financial socialization and promote proper financial behavior (Anthony et al., 2021). The impact of financial stability extends to every aspect of an individual and family's life and is a significant concern for not only low and moderate-income earners but also those belonging to the upper class.

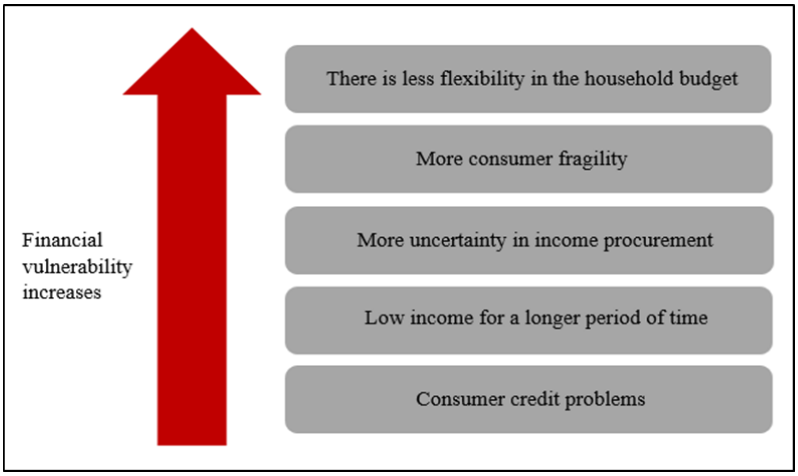

Figure 1. Factors Affecting Financial Vulnerability [Source: Van Ophem (1988, 1990)]

Based on data from the Department of Insolvency, a total of 289,064 bankruptcy cases were recorded in Malaysia between 2015 and February 2022 (refer to Table 1). Among these cases, 9,737 (21.72%) occurred among individuals aged 25-34 years old, while 16,740 (37.34%) were between the ages of 35 and 44 years old. Despite the working age population group spanning between 15 to 64 years old according to the Department of Statistics Malaysia (2022), over

9,000 bankruptcy cases occurred among youths aged 18-30 years old in Malaysia. It is important to note that emerging adults encounter a wide range of challenges in financial management, as this is a transitional phase when they first experience credit card usage, bill payment, and debt management. However, individuals of all ages may also encounter financial struggles, as evidenced by previous studies (Xiao et al., 2009; Abdullah et al., 2019).

Table 1
Number of Bankruptcy Cases by Age Group from 2018 to February 2022 [Source: Department of Insolvency (2022)]

Age Range	**Years**					**Total**	**%**
	2018	**2019**	**2020**	**2021**	**2022**		
25 years old and below	139	54	21	20	11	245	0.50
25 – 34 years old	4,139	2,603	1,741	1,060	759	10,302	20.97
35 – 44 years old	5,958	4,574	3,150	2,535	2,237	18,454	37.56
45 – 54 years old	4,022	3,087	2,211	1,802	1,630	12,752	25.95
55 years old and above	2,106	1,707	1,204	1,116	1,024	7,517	14.57
No detail	118	26	24	21	34	223	0.45
Total	**16,482**	**12,051**	**8,351**	**6,554**	**5,695**	**49,133**	**100.00**

Changes in an individual or household's financial management patterns can have implications for the financial socialization of family members. Research suggests that the effects of financial socialization experienced in childhood may be deeply ingrained (Choi et al., 2022). Jorgensen et al (2017) also previously found that financial socialization has a significant impact on an individual's financial decision-making process. The study found that individuals who had more exposure to financial socialization agents such as parents, peers, siblings, school, and media, were more likely to exhibit positive financial behavior and were less vulnerable to financial challenges. Therefore, the concept of financial socialization became an outstanding method that will prepare people with fundamental financial knowledge and boost people's confidence in dealing with financial management and decisions.

Individuals who are financially vulnerable and find it difficult to maintain good financial behavior will require support during these challenging times. They may face income delays, unexpected financial losses, and significant changes in their circumstances, and will need to persevere through these challenges. Financial vulnerability can impact individuals and families from all income brackets, not solely those with lower incomes (Magli et al., 2021). The ordered probit model has been employed in a study, which identified income, marital status, education, and financial behavior as key factors that significantly contribute to financial vulnerability (Daud et al., 2019). In line with these findings, Dr. Raymond Madden, the Chief Executive Officer of the Asian Finance Institute, stated at the International Future Global Economics Development Conference that millennials are more inclined to take on greater financial risk than previous generations. This trend is attributed to the growing complexity and diversity of financial products and markets (Madden, 2019).

In a study conducted by Hayes and Finney (2013); Khan et al (2019), to assess the impact of financial behavior on household financial vulnerability, researchers evaluated an individual's overall financial status, which took into account their past financial challenges and future financial outlook. The job layoffs that occur can have devastating consequences for individuals and their families, leading to changes in their financial behavior as they strive to cope with the precarious situation. Moreover, it is important to note that most of the existing research has focused on developed countries (Ozturk & Kilic, 2021) instead of developing countries like Malaysia. This study aims to address gaps in the current literature by examining the factors contributing to financial vulnerability in the Malaysian context, given the unique situation that has arisen. While previous research in this area has focused on youths as a sample (Jorgensen et al., 2017; Sabri et al., 2012), it is crucial to also consider young adults as they constitute a significant portion of the economically active population. As such, the study recognizes the heightened importance of investigating financial vulnerability in the young adult population.

In line with the model for family resource management, which employs the mechanism of input-throughput-output, this study aims to determine the indirect impact of inputs on outputs (Deacon & Firebaugh, 1988). Specifically, the study seeks to explore whether inadequate financial socialization and a misguided locus of control among young adults can result in poor personal finance management and increased financial risk. This study proposes that financial socialization and locus of control may impact financial vulnerability through their influence on financial behavior, highlighting the mediating role of financial behavior. Additionally, a study has shown that young adults with lower levels of education are particularly vulnerable to financial challenges, which can lead to poor money management skills (Daud et al., 2019). Therefore, this study aims to determine the extent to which education level moderates the relationship between variables, and whether it strengthens or weakens this relationship. To gain a better understanding of the current and future variables and their impact on young adults and the economy, it is important to assess the level of financial vulnerability among Malaysians before the country's cost of living began to rise. The rising cost of living has undoubtedly had a disproportionate impact on the financial well-being of Malaysians. Those who were already disadvantaged are particularly vulnerable to the unstable economic effects, which exacerbate existing inequalities and increase the likelihood of negative long-term economic and social consequences in the future. Therefore, the objectives of this study are

- To determine the relationship between Financial Socialization, Locus of Control, and Financial Behaviour towards Financial Vulnerability of Malaysian young adults.
- To determine the mediating effect of Financial Behaviour on the relationship between Financial Socialization and Locus of Control towards Financial Vulnerability of Malaysian young adults.
- To determine the moderating effect of education between Financial Behavior towards Financial Vulnerability.

Literature Review

Theoretical Background and Hypotheses Development

The present study draws on two theoretical perspectives: Ludwig von Bertalanffy's (1967) system theory and Deacon & Firebaugh's (1988) family resource management model. System Theory, which was first introduced in 1966 and has undergone refinement, divides the world into two components: the environment and the system (Luhmann, et al., 2012). The System Theory evaluates the interactions between a system and its environment by comparing the system's outputs to its outcomes or objectives. The Family Resource Management Model, developed by Deacon and Firebaugh (1988), is an extension of the System Theory and provides the foundation for the present research model (Figure 2). Previous literature in personal finance, including Hira (2012); Mimura (2014), has recognized and supported the model. The model's three primary components, input, throughput, and output, are explained to demonstrate how a family plans and uses resources to meet the demands of the consumption process.

Van Campenhout (2015); Xiao (2008) emphasized that comprehending financial decision-making and its outcomes necessitates taking into account these three components. In a recent study, the authors proposed and tested a mediation model which demonstrated that financial behavior, financial socialization, and financial vulnerability are all interrelated, and that understanding financial decision-making and its outcomes necessitates considering all three components (Dari et al., 2021). According to Deacon & Firebaugh (1988), the concept of the Family Resource Management Model consists of three fundamental components. The first component, input, refers to resources that an individual possesses, including their skills and knowledge. The second component, throughput, refers to the process of planning and taking action to achieve desired goals. Lastly, the third component, output, pertains to the outcomes of the planning and action taken, which provides individuals with an overall impression of whether or not the goal has been achieved. The current study adopts the Family Resource Management Model, with Financial Socialization and Locus of Control serving as input, Financial Behavior as throughput, and Financial Vulnerability as output. By utilizing this model's input-throughput-output sequential process, this study aims to determine the inter-relationships between Financial Socialization and Locus of Control, Financial Behavior, and Financial Vulnerability, while also exploring the influence of education level.

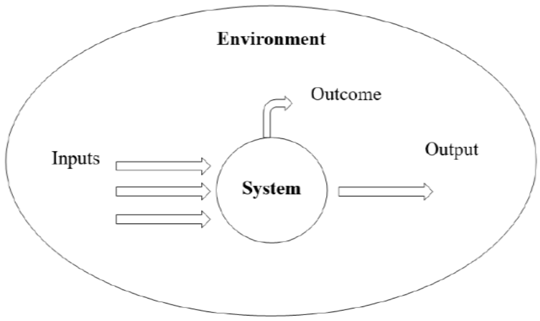

Figure 2. Illustration of System Theory (Deacon & Firebaugh, 1988)

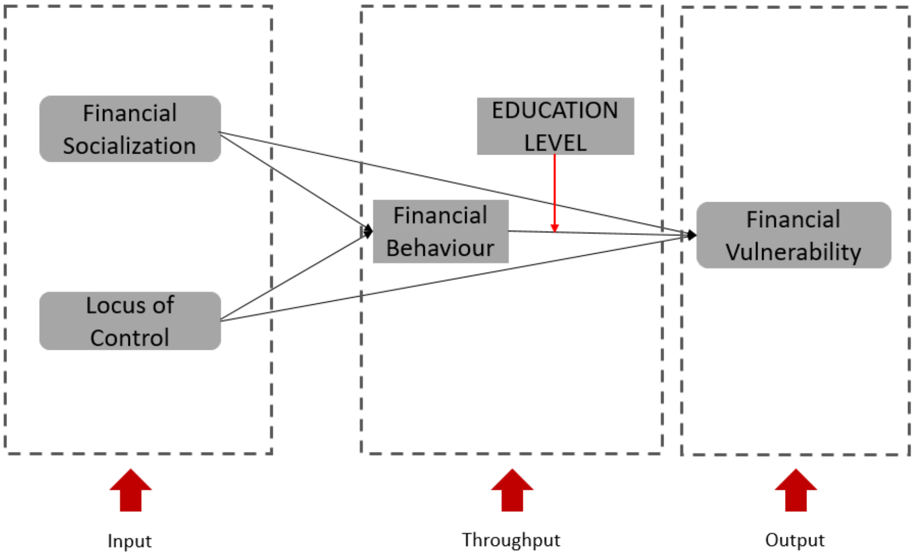

Figure 3. Illustration of System Theory in the Conceptual Framework (Deacon & Firebaugh, 1988)

Financial Vulnerability

Financial vulnerability is a widespread issue affecting individuals and families across all income levels, as demonstrated by research conducted by Magli et al (2021) which found that vulnerability to financial harm affects people of all socioeconomic backgrounds. According to data from the Department of Insolvency (2020), there were 299,186 recorded bankruptcy cases from 2015 to 2019 in Malaysia, indicating a significant issue with financial stability. The situation is even more concerning among Malaysian youth, as a high proportion of bankruptcy cases recorded in 2018 were attributed to high credit card debt among this group. These findings highlight the urgent need to address financial vulnerability among the younger generation, particularly in the context of Malaysia's current economic challenges. The inability to sustain debt made of installment purchases, personal loans, and credit card debt highlights the importance of financial management skills among Malaysian youth.

As emerging adults, they are faced with numerous responsibilities, commitments, and roles that require them to be more conscientious with their actions, including managing their money effectively. The lack of financial literacy among youth in Malaysia has been identified as a significant contributing factor to financial vulnerability (Daud et al., 2019). This emphasizes the need for financial education and socialization at an early age to equip young people with the necessary skills and knowledge to make informed financial decisions and avoid falling into financial hardship. This finding aligns with previous research conducted by, Chong et al (2021); Nga and Yeoh (2015); Rossow and Rise (1993); Tesfaw and Yitayih (2018) who noted that significant behavioral changes occur during the emerging adulthood stage of life, making them particularly vulnerable to changes in the economy. During this phase, individuals are confronted with various new responsibilities, such as pursuing higher education, finding employment, and starting a family. These changes require a significant amount of financial management, including managing student loans, paying bills, and balancing other financial obligations. However, due to the lack of financial knowledge and experience, emerging adults may struggle to manage their finances effectively, leading to increased financial vulnerability.

Financial Socialization

Financial socialization is an essential aspect of individual financial management, particularly among young adults. Sundarasen et al (2016) defined financial socialization as a measure of an individual's engagement in financial education, which is influenced by various factors such as parental guidance, peer influence, education, and media exposure. Previous studies have emphasized the significance of parental financial socialization in shaping the financial behavior of children and young adults (Lanz et al., 2020; Rea et al., 2019; Tang et al., 2015). These studies highlight the importance of early financial education and the role of parents and other socialization agents in cultivating healthy financial habits among young adults, which can have a significant impact on their financial vulnerability and overall financial well-being in the long run. Several studies have highlighted the importance of parental financial socialization in shaping the financial behavior of their children. For instance, Lanz et al (2020) found that parents who engage in discussions about finances with their children have a positive impact on their children's financial knowledge and behavior. Moreover, Rea et al (2019) found that parental involvement in children's financial education is associated with more positive financial attitudes and behaviors. Tang et al (2015) also found that parents' financial socialization has a long-term impact on their children's financial behavior in adulthood. Despite the positive influence of parental financial socialization, some researchers have noted that young people may deviate from the financial values they learned from their parents as they gain personal financial experience (Beutler et al., 2019; Shim et al., 2010). Nonetheless, it is crucial for parents to instil good money management values and beliefs in their children, as it can have a positive impact on their long-term financial well-being. Financial socialization by parents has also been proven to influence young adults' financial behaviour, and financial well-being (Kim & Chatterjee, 2013). This study considered parents as young adults' major financial socialization agents. Accordingly, the following hypothesis was proposed:

H_1. *Financial socialization significantly affects financial vulnerability.*

Locus of Control

Locus of control is a psychological construct that refers to an individual's perception of their ability to influence the events and outcomes of their life (Magli et al., 2021; Spector et al., 2002). Those with an internal locus of control attribute their success to their own abilities and efforts, while those with an external locus of control attribute their success or failure to external factors beyond their control, such as luck or chance (Cappelen et al., 2020; Churchill & Smyth, 2021; Schultz & Schultz, 2016). Locus of control has been found to be a significant factor in shaping financial behavior, with individuals with an internal locus of control being more likely to exhibit responsible financial behavior and less likely to experience financial difficulties compared to those with an external locus of control (Furnham & Cheng, 2017; Lown & Mire, 2014; Tang et al., 2015). However, individuals with a strong external locus of control tend to have a higher level of financial vulnerability, which could lead to decreased well-being in response to stressors (Galvin et al., 2018; Hampson et al., 2021). On the other hand, those with a strong internal locus of control may be overly influenced by others in their financial decision-making, making it more difficult for them to effectively manage their money and potentially increasing their exposure to financial vulnerability. This highlights the importance of finding a balance between internal and external locus of control when it comes to financial decision-making. In view of this, we proposed to test the following hypothesis:

H$_2$. *Locus of control significantly affects financial vulnerability*.

Mediation Effect of Financial Behaviour

Maintaining good financial behavior is important for individuals, regardless of their income level. This includes activities such as budgeting, controlling cash flow, making a spending plan, paying bills on time, managing credit, and planning for retirement. On the other hand, engaging in risky financial behaviors such as unnecessary spending and borrowing money can make individuals more vulnerable to financial hardship, especially when their debt load increases. As highlighted by Fei et al (2020), such behaviors can lead to financial vulnerability and harm. It is essential to note that financial vulnerability affects all people and families, not just those in lower-income brackets. A study by Magli et al (2021) emphasized that being vulnerable to financial harm is a significant concern for everyone. Another study by Daud et al (2019) found that income, marital status, education, and financial behavior all play a significant role in determining an individual's financial vulnerability. Given the significance of financial behavior in determining financial vulnerability, it is crucial for policymakers to develop strategies and initiatives that promote good financial habits from an early age. This includes educating children and young adults on the importance of saving, emergency funds, avoiding unsecured loans, and making responsible financial decisions. Such education can be delivered through interactions with parents, schools, and community organizations. The utilization of technology, FinTech, and social media platforms can also help in educating and encouraging good financial behavior among young adults (Bartholomae & Fox, 2021; Shim et al., 2009).

Young adults can learn important financial skills from their parents through various methods, such as verbal education, participation in financial behaviours, and implicit observation. Studies have suggested that young adults who receive financial education from their parents and witness responsible financial behaviour are more likely to pay their bills on time, have a budget in place, and actively save for the future (Ameliawati & Setiyani, 2018; Yong et al., 2018). Moreover, an individual's financial behaviour is influenced by their locus of control, where individuals with a higher internal locus of control tend to exhibit more responsible financial behaviour. This is because they are believed to possess greater self-control, better money management skills, and the ability to resist outside influence and motivation, as well as the capacity to complete challenging tasks (Arifin & Anastasia, 2017).

Studies have shown that individuals with a high external locus of control are more likely to exhibit irresponsible financial behavior, as they tend to attribute their financial success or failure to external factors such as chance or other people. This is in contrast to individuals with a high internal locus of control who are more likely to take personal responsibility for their financial decisions and outcomes (Kreitner & Kinichi, 2003; Kresnayana et al., 2020). Furthermore, it has been suggested that millennials are more prone to taking financial risks than earlier generations due to the increasing complexity and diversity of financial products and markets. Raymond Madden, the Chief Executive Officer of the Asian Finance Institute, has noted this trend in a speech at the International Future Global Economics Development Conference (Wong et al., 2018). The rise of financial technology and social media has also increased millennials' exposure to various financial products and information, which may further contribute to their willingness to take on financial risks. Overall, these findings suggest that an individual's locus of control and generation can play a role in their financial behavior and vulnerability to financial harm. It is important for individuals to develop a strong internal locus of control and financial literacy skills to make informed and responsible financial decisions. Moreover, policymakers and financial institutions should continue to develop and promote financial education initiatives that target different age groups and demographics, including millennials, to improve their financial outcomes and reduce their vulnerability to financial harm. Accordingly, the following hypothesis was proposed

H$_3$ *: Financial socialization significantly influences financial behaviour.*
H$_4$ *: Locus of control significantly influences financial behaviour.*
H$_5$ *: Financial behaviour mediates the relationship between financial socialization and financial vulnerability.*
H$_6$ *: Financial behaviour mediates the relationship between locus of control and financial vulnerability.*

Moderation Effect of Level of Education

Baker et al (2018) found that higher levels of education and specific types of education are correlated with higher intelligence, particularly in terms of learning capacity. This finding is supported by a study by Beatrice et al (2021), which stated that individuals with higher levels of education are likely to have a better understanding of various financial matters. According to Baker et al (2018), the combination of education, intelligence, and learning through experience allows for a more detailed understanding of how different abilities affect behavioral tendencies. This is significant because it enables us to identify the factors that influence financial behavior in a level of detail that was not possible in the past.

Grohmann et al (2015) concluded that financial literacy and school-related variables have a direct effect on financial behavior, emphasizing the importance of education in shaping financial decision-making. In addition, cognitive resources, including awareness of the positives and negatives of one's financial situation and the ability to use knowledge and technology to improve financial well-being, were found to be crucial factors influencing financial behavior (Ghazali et al., 2022; Gudmunson & Danes, 2011; Sabri et al., 2012). Having a higher level of education provides individuals with a more realistic understanding of the consequences of their financial decisions, enabling them to make healthier financial choices. Khan et al (2020) support this argument, highlighting that financial behavior is negatively associated with gender and education. Furthermore, education increases cognitive capacity, which can assist individuals in acquiring financial knowledge and engaging in financially responsible behavior.

Overall, these findings indicate that education plays a critical role in shaping financial behavior and decision-making, highlighting the need for financial education programs in schools and universities to equip individuals with the necessary knowledge and skills to manage their finances effectively. Based on these literatures, the following hypotheses could be formulated:

H$_7$ *: Education level moderates financial behaviour towards financial vulnerability.*

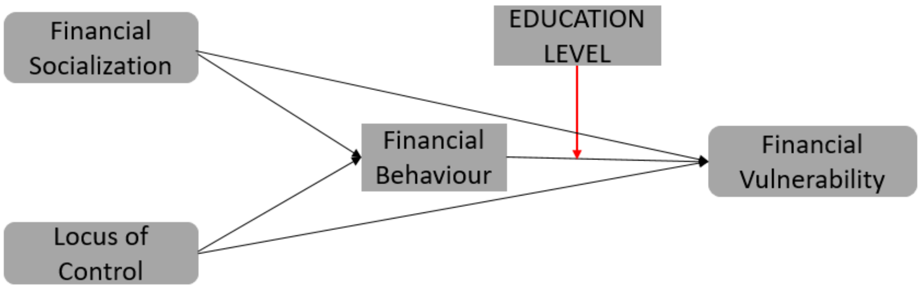

Figure 4. Conceptual framework

Methodology
Sampling

The sample of this study consists of young adults in Malaysia aged between 20-40 years old. Referring to G-power analysis, with an alpha value of 0.05 and a magnitude power of 0.95, the appropriate number of samples to run a path analysis is 153 respondents. However, having a larger sample size is not a concern, as Mohammad Najib (1999) has emphasized that a larger sample size can enhance the reliability and validity of a study. Therefore, the researcher collected data from a total of 1002 adult respondents from public sectors and private sectors using multi-stage sampling. The researcher spent a total of four months from March to June 2021 to complete the data collection process for the study. To collect data from the public sector, the researcher distributed questionnaires to the Ministry of Youths & Sports Malaysia offices in five zones across Malaysia, namely Central, Southern, Northern, Eastern, Sabah & Sarawak. The distribution of questionnaires to the private sector young adults was carried out at public events, including education fairs and home exhibitions, in five zones across Malaysia. The data collection process was facilitated by the corporate communications unit of the Ministry of Youths & Sports Malaysia. To ensure a representative sample, the required number of samples for each zone was proportionally divided among the five states. Peninsular Malaysia was divided into five zones: North (comprising Kedah, Perlis, and Penang), South (including Melaka, Johor, and Negeri Sembilan), East (consisting of Terengganu, Pahang, and Kelantan), West (comprising Perak, Selangor, and Wilayah Persekutuan), and East Malaysia (encompassing Sabah and Sarawak). After dividing Peninsular Malaysia into five zones, one state was chosen at random from each zone through a ballot. As a result, Kedah was selected for the North zone, Johor for the South zone, Terengganu for the East zone, Perak for the West zone, and Sabah for the East Malaysia zone. Self-administered questionnaires were utilized to collect data as it allows respondents to complete the task without being interrupted by researchers, making it a preferred method of data collection. Respondents were expected to take approximately 20 minutes to complete the questionnaire, and the completed questionnaire was collected once they had finished answering the questions. Descriptive analysis and path analysis were conducted to describe the demographics of the respondents and test the proposed hypotheses. The researcher utilized the Partial Least Square (PLS-SEM) approach in Structural Equation Modeling to account for the relationships among multiple variables. The primary objective of PLS-SEM is to assess the extent to which a proposed theoretical model can accurately estimate the covariance matrix of a sample dataset, as well as its ability to explain the variance in endogenous variables when examining the model. According to Hair and Ringle (2011), PLS-SEM is the most suitable analytical approach for examining the relationships between independent, mediator, moderator, and dependent variables by measuring direct and indirect paths. In addition, PLS-SEM is the most appropriate analytical approach for conducting the present study as highlighted by Henseler et al (2009); Hair et al (2013) since this study framework introduces new variables to existing theories.

Data Measurement

The questionnaire is comprised of questions related to the respondents' demographic information and socioeconomic backgrounds, as well as their financial socialization, locus of control, financial behavior, and financial vulnerability. To measure financial socialization, the researcher adapted ten items from (Manfrè, 2017; Lanz et al., 2019). The Cronbach's Alpha reported for these items was 0.791, indicating good internal consistency. The measurement of locus of control in this study was based on the items adapted from Sumarwan and Hira's (1993) questionnaire, which assesses the belief of individuals in their control over situations. The questionnaire included both internal and external locus of control items. The questions in the questionnaire were assessed using a four-point Likert scale, with responses ranging from "Strongly Disagree" (1) to "Strongly Agree" (4). The Cronbach's Alpha value for the items was reported as 0.83. To measure the financial behavior of the young adult group, a set of 10 statements was adapted from Kapoor et al (2001) financial behavior item. The participants were asked to rate each statement on a four-point Likert scale, with 1 indicating Strongly Disagree and 4 indicating Strongly Agree. The reliability of the instrument was assessed by computing Cronbach's Alpha, which was found to be 0.781. The measurement for financial vulnerability was adapted from Anderloni et al (2012), wherein financial vulnerability is defined as the incapability of B40 households to fulfill their household needs, cope with unforeseen expenses, and survive during crisis situations. It is also linked to challenges in maintaining financial commitments and consumption, leading to the possibility of default. The 10 statements used for measuring financial vulnerability were evaluated on a four-point Likert scale, ranging from 1 (never) to 4 (very frequent/always), with a reported Cronbach's Alpha of 0.845, adapted from (Magli et al., 2021). In assessing the content and face validation of an instrument, the focus is primarily on the material covered, the accuracy of the phrasing used in the questionnaire, and the adequate number of items sampled to measure the construct (Ary et al., 2010). For this particular study, two review experts from the ethics committee boards were selected to evaluate the content validity of the items, including their clarity and readability.

Results and Discussion

Profile of Respondents

Table 3 displays the demographic characteristics of the young adult participants involved in the study. The majority of the participants (47.5%) were aged between 20-25 years old, with a higher representation of females (66.4%) compared to males. The majority of the participants were of Malay ethnicity (76.3%) and unmarried (65.1%). Additionally, the vast majority of the participants (86.3%) had completed tertiary education, indicating that they had achieved at least a diploma or degree. This finding highlights the issue of unemployment among young adults in Malaysia, which is a growing concern for the country's economy and the future workforce. Despite a significant proportion of the respondents having tertiary education, the data shows that over 41.8% of them are currently unemployed and have no income. This finding highlights the difficulty that young adults in Malaysia face in securing employment despite possessing higher education qualifications. It indicates that having a tertiary education may not necessarily guarantee employment opportunities, and other factors such as job market demands, skills mismatch, and economic conditions could be influencing unemployment rates among young adults reflects the demographic characteristics of young adults in Malaysia. This ensures that the study results can be generalized to this particular group.

Table 3
Descriptive Analysis

Variable	Frequency	Percentage (%)
Age Group		
< 20	33	3.3%
20-25	476	47.5%
26-30	169	16.9%
31-35	167	16.7%
36-40	157	15.7%
Gender		
Male	337	33.6%
Female	665	66.4%
Ethnicity		
Malay	765	76.3%
Chinese	92	9.2%
Indian	99	9.9%
Bumiputera Sarawak	10	1%
Bumiputera Sabah	29	2.9%
Others	7	0.7%
Marital Status		
Single	655	65.1%
Married	324	32.5%
Divorced	16	1.6%
Widow/ Widower	7	0.7%
Level of Education		
Secondary Education	137	13.7%
Tertiary Education	865	86.3%
Income		
No Income	419	41.8%
Less than RM2,500	212	21.2%
RM2,501-RM3,170	109	10.9%
RM3,171-RM3,970	55	5.5%
RM3,971-RM4,850	62	6.2%
RM4,851-RM5,880	55	5.5%
RM5,881-RM7,100	38	3.8%
RM7,101-RM8,700	28	2.8%
RM8,701-RM10,970	17	1.7%
RM10,971-RM15,040	7	0.7%

Measurement Model

Table 4 presents the Cronbach Alpha (CA) and composite reliability (CR) results for the Financial Socialization (FS), Locus of Control (LOC), Financial Behaviour (FB), and Financial Vulnerability (FV) constructs. The reported CA and CR values, which were 0.923 and 0.928 for FS, 0.844 and 0.848 for LOC, 0.834 and 0.842 for FB, and 0.856 and 0.861 for FV, respectively, were considered acceptable as they exceeded the minimum threshold of 0.7 recommended by Hair and Ringle (2011). To evaluate convergent validity, the researcher also computed the average variance extracted (AVE) values, which were 0.723 for FS, 0.618 for LOC, 0.602 for FB, and 0.698 for FV. All AVE values exceeded the recommended threshold of 0.5 suggested by (Henseler et al., 2016). To assess discriminant validity, the Fornell-Larcker criterion and heterotrait-monotrait ratio (HTMT) were utilized (Fornell & Larcker, 1981). The Fornell-Larcker test indicated that the values were greater than the intervariable correlations. Additionally, the HTMT values in Table 5 were all below the threshold of 0.85 recommended by (Kline, 2011). These results indicate that the reflective measurement model has satisfactory levels of reliability, convergent validity, and discriminant validity.

Table 4
Measurement Model

Constructs	Loadings	α	Rho_A	CR	AVE
Financial Socialization (FS)					
E2	0.776				
E3	0.857				
E7	0.789	0.923	0.928	0.940	0.723
E8	0.893				
E9	0.904				
E10	0.873				
Locus of Control (LOC)					
G2	0.764				
G7	0.734				
G15	0.723	0.844	0.848	0.889	0.618
G16	0.854				
G17	0.846				
Financial Behaviour (FB)					
F1	0.739				
F3	0.755				
F4	0.820	0.834	0.842	0.883	0.602
F9	0.733				
F10	0.829				
Financial Vulnerability (FV)					
J7	0.864				
J8	0.856	0.856	0.861	0.902	0.698
J9	0.832				
J10	0.788				

Note: Average variance extracted (AVE); Cronbach's alpha (CA); Composite Reliability (CR)

Table 5
Fornell-Larcker & HTMT (Heterotrait-Monotrait ratio)

	Fornell-Larcker Criterion				Heterotrait-Monotrait Ratio (HTMT)			
Construct	**FB**	**FS**	**FV**	**LOC**	**FB**	**FS**	**FV**	**LOC**
FB	0.776							
FS	0.556	0.850			0.626			
FV	0.258	0.167	0.836		0.301	0.180		
LOC	0.616	0.447	0.244	0.786	0.724	0.499	0.284	

Note: Financial Socialization (FS); Locus of Control (LOC); Financial Behaviour (FB); Financial Vulnerability (FV)

Assessment of Structural Model
The structural models aim to evaluate how well the empirical data supports the underlying concept of the path model used in the research framework. It helps researchers to test the suggested relationships among the constructs. In PLS-SEM, the structural model is evaluated based on several criteria, including collinearity issues assessment (Step 1), path coefficients' significance (Step 2), R^2 value level (Step 3), f^2 effect size (Step 4), and predictive relevance (Q^2) (Step 5). The structural model in this study was evaluated using 5000 bootstraps. Results from Table 6 show that all constructs in the structural model had VIF values ranging from 1.031 to 6.246. These values are well below the recommended threshold of <10 considered acceptable to indicate that there is no significant collinearity (Hair et al., 2017). Table 7 presents the results of the path analysis conducted in this study, indicating the significance of the path coefficients for all constructs. The findings revealed that Financial Socialization (FS) and Locus of Control (LOC) had a positive effect on Financial Behavior (FB) with path coefficients of $\beta=0.351$ ($p<0.01$) and $\beta=0.433$ ($p<0.01$), respectively. Moreover, the results indicated a positive and significant relationship between Financial Behavior (FB) and education (EDU) towards Financial Vulnerability (FV), with path coefficients of $\beta=0.217$ ($p>0.05$) and $\beta=0.235$ ($p>0.05$), respectively.

Table 6
Variance Inflation Factor (VIF) of all constructs

Exogenous Variables	Financial Behaviour	Financial Vulnerability
Education		6.246
Financial Behaviour		
Financial Socialization	1.250	1.031
Locus of Control	1.250	6.206

Table 7
Path Coefficient Result (Direct Effect)

Relationship	Beta	Standard Error	t values	p values	Result
FS→FB	0.351	0.034	10.363	0.000	Significant
LOC→FB	0.433	0.030	15.150	0.000	Significant
FB→FV	0.217	0.081	2.684	0.007	Significant
EDU→FV	0.235	0.102	2.290	0.022	Significant

According to the findings in Table 8, the R^2 value for Financial Behavior (FB) was 0.477, indicating that Financial Socialization (FS) and Locus of Control (LOC) explained 47.7% of the variance in Financial Behavior (FB). Additionally, the R^2 value for Financial Vulnerability was 0.069, indicating that Financial Socialization (FS), Locus of Control (LOC), and Financial Behavior (FB) explained only 6.9% of the variance in Financial Vulnerability (FV). In term of effect size, it can be observed that education (EDU) and financial behaviour (FB) have no effect on financial vulnerability (FV), as the f^2 was recorded at 0.006 and 0.008, which is less than 0.02. Meanwhile, financial socialization (FS) and locus of control (LOC) indicate medium effect on financial behaviour (FB) with 0.189 and 0.323 f^2 recorded respectively as f^2 values is between 0.15 to 0.35. The Q^2 values of Financial Behavior (FB) and Financial Vulnerability (FV) were found to be 0.284 and 0.002, respectively. These values suggest that the research model has good predictive relevance, as both Q^2 values are greater than zero.

Table 8
Indices of structural model

Relationship	Coefficient Determination (R^2)	Effect size (f^2)	Predictive relevance
EDU →FV FB→FV	0.069	0.006 0.008	0.022
FS→FB LOC→FB	0.477	0.189 0.323	0.284

Note: Financial Socialization (FS); Locus of Control (LOC); Financial Behaviour (FB); Financial Vulnerability (FV)

In this research, financial behaviour (FB) is hypothesised to mediate the relationship between financial socialization (FS) and locus of control (LOC) on financial vulnerability (FV). The outcomes of the bootstrapping procedure for the indirect effects are presented in Table 9. The indirect effect of the bootstrapping analysis revealed that financial behaviour (FB) mediate the relationship between financial socialization (FS) and locus of control (LOC) on financial vulnerability (FV) with $\beta = 0.078$ and $\beta = 0.100$ respectively. The indirect effect of 0.078, 95% Boot CI: [LL= 0.020, UL = 0.139] shall not straddle a zero in between indicating that financial behaviour (FB) positively mediates the relationship between financial socialization (FS) on financial vulnerability (FV). The indirect effect of 0.100, 95% Boot CI: [LL= 0.027, UL = 0.175] shall not straddle a zero in between indicating that financial behaviour (FB) positively mediates the relationship between locus of control (LOC) on financial vulnerability (FV). Meanwhile, the moderating effect education (EDU) did not show any significant difference between Financial Behavior (FB) towards Financial Vulnerability (FV) (Table 10).

Table 9
Mediating Effect Result (Indirect Effect)

Relationship	Beta	Standard Error	95% Bias Corrected Confidence Interval		t values	p values	Decision	Mediation
			LL	UL				
FS→FB→FV	0.078	0.030	0.020	0.139	2.536	0.011	Significant	Partial
LOC→FB→FV	0.100	0.037	0.027	0.175	2.672	0.008	Significant	Partial

Note: Financial Socialization (FS); Locus of Control (LOC); Financial Behaviour (FB); Financial Vulnerability (FV)

Table 10
Moderating Effect Result

Relationship	Beta	Standard Error	t values	p values	Result	Effect size
FB*EDU→ FV	0.001	0.001	0.031	0.027	Not Significant	0.000

Note: Financial Behaviour (FB); Financial Vulnerability (FV)

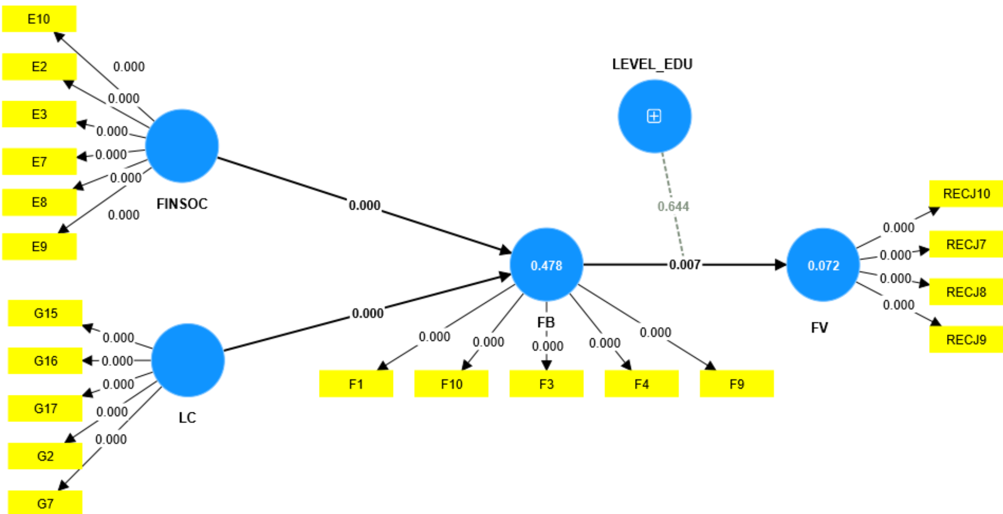

Figure 5. Results of the structural model with Financial Socialization (FINSOC), Locus of Control (LC), Financial Behaviour (FB), Education (LEVEL_EDU), and Financial Vulnerability (FV) constructs

Discussion
This study aimed to determine the factors that contribute to financial vulnerability among young adults in Malaysia. Specifically, it examined the role of financial socialization and locus of control as predictors of financial vulnerability, with financial behavior acting as a mediator between the two predictors and financial vulnerability. Additionally, the study explored the extent to which level of education moderates the relationship between financial behavior and financial vulnerability. The results of the study revealed a significant relationship between financial socialization and locus of control with financial behavior. This indicates that the

financial behaviors of young adults are influenced by their financial socialization experiences and their beliefs about their ability to control their financial outcomes. Furthermore, the findings suggest that financial behavior mediates the relationship between financial socialization and locus of control with financial vulnerability, highlighting the importance of fostering positive financial behaviors to mitigate financial vulnerability. Additionally, the study findings indicate that level of education moderates the relationship between financial behavior and financial vulnerability, suggesting that higher education levels may strengthen the relationship between financial behavior and lower financial vulnerability. This underscores the importance of financial education and the potential benefits it can have in reducing financial vulnerability among young adults.

As noted in the study by Chong et a. (2021), families and educational institutions should encourage young people to save and teach them to avoid impulsive and unnecessary spending. Therefore, it is recommended to implement financial education programs that involve both parents and young people, providing them with standardized information and comparison tools for financial products (Moreno-Herrero et al., 2018). This approach can help to improve financial literacy and ultimately contribute to better financial decision-making and management. Additionally, financial institutions and policymakers could also play a significant role in providing financial education and resources to help individuals develop their financial skills and knowledge, particularly for vulnerable populations such as young adults with low levels of education. It is possible for parents to have more effectiveness in guiding their children to place a larger value on accomplishment and to adopt a constructive and responsible attitude with regard to money concerns if they lay an emphasis on the development of strong self-actualizing values. On a further note, the multiple roles that parents can play (as financial educators) imply that they should begin discussing and modelling appropriate money management habits while their children are growing up at home.

Through the analysis, there is also an evidence of Financial Behaviour significantly associated with Financial Vulnerability. Furthermore, Financial Socialization and Locus of Control also demonstrate a significant relationship with Financial Vulnerability. The existence of Financial Behaviour transforms the nature of the relationship into one that is essential. Likewise, it is possible to draw a conclusion from the many Locus of Control interpretations, and that is that if an individual has a high internal locus of control, then that individual will be more responsible in his or her financial behaviour. Individual is perceived as being more competent at controlling themselves, handling financial matters, not being unduly influenced by other people, being more driven, and being more capable of performing difficult tasks than an individual with a lower locus of control (Arifin & Anastasia, 2017). Kholila and Iramani (2013) claim that a person's sense of locus of control has a favourable impact on their financial behaviour. While this is going on, Perry and Morris (2005) also previously found that a consumer's locus of control has an effect on their spending behaviour. When a person has a greater locus of control, their financial behaviour improves because they are believed to value their income more profoundly and seek to practise excellent financial management. These outputs are in line with the findings of three previous research that were carried out by (Arifin, 2017; Kholila and Iramani, 2013; Perry and Morris, 2005).

This study also has several notable findings, where level of education had an insignificance in predicting the impact of young adults' financial behaviour on financial vulnerability. It is possible that this is the result of inclusive and egalitarian educational practices in Malaysia. According to Nurul-Awanis et al (2011), Malaysia is continuously putting effort into human capital development for the twenty-first century by way of holistic and integrated education. This is because Malaysia aspires to become a knowledge economy. Moreover, in the current precarious economic climate, the idea of vulnerability doesn't belong to which group belongs. It doesn't matter if the young adult is within the B40 (low income group) or T20 (high income group); if they have good behaviour, they are able to avoid falling into the vulnerable category. This brings us to the conclusion that a person's behaviour is crucial, and it doesn't matter where they lie on the age spectrum. Not to mention, policymakers also can develop strategies and initiatives that encourage parents to have frequent interaction with their children about financial matters throughout childhood. Topics that can be covered include the significance of savings, the necessity for having emergency funds, the need to avoid unsecured loans, and the impulse to make unplanned purchases (Khalisharani et al., 2022). Moreover, students should be motivated to begin saving money and making investments so that they can develop healthy financial habits and ensure a secure financial future for themselves. It is likely that the decisions that young adults make in the future will be influenced by the financial behaviours that they learn during these years as a result of advances in technology, the usage of Fintech, and social media (Bartholomae & Fox, 2021; Shim et al., 2009).

Conclusion and Implications

The results of this study indicate that there is a significant negative relationship between Financial Socialization and Locus of Control on Financial Vulnerability of young adults in Malaysia, with Financial Behaviour as a mediator. These findings suggest that young individuals in Malaysia need to develop healthy financial behaviour in order to manage their finances more equitably. Overall, this study provides valuable insight into the importance of financial education and awareness among young adults in Malaysia. Young adults need to take responsibility for their own financial management to avoid vulnerability, despite the influence of internal and external factors. The combination of external influence or education from family and friends with one's behaviour plays a role in determining a person's financial vulnerability. It is important to educate young adults on the importance of tracking expenses and developing saving habits. Therefore, when assessing an individual's level of financial vulnerability, their behaviour should be considered in conjunction with factors such as financial socialization and locus of control. To promote a sense of accountability in managing one's financial resources, it is crucial for organizations to not consider gender differences or educational levels. Financial vulnerability should be comprehended by all individuals, regardless of their gender or level of education, since everyone is susceptible to financial exploitation. The results of our study highlight the significance of Financial Behaviour in reducing Financial Vulnerability. Initially, Financial Socialization and Locus of Control were not considered significant factors, but our findings suggest that Financial Behaviour plays a crucial role in shaping one's vulnerability towards financial problems. Although Financial Behaviour is crucial, it is important not to overlook the impact of Financial Socialization and Locus of Control in young adults in Malaysia. These factors should be considered alongside Financial Behaviour to achieve the desired outcomes. The interplay between Locus of Control and Financial Socialization has a significant impact on an individual's financial behaviour. Parents play a crucial role in ensuring that their children have access to safe, experiential learning opportunities outside of the classroom, which in turn shapes their financial behaviour. Thus, it can be inferred that the individual's financial behaviour is influenced by a combination of their Locus of Control and Financial Socialization.

Financial education has numerous benefits for society as a whole. Both formal financial education through classroom instruction and informal financial education within the family setting can contribute to increasing individuals' levels of financial literacy. As such, parents who are knowledgeable about financial management can provide a conducive environment for their children to acquire financial knowledge and skills. Parents play an essential role in providing the appropriate financial learning environment for their children. By modelling good financial behaviour, discussing financial matters, and involving their children in financial decision-making, parents can help their children develop healthy financial habits and skills. Additionally, social media has a significant impact on young adults, and parents must monitor the environment and the external influences that their children may encounter. The impact of social media on young adults cannot be ignored, and parents must be aware of the potential external influences that their children may face. Social media can create unrealistic financial expectations and promote impulsive spending habits, leading to financial vulnerabilities. It is also essential for parents to monitor the impact of external influences, particularly from social media, to ensure that their children are equipped with the necessary financial knowledge and skills to navigate the financial world. Through financial education, individuals can become more knowledgeable and empowered to make informed financial decisions, avoid financial vulnerabilities, and achieve financial stability. Formal financial education in schools and universities can teach fundamental financial concepts, such as budgeting, saving, and investing, while informal financial education within the family setting can provide practical financial experiences that young adults can learn from.

In conclusion, the financial vulnerability of young adults in Malaysia is a cause for concern as it may lead to negative long-term financial consequences. It is crucial for the government to take action in promoting financial education in schools and educational institutions, including financial topics in their curricula. This will not only equip young adults with the necessary financial knowledge and skills but also help reduce their financial vulnerability. Overall, it is important to address financial vulnerability among young adults in Malaysia to ensure their future financial security and prosperity.

Limitation and Future Research
As with any research, there are limitations that apply to the current study. Firstly, the data collection was straddled with the COVID-19 pandemic and endemic period, which was identified as having more financial and psychological pressure. It might be ideal to study the determinants of Malaysian youths' financial vulnerability during less stressful times as well. A second limitation is that the study also presents results from a cross-sectional analysis, thus restricting its capacity to infer causation. Therefore, future studies are also encouraged to conduct longitudinal research in order to analyse the influence of the factors revealed in this analysis.

Acknowledgement
This study was funded jointly by University Putra Malaysia (UPM-STIAMI/2020/9300468), STIAMI ILOMATA (019/LN/LAPP/X/2020) – Determinants of Financial Empowerment among Millennial University Students: Cross Country Evidence) and by the Geran Putra Universiti

Putra Malaysia (UPM/800/2/2/4-Geran Putra – The Influence of Personal Finance and Psychological Factors on Financial Health among Malaysian Millennial Youth).

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