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The Effect of Mental Accounting and Heuristics on Financial Behavior with Self-Efficacy as Moderator

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Abstract. *This study aims to analyze the effect of mental accounting and heuristics on financial behavior, with self-efficacy as a moderating variable in Insan Corporation Manado employees. This research is motivated by the empirical phenomenon that the majority of employees show financial behavior that does not reflect the principles of good financial management, such as the tendency to make impulsive purchases, lack of budget planning and the dominance of emotional decisions. The method used is a quantitative approach with survey techniques using online questionnaires (google form) distributed to 131 respondents. Data analysis was carried out using Structural Equation Modeling - Partial Leas Squares (SEM-PLS). The results showed that mental accounting has a positive and significant influence on financial behavior with a sig. value of 0.000, as well as heuristics have a positive and significant influence on financial behavior with a sig. value of 0.000. Furthermore, self-efficacy is proven to positively and significantly moderate the relationship between mental accounting and financial behavior (sig. value of 0.045), and negatively moderate the relationship between heuristics and financial behavior (sig. value of 0.043). Thus, it can be concluded that mental accounting and heuristics play a significant role in shaping employees' financial behavior, while self-efficacy is the main psychological factor that can strengthen or weaken their influence. A person's level of confidence in managing their finances plays an important role in encouraging more adaptive and rational financial behavior.*

Keywords: *Mental Accounting, Heuristic, Self-Efficacy, Financial Behavior, SEM-PLS*

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INTRODUCTION

Financial behavior has become a strategic issue in the context of training productive human resources, along with the increasing complexity of financial decision-making in the modern era. Financial behavior reflects the extent to which individuals can effectively manage, plan and evaluate their financial conditions. However, the reality on the ground shows that increasing income is not necessarily followed by rational financial behavior. As stated by **(**Shi et al., 2025; Abdallah et al., 2025).

Income individuals actually show a tendency to consumptive behavior, lack of financial planning and lack of discipline in saving and recording expenses (Shih & Ke, 2014). This phenomenon is also seen in the context of workers in private institutions in Manado City, where most respondents do not have systematic financial management habits. This condition indicates a mismatch between adequate earning capacity and actual financial management behavior (Oskouei & Sureshjani, 2021; Abrigo & Ferrer, 2016; Rashid et al., 2016).

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Theoretically, financial behavior can be explained through the behavioral finance approach which emphasizes the importance of psychological factors in influencing financial decision making. An important variable is mental accounting, which is the tendency of individuals to classify money according to certain categories in a "mental account: (Thaler, 1999). Studies by Faizal et al. (2025) show that mental accounting has a significant influence on financial behavior, especially in grouping and spending control.

On the other hand, heuristics are cognitive strategies that are quickly used in decision making, but have the potential to create systematic bias (Blumenthal-Barby & Krieger, 2015). Research (Made & Wirayana, 2023) states that heuristics can have a positive influence if used by individuals who have sufficient experience, but become negative if not controlled by reflective abilities (West et al., 2008). Therefore, other factors are needed that can moderate the cognitive impact on financial behavior.

One factor that has the potential to strengthen or weaken this influence is self-efficacy. Banduran's theory, 1997 in research (Mawaddah, 2019; Sjamsuri & Muliyani, 2019) states that self-efficacy is a person's belief in their ability to complete tasks or achieve certain results. Individuals with high levels of self-efficacy tend to have better self-control in managing finances. Research by (Lathiifah & Kautsar, 2022) confirms that self-efficacy plays an important role in increasing rational and directed financial behavior.

Although there are several studies that have examined the relationship between mental accounting, heuristics and financial behavior, most have not positioned self-efficacy as a multiple moderating variable. In addition, most studies are still limited to the population of students or employees in the formal sector, so not many have examined workers in the service business sector in formal and non-formal education in Indonesia (Ramatni, 2024; Khumsamart, 2022; Denkowska et al. 2020). Therefore, there is a gap in research to explain how the three psychological variables interact and influence financial behavior in unique local contexts and populations.

Previous studies have highlighted the importance of cognitive and psychological aspects in financial behavior, but have been limited in integrating them into a unified model. In addition, the role of self-efficacy as a moderator between mental accounting and heuristics in financial behavior has not been widely studied, especially in the context of workers in the non-formal education sector. This study fills this gap with a comprehensive and contextualized interaction model approach.

LITERATURE REVIEW

Financial Behavior

Financial behavior refers to the capacity and activities of individuals in overseeing their finances, encompassing planning, spending, recording, monitoring, and financial reporting. Dwiastanti (2017); Setianingsih et al. (2022); Prayuda & Purwanto (2024), found that individuals with high financial knowledge, internal locus of control and adequate income are more likely to perform effective saving, budgeting and spending control behaviors. This process includes effective budgeting, cash management, saving and investment, with the aim of creating financial stability and responsibility for financial resources owned.

Financial management behavior consists of planning, organizing, and controlling financial activities, such as raising and using company funds that apply general management principles to financial resources (Dwiastanti & Wahyudi, 2022). The meaning of the importance of financial management is very necessary, because financial management is something that every human being always faces in his life. In a modern context, financial behavior is influenced by rational and non-rational factors, including psychological aspects such as emotions, risk perception, and self-confidence. Behavior is a person's way of acting or action. Personal finance is the financial

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management that a person does to obtain a budget and savings by considering various financial risks and future life events.

Mental Accounting

The concept of mental accounting was first introduced by Antonides & Ranyard (2017) as part of the behavioral economics approach. Mental accounting is the tendency of individuals to mentally separate money into specific accounts, such as funds for basic needs, leisure, savings or investments. These groupings are not always rational, but psychologically help individuals to organize spending and avoid excessive consumption. Research from (Mawardi et al., 2025) shows that mental accounting significantly increases positive financial behaviors, such as the ability to set aside emergency funds and resist impulsive spending. Meanwhile, (Syaputri & Pradesyah, 2023) found that the implementation of good mental accounting significantly reduced the likelihood of financial stress among employees of educational institutions. Therefore, mental accounting is considered an effective cognitive tool in personal financial management.

Heuristics

Heuristics are quick thinking strategies that individuals use when making decisions with limited information or under time pressure. In finance, heuristics can appear in the form of anchoring (getting stuck on a particular reference number), availability bias (decisions based on the most recent and memorable information) and representativeness (evaluating situations based on similarity to previous patterns) (Maradona, 2020). Research (Pitthan & De, 2024) shows that the use of heuristics can have a positive impact if accompanied by experience and good financial literacy. However, (Pitthan, F., & De, 2024) found that heuristics can lead to bias and wrong financial decisions, especially in people who have low financial literacy. In the context of education personnel, heuristics are often used as a substitute for rational analysis, which can be risky if not properly controlled.

Self-Efficacy

Self-efficacy is an individual's belief in his or her ability to organize and carry out certain actions to achieve goals Bandura's theory, 1997 in research (Yanuardianto, 2019). In the context of finance, self-efficacy plays a role in shaping the belief that a person is able to make the right decisions, manage a budget and survive consumption pressures (Jumady et al., 2024) states that individuals with high self-efficacy tend to have better financial control. They are more disciplined in saving, able to delay satisfaction and are wiser in using income. Conversely, individuals with low self-efficacy are more easily tempted by impulsive consumption and tend not to have clear financial planning. As a moderating variable, self-efficacy is believed to strengthen the influence of mental accounting on financial behavior and control the negative effects of heuristics. This means that individuals with high self-efficacy tend to be able to utilize mental accounting to the fullest and avoid the negative impact of uncontrolled use of heuristics.

METHODS

This study uses a quantitative explanatory approach with a survey method to look into the impact of mental accounting and heuristic variables on financial behavior, while also analyzing the moderating function of self-efficacy. The explanatory approach is used to explain the causal relationship between variables based on data obtained directly from respondents through questionnaires. The population of this study were all employees of Insan Corporation, a service company in the field of formal and non-formal education in Manado City. The sample used was a saturated sample, where all members of the population were used as respondents because the number was relatively small and affordable. The number of respondents obtained was 131 people, with an age range between 20-60 years and an income level between Rp. 2,000,000,- to more than Rp. 8,000,000,- every month. The data collection method used was primary data collection through the distribution of closed questionnaires using a 5-point Likert scale from "very inadequate" (1) to "very adequate" (5). The questionnaire was developed based on

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theoretical indicators and previous research related to the variables of Mental Accounting (Thaler, 1999), Heuristics, Self-Efficacy and Financial Behavior. The data analysis technique used in this study consists of (1) descriptive analysis of respondent characteristics; (2) Structural Equation Modeling (SEM) analysis based on Partial Least Squares (PLS) with the help of SmartPLS software version 4.0. This technique was chosen because it allows for testing complex relationships between latent variables and accommodates moderation models. The analysis steps include descriptive analysis of respondent characteristics carried out by creating a frequency distribution table that will show the percentage of respondents according to gender, age and monthly income of employees and SEM-PLS analysis is used to test structural relationships between complex latent variables, but can also be used to confirm theories or test new models (Sarstedt et al., 2020). PLS-SEM analysis consists of two sub-models, namely external model tests (validity and reliability of indicators) and internal model tests (hypothesis testing, R-squared and moderation effects). This research introduces a fresh examination of the impact of mental accounting and heuristics on the financial behavior of non-formal education professionals, a topic that has not been well explored. In addition, this study presents a unique moderating interaction of self-efficacy, which strengthens the influence of mental accounting and heuristics, expanding understanding of the role of psychology in everyday financial decision making.

Table 1. Operational Definition of Variables and Their Measurement

Variable	Operational Definition	Indicator	Scale	Source
Financial behavior (Y)	A set of individual actions or habits in managing, planning, using, and evaluating their finances to achieve financial stability.	1. Saving habit 2. Spending according to budget 3. Regular financial evaluation	Likert 1-5	(Mawardi et al., 2025; Khairiyah, 2025)
Self-efficacy (Z)	An individual's belief in his or her ability to manage personal finances and make effective financial decisions under various conditions.	1. Confidence in budgeting 2. Ability to control spending 3. Confidence in making financial decisions	Likert 1-5	(Asmin et al., 2021; Atikah & Kurniawan, 2021)
Mental accounting (X1)	The cognitive process in which individuals classify, organize, and evaluate finances based on certain mental categories, such as money sources and spending goals.	1. Division of money for different needs 2. Separation of financial records 3. Discipline in the use of funds according to plan 4.	Likert 1-5	(Radianto & Pramudita, 2024; Kusnandar et al., 2022)
Heuristics (X2)	A quick decision-making strategy based on intuition or past experience that individuals use when faced with complex financial situations.	Indicators: 1. Financial decisions based on intuition 2. Habit of following past experience 3. Influence of newer information (availability bias)	Likert 1-5	(Azi et al., 2022; Loris & Jayanto, 2021)

Source: Researcher Processed Data (2025)

RESULTS AND DISCUSSION

A total of 131 respondents participated in this study, consisting of staff working in service companies in the field of formal and non-formal education in Manado City. Based on the

demographic distribution in Table 1, the composition of respondents was 49.6% male and 50.4% female. This balance reflects an even distribution and avoids the possibility of gender bias in financial behavior. The majority of respondents (56%) were aged 26-30 years, followed by those aged 31- 40 years (19%), 20-25 years (20%), and only 5% were aged above 41 years. This shows that the study population is dominated by the early productive age group, which is in the formative phase of financial behavior. The majority of respondents's monthly income is between IDR 3,000,000 to IDR 3,999,999 (45%), and between IDR 4,000,000 to IDR 4,999,999 (23%). This condition indicates that the respondents are in the early stages of financial independence, with high financial pressure. Therefore, cognitive and psychological-based financial management strategies are highly relevant for this group.

Table 2. Demographic Distribution of Respondents (n=131)

No	Description	Description	Number	Percentage
1	Gender			
		Male	67	49,6%
		Female	64	50,4%
2	Age			
		20 - 25 years old	26	20%
		26 - 30 years	73	56%
		31 - 40 years	25	19%
		41 - 60 years	7	5%
3	Income			
		< Rp. 2,000,000	7	5%
		Rp. 2,000,000 - Rp. 2,999,999	23	18%
		Rp. 3,000,000 - Rp. 3,999,999	58	45%
		Rp. 4,000,000 - Rp. 4,999,999	30	23%
		Rp. 5,000,000 - Rp. 5,999,999	3	2%
		Rp. 6,000,000 - Rp. 6,999,999	6	4%
		Rp. 7,000,000 - Rp. 7,999,999	1	1%
		> Rp. 8,000,000	3	2%

Source: Researcher Processed Data (2025)

The external model in PLS-SEM analysis is used to confirm whether the indicators used in the questionnaire or research instrument are valid and reliable to represent their constructs. The results of the processed data show that all items used in this study are valid and reliable, as indicated by the loading factor value> 0.70 (Radianto et al., 2024).

Table 3. Convergent Validity

	Heuristics	Mental accounting	Financial behavior	Self-efficacy
HE01	0,866			
HE02	0,844			
HE03	0,874			
HE04	0,880			
HE05	0,843			
HE06	0,856			
MA01		0,902		
MA02		0,882		
MA03		0,789		
MA04		0,897		

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MA05		0,885		
MA06		0,820		
PK01			0,819	
PK02			0,879	
PK03			0,857	
PK04			0,836	
PK05			0,898	
PK06			0,872	
PK07			0,851	
PK08			0,878	
PK09			0,794	
PK10			0,782	
SE01				0,892
SE02				0,831
SE03				0,912
SE04				0,912
SE05				0,918
SE06				0,899
SE07				0,894
SE08				0,867

Source: Researcher Processed Data (2025)

AVE is a measure used to check convergent validity, namely the extent to which the indicators used actually represent the latent construct being measured. A good AVE value is> 0.50, which means that more than 50% of the indicator variance is explained by the measured construct (Radianto & Pramudita, 2024) . The results of data processing show that the constructs in this study have sufficient convergent validity and are evidenced by the AVE value> 0.5.

Table 4. Average Variance Extracted (AVE)

	Average variance extracted (AVE)
Heuristic	0,740
Mental accounting	0,746
Financial behavior	0,718
Self-efficacy	0,794

Source: Researcher Processed Data (2025)

Discriminant validity is a measure that shows the extent to which a construct is empirically different from other constructs in the model. Discriminant validity tests can be carried out using the Heterotrait-Monotrait Ratio (HTMT) approach, with the ideal limit of HTMT <0.85 (Radianto & Pramudita, 2024). The results of data processing show that each construct has adequate discriminant validity, as evidenced by the HTMT value <0.85, with the highest value between Financial Behavior and Mental Accounting and the lowest value between Self Efficacy and Mental Accounting.

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Table 5. Discriminant validity

	Heterotrait-Monotrait Relationship (HTMT)
Mental Accounting <-> Heuristic	0,657
Financial behavior <-> Heuristic	0,754
Financial behavior <-> Mental accounting	0,765
Self-efficacy <-> Heuristic	0,726
Self-efficacy <-> Mental accounting	0,600
Self-efficacy <-> Financial behavior	0,710

Source: Researcher Processed Data (2025)

Reliability test is used to assess the internal consistency of indicators in measuring a latent construct. Cronbach's Alpha value ≥ 0.70 indicates that the construct has good reliability and a good CR value is ≥ 0.70 indicates that the construct has strong internal consistency and the indicators work together optimally in representing the construct. The data processing results show a value> 0.70, so the construct has good reliability and strong internal consistency.

Table 6. Cronbach's Alpha and Composite Reliability

	Cronbach's Alpha	Composite Reliability (rho_c)
Heuristics	0,930	0,945
Mental accounting	0,931	0,946
Financial behavior	0,956	0,962
Self-efficacy	0,963	0,969

Source: Researcher Processed Data (2025)

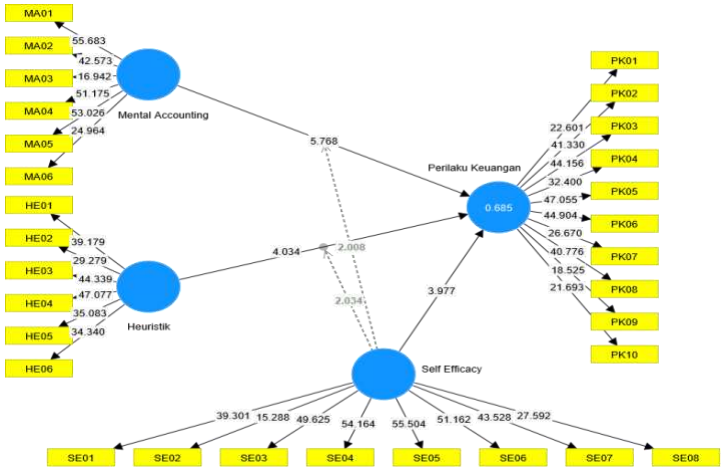

Figure 1. Data Processing Results

The relationship between variables in this research model is made in the form of a graph in Figure 1 so that the relationship between variables can be seen. The internal model or structural model in *PLS-SEM* is part of the SEM model which describes the relationship between latent variables (Radianto & Pramudita, 2024).

Table 7. VIF Test

	Financial behavior
Heuristic	2,251
Mental accounting	1,972
Self-efficacy	2,525

Source: Researcher Processed Data (2025)

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From the results of data processing in Table 7, it can be seen that all constructs in the model have VIF values <5, which indicates that there is no multicollinearity in the structural model. This strengthens the quality of the estimated relationship between variables in the internal model and indicates that each independent variable has a valid and non-overlapping contribution in explaining the dependent variable, namely financial behavior.

Table 8. Coefficient of determination (R^2)

	R-squared	Adjusted R-squared
Financial behavior	0,685	0,672

Source: Researcher Processed Data (2025)

Table 8 shows that the data yields the R-squared value of 0.685 and adjusted R^2 of 0.672 indicated that the structural model of this study has a strong explanatory power for financial behavior variables. This indicates that the constructs of heuristics, mental accounting and self-efficacy contribute significantly in explaining variations in the financial behavior of non-formal education personnel.

Table 9. Effect Size Test

	f-squared
Heuristics -> Financial behavior	0,113
Mental accounting -> Financial behavior	0,289
Self-efficacy -> Financial behavior	0,095
Self-efficacy x Mental accounting -> Financial behavior	0,024
Self-efficacy x Heuristic -> Financial behavior	0,025

Source: Data Processed from Researchers (2025)

As indicated by the data in Table 9, the effect size test (f^2) shows that mental accounting contributes the most to financial behavior (f^2 = 0.289), which indicates that classifying, separating, or dealing with money plays an important role in financial decisions. Heuristics had a strong but not dominant influence, indicating that intuitive and quick decisions still play a role in the financial behavior of non-formal education staff, but not as much as the influence of mental accounting. Direct or moderate self-efficacy has only a small but significant influence. This suggests that personal psychological factors (self-efficacy) are still important, although not the main determinant. Hypothesis testing aims to determine whether the influence between structural model constructs can be statistically tested from the sample data used (Sarstedt et al., 2020) . Hypothesis testing is done by analyzing the p-value, t-statistic and coefficient. The results of data processing can be seen in table 9 Path Coefficient Test.

Table 10. Path Coefficient Test

	Original sample (O)	Sample average (M)	Standard deviation (STDEV)	T-statistic (|O/STDEV|)	P-values
Heuristic -> Financial behavior	0,283	0,295	0,070	4,034	0,000
Accounting mentality -> Financial behavior	0,424	0,416	0,073	5,768	0,000
Self-efficacy x Mental accounting -> Financial Behavior	0,181	0,177	0,090	2,008	0,045
Self-efficacy x Heuristic -> Financial behavior	-0,186	-0,182	0,092	2,034	0,043

Source: Researcher Processed Data (2025)

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Mental Accounting has a Significant Positive Effect on Financial Behavior

The results of the data processing in table 10, it can be seen that the mental accounting variable (X1) has a significant positive effect and is the most dominant variable, as evidenced by the p-value <0.005, namely 0.000 and t count> 1.96, namely 5.768 and coefficient 0.424. This value shows that mental accounting has the largest and most significant positive effect on financial behavior. This value indicates that mental accounting has the largest and most significant positive influence on financial behavior. Individuals who have a strong tendency to separate expenses into categories (e.g. money for food, savings, emergency fund) and allocate funds according to needs tend to show healthy financial behavior. The high coefficient value (β = 0.424) indicates that cognitive and structured financial management contribute more than the other constructs. This finding is consistent with mental accounting theory from (Thaler, 1999) , which states that individuals tend to mentally deal with money in certain categories as a way to organize spending and financial decision-making. In the context of non-formal education personnel, this practice is very relevant because they need to organize expenses in a disciplined and realistic manner based on expenses that tend to fluctuate. This research is in line with research by (Putri et al., 2025) where mental accounting has a significant positive influence on financial behavior.

Heuristics Have a Significant Positive Effect on Financial Behavior

According to the findings in table 10, the heuristic variable (X2) has a significant positive result, which is indicated by a p-value <0.005, namely 0.000 and a t-statistic> 1.96, namely 4.034 and a coefficient of 0.283. These values indicate that the effect of heuristics on financial behavior is that the greater the tendency of individuals to use heuristic approaches (such as intuition, mental shortcuts, and past experiences) when making financial decisions, the greater their tendency to exhibit active financial behaviors such as managing finances, recording expenses, and avoiding waste. However, since heuristics are prone to bias, their role is weaker compared to mental accounting. Thus, heuristics make a moderate contribution in shaping the financial behavior of non-formal education staff who have to make practical decisions every day. This study is in line with research (Praditha et al., 2024) where heuristics influence financial investment decision-making, indicating that heuristics, which is a quick-thinking process (intuition), can lead to quick and adaptive decision-making, both in the context of investment and daily financial management.

Self-Efficacy Moderates Mental Accounting in Financial Behavior

The data in table 10 demonstrate the test outcomes, highlighting that the self-efficacy variable positively moderates the relationship between mental accounting and financial behavior (X3) has a significant positive result (moderation is strengthened), as evidenced by the p-value> 0.005, namely 0.045 and t count> 1.96, namely 2.008 and coefficient 0.181. This value indicates that the higher the level of self-efficacy, the higher the relationship between mental accounting and financial behavior. This value indicates that the higher the level of a person's self-efficacy, which is an individual's belief in his ability to manage and control financial situations, the greater the influence of mental accounting in shaping his financial behavior. This moderating effect is very important because it shows that although individuals understand financial grouping (mental accounting), its effectiveness will be more pronounced if the individual is confident and secure in its application. This suggests that financial management training should not only focus on cognitive aspects, but also strengthen psychological aspects, such as confidence in financial decision making. Although self-efficacy is not a moderating variable, self-efficacy and mental accounting have a positive and significant effect on financial behavior.

Self-Efficacy Moderates Heuristics in Financial Behavior

The test results in table 9 imply that the self-efficacy variable positively moderates the relationship between heuristics and financial behavior (X4), the results of this data processing

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are not in accordance with the hypothesis formulated where the results of data processing show that the self-efficacy variable negatively moderates the relationship between heuristics and financial behavior generated with a p-value> 0.005, namely 0.005 0.005, namely 0.043, t-statistic t> 1.96, namely 2.034 and coefficient -0.186. This value shows that the higher the self-efficacy of an individual, the lower the influence of heuristics on financial behavior. This can occur because individuals with high levels of self-efficacy tend to make more rational, planned and calculated decisions, and avoid impulsive decision making or decisions based on mental shortcuts. Therefore, as self-efficacy increases, the influence of heuristic style on financial decision-making will decrease, as individuals are more likely to rely on careful analysis and judgment rather than relying solely on intuition. This is theoretically important because it shows that self-efficacy does not always strengthen the relationship between variables, but can also be an inhibiting factor against potentially biased decision-making styles, such as heuristics. This research is in line with research conducted by (Dewi & Rochmawati, 2020) where self-efficacy weakens the heuristic relationship.

CONCLUSION

This study aims to analyze the effect of Mental Accounting and Heuristics on Financial Behaviour, with Self-Efficacy as a moderating variable, on employees of service companies in the field of formal and non-formal education in Manado City. This research uses a quantitative approach with the SEM-PLS analysis method. The results of the internal model test show that the structural model built in this study has strong explanatory power, with an R-squared value of 0.685, meaning that 68.5% of variations in financial behavior can be explained by the constructs of mental accounting, heuristics and self-efficacy. The moderating effect of self-efficacy on both interaction relationships was identified as significant but on a small scale (effect size $f^2 < 0.03$), which means that the role of self-efficacy as a moderator is theoretically relevant although its contribution is quantitatively limited. The hypothesized results of this study include: (1) Mental accounting has a positive and significant effect on financial behavior; (2) Heuristics also have a positive and significant effect on financial behavior, although not as strong as mental accounting; (3) Self-efficacy strengthens the effect of mental accounting on financial behavior; (4) Self-efficacy weakens the effect of heuristics on financial behavior.

SUGGESTION

Related companies are encouraged to offer personal financial management training that emphasizes not just financial planning procedures (mental accounting) but also the enhancement of self-efficacy, enabling employees to manage their finances with greater confidence and foresight. This research can be further advanced by incorporating additional factors such as financial literacy, self-control, or future orientation, and use mixed methods to explore the characteristics of financial behavior more comprehensively.

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