

Integrating the PPM and Nicosia Models in Government-Mandated Competency Certification Decisions

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ABSTRACT

Introduction: Government-mandated competency certification programs present a unique context for consumer decision-making, in which choices are constrained by regulatory requirements rather than voluntary preference. Understanding how psychological and contextual factors shape perceived value and subsequent purchase decisions in such regulated environments remains an underexplored area in the consumer behavior literature.

Objectives: This study aims to investigate the influence of self-efficacy, perceived benefit, product knowledge, perceived cost, and perceived quality on perceived value and purchase decisions within government-mandated competency certification programs by integrating the Push-Pull-Mooring (PPM) and Nicosia models.

Methods: A quantitative approach was employed using a structured survey administered to 307 respondents. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to test the hypothesized relationships among the constructs.

Results: Findings indicate that self-efficacy, perceived benefit, product knowledge, and perceived quality significantly enhance perceived value, whereas perceived cost has no significant effect. Perceived value exerts a strong positive influence on purchase decisions, confirming its central mediating role. Indirect effects further reveal that perceived benefit, product knowledge, and perceived quality significantly influence purchase decisions through perceived value, while the effect of self-efficacy is marginally significant and perceived cost remains non-significant.

Conclusions: The integrated PPM–Nicosia framework offers a robust theoretical lens through which to understand decision-making in mandatory certification contexts. The study underscores perceived value as a critical strategic lever for driving compliance and engagement. Policymakers and certification providers should prioritize enhancing perceived benefits, quality, self-efficacy, and product knowledge, while recognizing that cost considerations are less influential under regulatory compulsion.

Keywords: Push-Pull-Mooring (PPM) Model, Nicosia Model, Perceived Value, Purchase Decision

INTRODUCTION

In today's competitive business landscape, organizations seek strategies to enhance perceived value and shape purchase decisions, with the Push-Pull-Mooring (PPM) Model emerging as a promising approach that integrates push and pull marketing dynamics (Sharma & Kushwah, 2025; H. Monoarfa et al., 2024). However, its application remains underexplored in regulated contexts, particularly those where government-mandated certification

constrains consumer choice. While PPM effectively explains behavioral intentions, it is less suited to mandatory, non-voluntary settings involving sustained engagement or compliance (Krishnan & Raghuram, 2024).

Prior research has focused on intention to switch or adopt (Nugroho & Wang, 2023), overlooking how push, pull, and mooring factors jointly shape perceived value and actual purchase decisions. Additionally, the roles of perceived benefit, product knowledge, and the mediating function of perceived value in mandatory certification contexts remain insufficiently examined (Pratama & Haryanto, 2025). This study bridges these gaps by integrating the PPM and Nicosia models to better understand decision-making under regulatory compulsion, thus offering both theoretical advancement and practical guidance for certification stakeholders.

LITERATURE REVIEW

2.1. The Nicosia Model and Push-Pull-Mooring Framework

The Nicosia Model (1966) outlines consumer decision-making through four stages: attitude formation, evaluation, purchase behavior, and post purchase feedback, emphasizing dynamic interactions between marketing communication and psychological responses. While it does not deeply explore internal cognition, it effectively captures how attitudes, motivation, and feedback influence choices. The Push-Pull Mooring model, rooted in migration theory, explains behavioral shifts via push factors like dissatisfaction, pull factors such as perceived benefits and quality, and mooring elements like self-efficacy. Integrating both models offers a comprehensive lens for understanding consumer behavior by merging Nicosia's process orientation with PPM's motivational drivers, particularly in regulated contexts such as competency certification, where perceived value mediates cognitive and contextual influences.

2.2. Self-Efficacy and Perceived Value

Self-efficacy, defined as the belief in one's capability to perform specific tasks, influences consumers' confidence in making informed choices (Hale et al., 2022). High self-efficacy motivates consumers to seek information and select products aligned with their preferences. Perceived value reflects consumers' overall assessment of a product's utility based on benefits versus costs (Xie et al., 2021).

Self-efficacy has been extensively studied in various contexts such as technology use (Xu et al., 2024), workplace behavior (Hameli et al., 2025), education (Täschner et al., 2025), online commerce (Yao & Tarofder, 2025), and consumption behaviors (H. Liu et al., 2025). For example, Jihua et al. (2022) found that higher self-efficacy in online shopping enhances perceived value by increasing users' navigation confidence. Similarly, Thoumrungroje and Suprawan (2024) demonstrated that self-efficacy raises perceived value in mobile payment adoption through improving perceived usefulness and lowering risk. Sun et al. (2023) showed self-efficacy strengthens perceived value among e-learners who better appreciate platform benefits. Research consistently shows a positive relationship between self-efficacy and perceived value since confident consumers assess product attributes more deeply (Zhao et al., 2024). Hence, the hypothesis proposed is:

H1: Self-efficacy positively influences perceived value.

2.3. Perceived Benefit and Perceived Value

Perceived benefit is the consumer's evaluation of positive outcomes from a product, including functional, emotional, social, or experiential advantages (Cai et al., 2022). Benefits may also be economic, psychological, environmental, or financial in nature (Hu et al., 2023). As the core of value assessment, perceived benefit significantly shapes consumers' value perceptions; when benefits exceed costs, perceived value increases (Blut et al., 2023).

Studies demonstrate that perceived benefit, measured by usefulness and playfulness, enhances perceived value in diverse contexts such as music apps (Sawitri & Hasin, 2022), e-commerce discount schemes (Park & Lee, 2024), and nonprofit sectors (Blut et al., 2023). Bai et al. (2024) confirmed a consistent positive link between perceived benefits and perceived value. Based on this, the hypothesis is:

H2: Perceived benefit positively influences perceived value.

2.4. Product Knowledge and Perceived Value

Product knowledge refers to the information a consumer holds about a product category, comprising objective facts and subjective perceptions (Zeng et al., 2023). Well-informed consumers make more confident and accurate evaluations, which enhance perceived value (Ling et al., 2023).

Evidence shows that knowledge improves value perceptions in fast-moving consumer goods (Wang et al., 2024), platform evaluations (Ling et al., 2023), and green products (Yongzhen & Jotikasthira, 2023). Greater knowledge reduces uncertainty, enabling better cost-benefit analysis and higher perceived value (Herman & Oeylianto, 2023). Therefore, the hypothesis is:

H3: Product knowledge positively influences perceived value.

2.5. Perceived Cost and Perceived Value

Perceived cost involves a consumer’s subjective evaluation of financial and non-financial sacrifices such as money, time, effort, and psychological burdens (Rizvee et al., 2025). Perceived value derives from benefit-cost trade-offs; increases in perceived cost generally lower perceived value (Anwar et al., 2021; Sawitri & Hasin, 2022). Costs include monetary and privacy/security risks (Su & Chen, 2022). Research confirms the negative impact of perceived cost on value perception in mobile payments (Chen et al., 2021), pharmaceuticals (Aufegger et al., 2021), and other sectors (Blut et al., 2023). This consistent inverse relationship supports the hypothesis:

H4: Perceived cost positively influences perceived value.

2.6. Perceived Quality and Perceived Value

Perceived quality is the subjective judgment of product excellence shaped by brand image, prior experiences, and attributes (Nuh et al., 2025). It is a crucial antecedent of perceived value, as higher perceived quality leads to greater value perception (Ge et al., 2021). In services, quality includes responsiveness, empathy, reliability, and assurance (Alzoubi et al., 2021). Studies show that perceived quality strongly predicts value in ERP systems (Abidin & Subroto, 2023), brand loyalty (Bae & Jeon, 2022), and various product categories (Guo et al., 2024). Thus, the hypothesis is:

H5: Perceived quality positively influences perceived value.

2.7. Perceived Value and Purchase Decision

The purchase decision reflects a consumer’s choice based on perceived benefits to cost ratio (Anwar et al., 2021). Higher perceived value increases purchase likelihood (Aman et al., 2021; Blut et al., 2023). Perceived value comprises emotional, functional, social, economic, and epistemic dimensions, with multiple frameworks identifying these facets (Sweeney & Soutar, 2001; Watanabe et al., 2020; Chi et al., 2021). Empirical evidence supports the positive effect of perceived value on purchase decisions in retail and green product markets (Aman et al., 2021; Nabillah & Kusumawardhani, 2023). Hence:

H6: Perceived value positively influences purchase decision.

Figure 1 illustrates the research framework incorporating product knowledge, perceived benefit, self-efficacy, perceived cost, perceived quality, perceived value, and purchase intention.

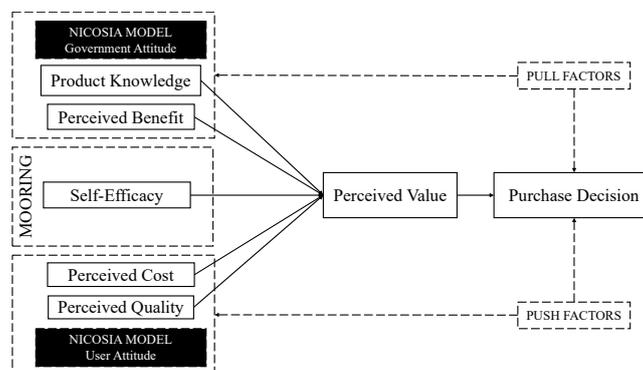


Figure 1. Conceptual Framework

METHODS

This study employed a structured questionnaire administered to 307 respondents representing diverse demographic characteristics. The gender distribution consisted of 47.2% male and 52.8% female participants. Regarding educational attainment, 3.5% had less than a high school education, 64.5% completed high school, 29% held a bachelor's degree, 1.5% a master's degree, and 1.5% a PhD. In terms of occupation, 25.5% were employed in the creative industry, 15% in service companies, 31% in the food and beverage sector, 8.5% in agribusiness, and 10% in other fields.

The research instrument measured seven constructs: self-efficacy (4 items; Peng & Hwang, 2021), perceived benefit (4 items; Kim & Yoon, 2022), product knowledge (3 items; Luthfiana et al., 2024), perceived cost (5 items; Ofori-Owusu et al., 2024; Peng & Hwang, 2021), perceived quality (3 items; García-Salirrosas et al., 2024), perceived value (5 items; Sweeney & Soutar, 2001), and purchase decision (3 items; Hanaysha et al., 2021). All items were assessed using a six-point Likert scale ranging from 1 (Strongly Disagree) to 6 (Strongly Agree), a format selected for its ability to balance response sensitivity with respondent ease. The choice of this scale is supported by previous research confirming its reliability and validity in consumer behavior contexts (Nuh et al., 2024; Taherdoost, 2019).

Methodologically, this study integrates the Push-Pull-Mooring (PPM) framework with the Nicosia model to examine decision-making in the context of government competency certification. This approach ensures comprehensive measurement across a representative sample and establishes a solid foundation for structural equation modeling in the subsequent analysis.

RESULTS

4.1. Reliability and validity of the measures

Table 1 presents the construct of self-efficacy shows adequate internal consistency with $\alpha = 0.800$, $CR = 0.869$, and $AVE = 0.624$. The outer loadings, which range from 0.775 to 0.806, suggest that respondents generally feel confident and motivated in completing tasks related to the certification process and applying what they have learned. Similarly, the perceived benefit construct demonstrates strong reliability ($\alpha = 0.829$, $CR = 0.886$, $AVE = 0.661$), with all indicators showing satisfactory loading values. This suggests that the respondents recognize significant personal and professional advantages associated with obtaining competency certification.

The product knowledge construct demonstrates the highest level of internal consistency ($\alpha = 0.906$, $CR = 0.941$, $AVE = 0.841$), with outer loadings above 0.91 for all items. These values indicate that the participants are well-informed about the certification's purpose, value, and its role in distinguishing professionals in the field. Perceived cost also meets reliability standards ($\alpha = 0.864$, $CR = 0.902$, $AVE = 0.648$), with items reflecting the participants' awareness of the financial and non-financial efforts required to pursue certification. The perceived quality of the certification program is also rated positively, as shown by $\alpha = 0.857$, $CR = 0.913$, and $AVE = 0.777$, with all loadings above 0.86, indicating that the certification is perceived as reliable, consistent, and of high quality.

Furthermore, perceived value demonstrates acceptable internal consistency ($\alpha = 0.847$, $CR = 0.891$, $AVE = 0.622$), suggesting that participants view the certification as a worthwhile investment that consistently meets professional standards and provides lasting benefits. Finally, the purchase decision construct demonstrates the highest level of model fit ($\alpha = 0.874$, $CR = 0.922$, $AVE = 0.798$), indicating that participants are satisfied with their decision to register, likely to recommend the certification to others, and intend to continue with future certifications from the same provider.

Table 1. Reliability and Validity

Construct	α	CR	AVE
Self-Efficacy	0.800	0.869	0.624
Perceived Benefit	0.829	0.886	0.661
Product Knowledge,	0.906	0.941	0.841
Perceived Cost	0.864	0.902	0.648
Perceived Quality	0.857	0.913	0.777

Construct	α	CR	AVE
Perceived Value	0.847	0.891	0.622
Purchase Decision	0.874	0.922	0.798

4.2. Hypotheses results.

The hypothesis testing results, as shown in Table 2, reveal several significant direct relationships among the variables in the structural model. Self-efficacy has a positive and statistically significant effect on perceived value ($\beta = 0.186, t = 2.171, p = 0.030$), supporting the hypothesis that individuals who feel confident in their capabilities tend to perceive higher value in competency certification. Similarly, perceived benefit significantly influences perceived value ($\beta = 0.280, t = 4.205, p < 0.001$), indicating that the greater the perceived advantage of certification, the more valuable it is considered by the participants.

Table 2. Hypotheses Results

	β	T Statistics	P Values
Self-Efficacy → Perceived Value	0.186	2.171	0.030
Perceived Benefit → Perceived Value	0.280	4.205	0.000
Product Knowledge → Perceived Value	0.192	2.756	0.006
Perceived Cost → Perceived Value	-0.001	0.011	0.991
Perceived Quality → Perceived Value	0.254	3.131	0.002
Perceived Value → Purchase Decision	0.572	8.225	0.000

Product knowledge also shows a significant positive impact on perceived value ($\beta = 0.192, t = 2.756, p = 0.006$), suggesting that informed individuals are more likely to appreciate the worth of certification programs. In contrast, perceived cost does not have a significant effect on perceived value ($\beta = -0.001, t = 0.011, p = 0.991$), implying that concerns about cost, effort, or time commitment do not substantially diminish the perceived value of certification. Perceived quality is positively and significantly associated with perceived value ($\beta = 0.254, t = 3.131, p = 0.002$), confirming that perceptions of certification quality enhance its value in the eyes of participants. Finally, perceived value demonstrates a strong and significant influence on purchase decision ($\beta = 0.572, t = 8.225, p < 0.001$), supporting the hypothesis that greater perceived value drives stronger intentions to pursue certification.

DISCUSSION

The findings provide comprehensive insights into the psychological and contextual determinants of perceived value and purchase decisions in government-mandated competency certification programs. Consistent with the Push-Pull-Mooring (PPM) and Nicosia frameworks, perceived value acts as the central mediator linking antecedent factors to behavioral outcomes, confirming its crucial role in decision-making within regulated contexts.

H1 is supported, indicating that self-efficacy positively influences perceived value. This aligns with Bandura’s theory and findings by Sun et al. (2023) and Thoumrungroje and Suprawan (2024), who found that higher self-efficacy enhances users’ evaluative confidence and engagement. Thus, participants with stronger self-belief perceive greater value in certification, emphasizing the importance of training and motivation-building strategies. H2 is also supported, confirming that perceived benefit significantly enhances perceived value. This is consistent with Bai et al. (2024) and Park and Lee (2024), who demonstrated that when perceived advantages outweigh effort, consumers’ valuation strengthens. In this context, professional recognition and career advancement act as primary pull factors enhancing value perceptions.

The findings also validate H3, indicating that product knowledge positively affects perceived value. Similar to Ling et al. (2023) and Herman and Oeylianto (2023), informed participants evaluate the certification more accurately, reducing uncertainty and enhancing trust in its usefulness. This suggests that disseminating clear information about certification benefits can improve perceived value and participation.

In contrast, H4 is rejected, as perceived cost does not significantly influence perceived value. Unlike Anwar et al. (2021) or Sawitri and Hasin (2022), where cost deterred voluntary consumption, regulatory compulsion reduces cost sensitivity. This finding implies that compliance obligations may outweigh economic considerations in government-mandated systems. H5 is supported, showing that perceived quality has a strong positive impact on perceived value, consistent with Ge et al. (2021) and Abidin and Subroto (2023). High-quality, credible certification enhances perceived value by reinforcing trust and professional assurance.

H6 is confirmed, revealing that perceived value significantly drives purchase decisions. This finding aligns with Aman et al. (2021), affirming that consumers translate positive value assessments into behavioral intention, even under regulation.

CONCLUSION

This study demonstrates that integrating the Push-Pull-Mooring and Nicosia models provides a robust theoretical framework for understanding consumer decision making in government mandated competency certification contexts. Perceived value emerges as the central mechanism through which self-efficacy, perceived benefit, product knowledge, and perceived quality influence purchase decisions, while perceived cost shows no significant effect, underscoring that regulatory compulsion diminishes economic sensitivity. Theoretically, this research extends both models into non-voluntary institutional settings, thereby enriching the consumer behavior literature by revealing how cognitive and contextual factors operate under external mandates.

Practically, the findings suggest that policymakers and certification providers should prioritize enhancing perceived benefits, ensuring high certification quality, building individuals' self-efficacy, and improving product knowledge through targeted communication, training, and transparent information dissemination. Instead of focusing on cost reduction, they should emphasize strategies that strengthen value perception and participant engagement. Despite its contributions this study has several limitations. First the sample was drawn from a single country which may limit cross cultural generalizability. Second the cross sectional design captures only a snapshot of attitudes and cannot establish causal dynamics over time. Third the context is specific to government mandated certification which may not apply to voluntary or commercial certification programs. Future research should address these gaps by conducting longitudinal studies to track changes in perceived value and decision-making over time, employing comparative cross-national designs to test cultural boundary conditions and exploring other regulated service contexts such as mandatory training licensing or compliance programs to validate the transferability of the integrated framework.

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