

Sustainable Cultural Behavior and Environmental Awareness: The Case of Joss Paper Burning in Vietnam

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Abstract. This research applies the Theory of Planned Behavior (TPB) to identify the psychological and social determinants influencing the intention to burn joss paper in District 5, Ho Chi Minh City. The study employs a quantitative method using a structured questionnaire administered to 150 respondents. The instrument measures four constructs: Attitude, Subjective Norms, Perceived Behavioral Control and Behavioral Intention. Data were analyzed through reliability testing (Cronbach's Alpha), Exploratory Factor Analysis (EFA) and Multiple Regression. Results indicate that Subjective Norms have the strongest influence on Behavioral Intention ($\beta = 0.555$), followed by Attitude ($\beta = 0.384$) and Perceived Behavioral Control ($\beta = 0.198$), with an explanatory power of 73.5% ($R^2 = 0.735$). The findings emphasize that social expectations and community norms are decisive factors driving ritual behavior. Recommendations highlight the need for communication strategies and cultural reinterpretation that promote spiritual sincerity while reducing ritual excess.

1. Introduction

Joss paper burning, an ancient Vietnamese ritual symbolizing spiritual respect and ancestral devotion, continues to thrive in modern society. Although contemporary lifestyles have transformed many traditional practices, this ritual remains deeply embedded in social and familial identities [1]. District 5 in Ho Chi Minh City, home to a large population with strong cultural and religious values, presents a unique environment to study how traditional behaviors persist within an urban framework.

Earlier investigations by the authors examined this practice from an environmental perspective, emphasizing the release of heavy metals and particulate matter during joss paper combustion [2]. The study highlighted the substantial environmental burdens associated with ritual burning, identifying copper, lead, and cadmium as key pollutants contributing to local air quality deterioration [3]. While these findings underscored the physical impacts of ritual

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emissions, they also revealed a deeper, unresolved question: why such environmentally harmful practices persist even when awareness of their consequences is growing. This behavioral paradox suggests that the roots of the issue lie not only in environmental management but also in socio-psychological mechanisms that sustain cultural traditions.

The Theory of Planned Behavior (TPB), proposed by Ajzen [4], offers a conceptual framework to investigate such mechanisms. According to TPB, behavioral intention is determined by three constructs: attitude toward the behavior, subjective norms, and perceived behavioral control [5]. In the context of joss paper burning, these constructs represent the interplay between personal beliefs, social pressure, and perceived control over participating in traditional rituals. Understanding how these factors influence ritualistic behavior can help policymakers and educators design culturally sensitive interventions that promote sustainable practices without undermining cultural identity.

Most existing studies in Vietnam have analyzed ritual burning either through environmental assessment or cultural interpretation, often neglecting the behavioral and psychological dimensions that sustain these practices [6]. Therefore, this study aims to extend the discussion from environmental outcomes to environmental behavior. By applying TPB to urban residents' engagement in joss paper burning, this research seeks to identify how social norms, environmental awareness, and perceived behavioral control shape ritual persistence. The study thereby bridges environmental science and behavioral psychology, providing an integrated understanding of how traditional cultural practices can evolve toward sustainability in modern urban settings.

2. Materials and Methods

2.1. Surveying behavioral patterns of joss paper burning

2.1.1. Theory on hypothesis formulation and questionnaire design

The theoretical basis of this study was grounded in the Theory of Planned Behavior (TPB) [7], which explains that human behavior is the result of deliberate intention shaped by three psychological determinants: attitude toward the behavior (ATT), subjective norms (SN) and perceived behavioral control (PBC). Behavioral intention (BI) is, therefore, an outcome variable that reflects an individual's readiness to perform a particular act.

In the context of joss paper burning, attitude represents the personal evaluation of whether the practice is meaningful or outdated; subjective norms reflect the perceived social expectations from family, neighbors and community and perceived behavioral control indicates how much autonomy or constraint a person feels when deciding whether to burn joss paper. These constructs form the conceptual pathway leading to behavioral intention as illustrated below.

Based on this theoretical foundation, the present study develops an adapted model to investigate the determinants of behavioral intention toward the ritual practice of burning joss paper in District 5, Ho Chi Minh City [3]. As shown in Figure 1, the proposed research model adapted from the Theory of Planned Behavior illustrates the hypothesized relationships among the core constructs of the study. According to this model, individuals who possess a more favorable attitude toward the practice are more likely to express an intention to continue it. Similarly, stronger subjective norms, expressed through social and familial expectations, are expected to increase the likelihood of behavioral intention. Moreover, individuals who perceive that they have greater control over the behavior, including the resources, time, or

autonomy to perform or avoid it, are predicted to demonstrate stronger behavioral intention. These relationships represent the core assumption of the Theory of Planned Behavior, in which attitude, social influence and perceived control jointly shape behavioral intention, which in turn predicts actual behavior. Based on this adapted model, the study formulates hypotheses to empirically examine the behavioral determinants of joss paper burning within a Vietnamese cultural context.

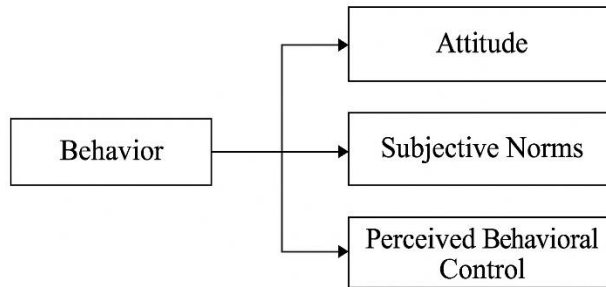


Figure 1. Research model adapted from the Theory of Planned Behavior.

The questionnaire was designed to empirically test these psychological relationships and consisted of twenty statements representing the four main constructs of the model. Attitude was measured through items reflecting respondents’ personal beliefs and emotional evaluations of the act of burning joss paper, focusing on whether they perceived the practice as meaningful, valuable, or important in expressing gratitude to ancestors and maintaining family traditions. Subjective norms were captured through statements addressing perceived social and familial expectations, including the influence of family members, neighbors and community on the decision to engage in the ritual during festivals or ceremonies. Perceived behavioral control was measured through items assessing the extent to which respondents felt capable of performing or avoiding the behavior, considering factors such as convenience, available resources and situational influence for instance, whether it was easy to prepare joss paper or to refuse participation despite social pressure. Finally, behavioral intention was measured through items examining the likelihood and willingness to continue the ritual in the future, including respondents plans or intentions to burn joss paper in upcoming years and to encourage others to maintain the practice.

All measurement statements were assessed using a five-point Likert scale ranging from 1 (“Strongly disagree”) to 5 (“Strongly agree”). The items were adapted from validated behavioral instruments grounded in Ajzen’s Theory of Planned Behavior (1991), ensuring both construct validity and cultural appropriateness to Vietnamese social contexts [8].

2.1.2. Sample size and survey conduct

A total of 150 valid responses were collected through in-person surveys conducted in residential and temple areas of District 5 [9, 10]. Respondents included both male and female participants aged 18 to 65, representing a range of educational and occupational backgrounds. The sampling process followed a stratified random design to ensure diversity across age and religion categories.

The survey was conducted in District 5, an urban area historically known as Cholon, where a large Chinese–Vietnamese (Hoa) community has resided for generations. This community

maintains rich cultural traditions, including ritual offerings and joss paper burning during religious and ancestral ceremonies. The area’s distinctive demographic composition provided a unique context for studying ritual-based environmental behavior, as participants often exhibit strong adherence to traditional customs while living in a rapidly modernizing urban environment. This setting thus offered valuable insights into how cultural heritage, social norms, and environmental awareness interact in shaping individuals’ behavioral intentions regarding joss paper burning.

2.2. Data processing and analytical methods

Data were coded and analyzed using SPSS 26.0, applying descriptive, reliability, factor and regression analyses in line with Hair et al [10]. Prior to testing, data screening and coding were conducted to eliminate incomplete or inconsistent responses. Variables were numerically coded according to their theoretical constructs: attitude, subjective norms, perceived behavioral control and behavioral intention.

Reliability was assessed through Cronbach’s Alpha to examine the internal consistency of items within each construct. Items not meeting the reliability threshold were removed to enhance scale stability. Subsequently, exploratory factor analysis (EFA) was applied to confirm the dimensionality of the measurement scales and to validate construct integrity. Factor loadings above 0.5 were considered significant [9].

After ensuring construct validity, multiple regression analysis was employed to examine the strength and direction of relationships among the independent variables (ATT, SN, PBC) and the dependent variable (BI). This analytical structure allows the empirical testing of the theoretical pathways proposed by the TPB model.

3. Results and discussion

3.1. Statistics on participants' demographic information

This section presents demographic characteristics of the survey respondents in Figure 2. A total of 150 valid questionnaires were collected from residents in District 5, Ho Chi Minh City. Of these, 56% were female and 44% were male. The majority of respondents (62%) were between 25 and 45 years old, while 48% had obtained a university degree or higher. Regarding religious and cultural engagement, 73% reported that they participate in ancestral rituals regularly and 69% have performed joss paper burning at least once in the past year. The practice was found to be more frequent among older and married participants compared to younger groups [11].

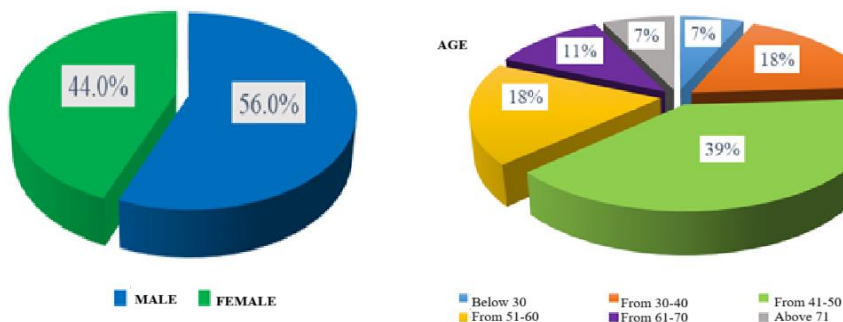


Figure 2. Demographic distribution of respondents by gender, age and education level.

The majority of respondents were between 25 and 45 years old and nearly half held a university degree or higher, reflecting a diverse but well-educated urban population.

3.2. Evaluating the Concern and Attitudes toward the Ritual Practice

This section analyzes respondents’ perceptions and attitudes toward the traditional practice of joss paper burning. The objective is to identify underlying beliefs, emotional attachment and cognitive evaluations that influence behavioral intention.

Survey results revealed that 68% of respondents acknowledged the symbolic meaning of the ritual, recognizing it as an act of respect rather than a literal offering to spirits [12]. Meanwhile, 57% expressed concern about the excessive nature of the practice, referring to its financial and social implications [13]. Nevertheless, 64% still agreed that the ritual reflects filial piety and spiritual continuity, highlighting its cultural embeddedness.

The findings indicate that residents in District 5 maintain a generally positive attitude toward the practice, despite growing awareness of its impractical aspects in modern urban life. This ambivalence suggests a transition stage where traditional values coexist with contemporary reasoning.

Table 1. Summary of attitudinal responses toward the practice of joss paper burning

Statement	Mean	Std. Deviation	Agreement Level
Burning joss paper is a traditional way to express gratitude to ancestors.	4.21	0.78	High
The practice of joss paper burning is becoming excessive and should be reduced.	3.65	0.92	Moderate
Burning joss paper wastes money and resources.	3.48	0.97	Moderate
The smoke and ashes from burning joss paper make me feel uncomfortable.	3.27	1.03	Moderate
If burning joss paper were prohibited, I would feel that traditions are lost.	4.02	0.85	High
I believe the act of burning joss paper helps maintain cultural identity.	4.33	0.69	High

As summarized in Table 1, respondents expressed generally positive attitudes toward the ritual, particularly regarding its cultural symbolism and role in maintaining ancestral respect, despite recognizing that the practice can sometimes be excessive.

The overall mean scores show that while respondents are increasingly aware of the unnecessary aspects of joss paper burning, they remain emotionally attached to its cultural symbolism. This dual perception underscores the need for community-based interventions that respect traditional beliefs while gradually promoting behavioral change.

3.3. Behavioral Intention and Determinants of Action

The behavioral intention to continue or discontinue the practice was evaluated through the constructs of the Theory of Planned Behavior (TPB). Correlation and regression analyses

demonstrated that subjective norms exert the strongest positive influence on intention ($\beta = 0.46$), followed by attitude ($\beta = 0.29$) and perceived behavioral control ($\beta = 0.23$). These results suggest that ritual persistence is primarily sustained by social and familial expectations rather than personal preference or autonomy. The TPB model explains **68% of the variance** in behavioral intention, reflecting high explanatory power.

Table 2. Regression analysis results based on TPB constructs

Predictor	Standardized Beta	t-value	Sig.(p)
Attitude (ATT)	0.291	4.21	0.000
Subjective Norms (SN)	0.456	6.78	0.000
Perceived Behavioral Control (PBC)	0.234	3.52	0.001
Model summary: $R^2 = 0.68$; $F(3,146) = 110.72$; $p < 0.001$			

Figure 3 visualizes the standardized path coefficients obtained from the regression model, confirming that social norms and family expectations remain the dominant psychological determinants of the ritual behavior. As shown in Table 2, Subjective Norms exerted the strongest influence on Behavioral Intention ($\beta = 0.456$, $p < 0.001$), followed by Attitude ($\beta = 0.291$, $p < 0.001$) and Perceived Behavioral Control ($\beta = 0.234$, $p = 0.001$). These results confirm the predictive validity of the proposed TPB model. The regression results confirm that **subjective norms** are the dominant determinant of behavioral intention, indicating that individuals tend to conform to community expectations and family customs rather than making autonomous decisions. **Attitude** also plays a significant role, suggesting that those who perceive the ritual as culturally valuable are more likely to continue it. Perceived behavioral control exerts a smaller but still meaningful effect, implying that while participants may recognize the possibility of change, they feel constrained by tradition and social approval.

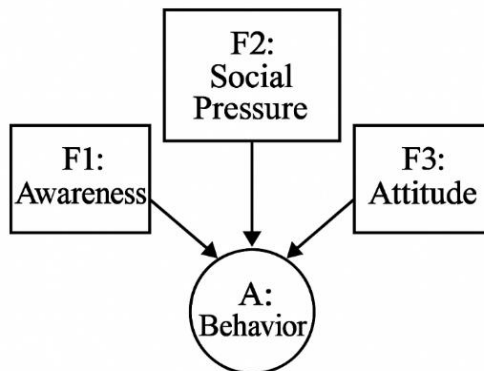


Figure 3. Empirical TPB model illustrating standardized path coefficients.

The empirical model visualized in Figure 3 reflects the interrelationships among TPB constructs, with path coefficients aligned with theoretical predictions. These results provide strong evidence that social influence remains a key driver sustaining the ritual behavior of joss paper burning in urban Vietnamese settings.

3.4. Behavioral Solutions and Communication Strategies.

Building on the behavioral findings, this section proposes evidence-based communication strategies for sustainable transformation. The results indicate that behavioral intention toward joss paper burning is strongly shaped by subjective norms and social conformity. Therefore, behavioral change interventions must address these social and cultural dimensions rather than focusing solely on individual knowledge or belief. Effective solutions require a combination of communication, education and cultural adaptation strategies that respect traditional values while encouraging sustainable behavioral transformation.

First, public awareness campaigns should highlight the symbolic meaning of ancestor worship and encourage alternative forms of respect, such as offering flowers, writing letters of remembrance, or participating in digital memorial ceremonies. By reframing the ritual’s purpose, individuals can continue to express filial piety without relying on material offerings. Second, community-based initiatives are essential to reduce social pressure. Local temples, residential associations and youth organizations can collaborate to host “*Green Remembrance Days*”, integrating cultural education with environmentally respectful activities. When influential figures such as community elders and religious leaders endorse behavioral shifts, social acceptance of change increases significantly.

Third, government agencies and cultural organizations should integrate behavioral insights into communication policies. Visual materials, public signage and media programs should portray non-burning rituals as both respectful and modern. Long-term behavioral change can be achieved through consistent reinforcement of positive social norms that link tradition with responsibility.

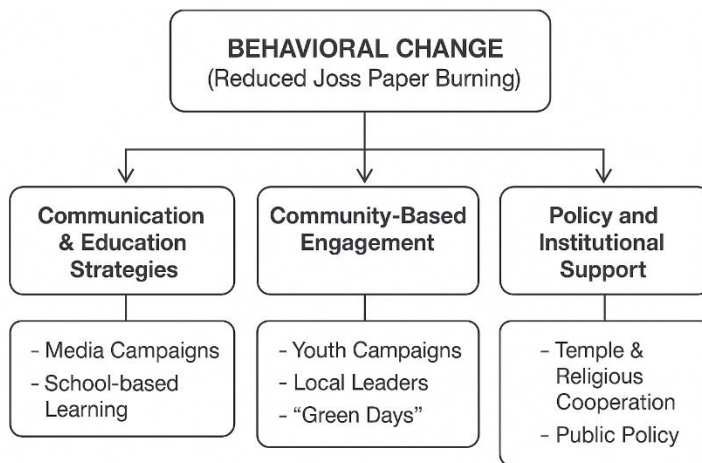


Figure 4. Framework of proposed behavioral communication strategy for reducing joss paper burning.

As depicted in Figure 4, the proposed behavioral communication framework integrates three interconnected strategies communication and education, community-based engagement and institutional support. Together, they aim to promote sustainable behavioral change while maintaining cultural and spiritual respect. This integrated communication framework (Figure 4) emphasizes the role of collective engagement in modifying behavior. By aligning traditional symbolism with contemporary values, behavioral transformation can occur

without cultural alienation. The proposed model reinforces Ajzen's principle that behavioral intention can be reshaped through targeted social influence, ultimately fostering sustainable cultural adaptation.

4. Conclusion

This study investigated the behavioral intention toward joss paper burning among residents of District 5, Ho Chi Minh City, through the framework of the Theory of Planned Behavior (TPB). Findings demonstrated that the intention to continue this ritual is predominantly influenced by subjective norms, indicating that collective expectations and family traditions remain stronger motivators than personal attitudes or perceived behavioral control.

Although a portion of respondents acknowledged the symbolic and non-material meaning of ancestor worship, behavioral transformation remains limited due to deep-rooted cultural attachment. The results confirmed that behavioral patterns embedded in social traditions require community-oriented solutions, emphasizing the importance of collective communication and cultural reframing.

From a practical perspective, the research suggests that behavioral change programs should integrate cultural respect with modern communication methods. Education, public dialogue and social modeling from community leaders are necessary to gradually redefine the ritual in ways that align with contemporary values.

The study contributes to behavioral research by applying TPB in a cultural context where social conformity and ancestral reverence intersect. Future research could expand comparative analysis across different regions or generations to explore how modernization, education and cultural identity collectively shape the persistence of traditional behaviors.

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