

# **Unravelling Green Innovative Behavior in Pilgrimage Tourism: The Role of Learning Climate and Green Self-efficacy**

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## **Abstract**

This study assesses the impact of spiritual adherence on green innovative behavior in pilgrimage tourism contexts. From the notion of conservation of resources, the research examines how green self-efficacy and learning climate influence the relationship between spiritual adherence and green innovative behavior. The researcher gathered data from 362 pilgrims and then conducted a mediation and mediation–moderation path analysis as part of a two-step structural equation modeling approach. The results showed that spiritual adherence positively influenced green innovative behavior, and the association was partially mediated by green self-efficacy and moderated by perceived learning climate. To explain the tested hypotheses, this study used semi-structured interviews and media sources to supplement the quantitative results and further explore pilgrims' experience with and engagement in green innovative behavior. This study extends our comprehension that how spirituality promotes green innovative behavior, thus contributing to the limited research on sustainability issues in emerging economies and tourism markets, including those in Africa. Lastly, this study offers directions for future research.

**Keywords:** green innovative behavior; pilgrimage; green self-efficacy; learning climate; emerging economy; Africa

## **Introduction**

Global warming and the associated natural disasters and weather fluctuations have profoundly affected the tourism industry. Climate change has caused unstable tourist flows and market turbulence. For example, in 2023, the lack of snow and the unusually warm weather limited the annual winter events that customarily draw numerous tourists to the European Alps (CBC, 2023). Like other tourist destinations, the climate crisis has also affected sacred sites. For example, climate change and extreme weather fluctuations have affected the sustainability of pilgrimage tourism destinations in India and Saudi Arabia (The Economist, 2022; Waje, 2023). Tourism stakeholders, including policymakers and ecological scientists, informed by the United Nations Sustainable Development Agenda (UN, 2018), have emphasized the need to promote behavior or policies to protect and conserve natural resources to address the climate crisis and other ecological concerns. Studies in tourism literature have underlined the importance of promoting green innovative behavior in and around religious tourism destinations (Senbeto, 2023; Singh, Rana, & Olsen, 2021).

Building on Schumpeter's theory of innovation, this study defines green innovative behavior as initiatives and activities that address ecological concerns such as resource depletion and pollution, and that encourage resource efficiency (Callegari & Nybakk, 2022; Tzeng, 2009). Green innovation is established on the philosophical foundations of natural resource management (Arici & Uysal, 2022; Oduro et al., 2021). Consequently, we define green innovative behavior as behavior that initiates and develops natural resource conservation and management procedures like pollution reduction, resource efficiency, responsible consumption, and ecological responsibility. Based on a thorough review of research on green innovation, the researcher identified three main research gaps that provided the rationale for this study. First, studies in the tourism literature have examined green innovative behavior from different perspectives, such as leadership (Bhutto et al., 2021), entrepreneurial orientation (Luu, 2021), human resource management (Farooq et al., 2022), intellectual capital (Wang,

2022), and financial scarcity (Zhang, Ma, & Guan, 2023). Yet, less is known regarding the impact of mental resources, such as spirituality, on green innovative behavior. Moreover, the resources perspective suggests that promoting innovative behavior requires psychological resources, such as posing efficacy and learning climate (Afsar et al., 2020; Hunter et al., 2017). Conservation of resources theory states that people possess resources that lead them toward learning and promoting innovative solutions (Hobfoll, 2001). Hence, previous researchers have pointed out a need to examine the benefit of green self-efficacy and learning climate in reinforcing green innovative behavior in the tourism industry.

Second, the review showed that despite the proliferation of research on green innovation, summarized in Table 1, there have been few studies of green innovative behavior in non-commercial tourism segments, such as religious and pilgrimage tourism (Collins-Kreiner, 2020; Singh et al., 2021). Third, we found that the literature on green innovation has been focused on Western epistemologies, and most studies have used developed countries as their settings (Arici & Uysal, 2022; Senbeto, 2023); thus, there is little empirical data on green innovation in different segments of the tourism market in emerging economies and non-Western settings. From the perspectives of conservation of resources theory, this study develops a research model to 1) examine the relationship between spiritual adherence and green innovative behavior, 2) analyze the indirect effect of green self-efficacy in the association between spiritual adherence and green innovative behavior; and 3) examine the moderated-mediation role of learning climate on the effect of spiritual adherence on green innovative behavior.

The findings have several implications for theory and practices. Theoretically, the study extends the understanding of the connection between green innovation and spirituality in pilgrimage tourism. It demonstrates the positive contribution of tourism to environmental sustainability, thus expanding the knowledge of the non-economic advantages of the tourism

industry. The literature on green innovation is dominated by Western epistemologies (Gürlek & Koseoglu, 2021; Senbeto, 2022); hence, this research extends our understanding of green innovation in developing nations and emerging tourism settings, such as Africa. Practically, this research benefits tourism managers and policymakers interested in tourism's potential for environmental sustainability. The results indicate that tourism can support Sustainable Development Goals related to sustainable socioeconomic development in emerging economies (UN, 2018).

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### **Theory and Hypotheses**

#### **Conservation of Resource Theory, Spiritual Adherence, and Green Innovative Behavior**

The conservation of resources theory's central premise is that humans will seek to safeguard their existing resources and attain new resources. According to the theory, resource availability determines individuals' psychological well-being and capacity when they experience stress or loss. The theory has two basic principles, i.e., resource loss and resource investment (Halbesleben et al., 2014). Resource loss stresses the negative effect of losing resources. For example, people and organizations may fear that global warming and climate crises will cause environmental resource loss, deforestation, and forest reduction. Resource investment refers to individuals' efforts to protect against resource loss by encouraging investments in resource gain and recovery (Hobfoll, 2001). Resource investment includes developing perceptions and attitudes for coping with challenges and recognizing the importance of transferring resources to future uses (Beh et al., 2020).

Conservation of resources theory also encompasses intangible resources such as spiritual and mental resources that help individuals maintain proactive attitudes and develop innovative solutions. Hence, we examine the impact of spiritual adherence on green innovative behavior in pilgrimage tourism. The concept of green innovative behavior shares common

goals with pro-environmental and environmentally responsible behavior; both terms refer to positive attitude toward ecological impacts (Gürlek & Koseoglu, 2021; Oduro et al., 2021; Senbeto, 2023). However, green innovative behavior also encompasses the initiation and implementation of actions to reduce environmental harm and support innovative solutions and learning to encourage a green environment (Arici & Uysal, 2022; Takalo et al., 2021). The promotion of green innovative behavior in the individual requires mental strength, learning, and devotion. Given this proposition, an individual's spiritual adherence foments a positive connection with the natural world and the embracing of creative solutions and care for the environment.

Garfield et al. (2014) defined spirituality as a conviction that all things, living and non-living, are fundamentally connected spiritually and that living in harmony with this understanding is necessary for happiness. Spirituality is often expressed through adherence to religious rules and practices, such as pilgrimage and rituals. Studies have noted that spiritual traditions strongly emphasize environmental sustainability, directing followers to engage in green behavior (Shinde, 2021; Singh et al., 2021). Specifically, studies have indicated that pilgrims support environmental sustainability by appropriately using and protecting resources (Hitchner et al., 2019; Olsen, 2020; Trono, 2018). As the faith ethos underlying pilgrimages reinforces concerns for ecological resources, pilgrims may emphasize resource conservation and environmental concerns in their behaviors. Studies have supported this argument by showing that most pilgrims choose to minimize their waste, pursue responsible consumption, and prefer sharing resources, including public transportation and accommodation facilities (Felix et al., 2018; Friske et al., 2022; Hope & Jones, 2014). This finding implies that the spiritual adherence of pilgrims can be considered a mental resource used to address environmental sustainability challenges. Thus, this study proposes a positive relationship between spiritual adherence and green innovative behavior.

*Hypothesis 1:* Spiritual adherence is positively related to green innovative behavior.

### **Mediating effect of green self-efficacy**

Drawing on the concept of green self-efficacy, Chen et al. (2014), defined green self-efficacy as the belief that people can plan and carry out the actions necessary to achieve environmental goals. Green self-efficacy has been considered a vital predictor of proactive and innovative behavior (Chen et al., 2015; Farooq et al., 2022; Sh. Ahmad et al., 2022; Tawde et al., 2023). In pilgrimage tourism, pilgrims' values, actions, and adherence to environmental rules and regulations help them be more proactive in natural resource management and ecological sustainability (McIntosh et al., 2018; Trono, 2021). Supporting this notion, studies have described pilgrims' involvement in tree planting, forest conservation, and other community-based conservation projects (Senbeto, 2023; Shinde, 2021; Singh et al., 2021). For example, spiritual beliefs and adherence could lead individuals to develop a sense of purpose and enthusiasm to participate in green innovative behavior, including energy saving, and responsible consumption. This proposed relationship indicates that pilgrims who exhibit a strong spirituality demonstrate a higher green self-efficacy that positively contributes to the ecological environment and adopt innovative solutions that align with their values. This argument is aligned with the conservation of resources perspective (Beh et al., 2020; Halbesleben et al., 2014); spiritual adherence can be considered a mental resource for developing proactive environmental attitudes. Accordingly, this study hypothesizes that spiritual adherence promotes green self-efficacy, and we assume the indirect effect of green self-efficacy on such direct relationships. We therefore propose this proposition:

*Hypothesis 2:* Spiritual adherence positively influences green self-efficacy.

*Hypothesis 3:* Green self-efficacy mediates the association between spiritual adherence and green innovative behavior.

### **Moderating effect of learning climate**

A learning climate consists of an organization's attitudes toward learning, thoughts, behavior, and experience (Caniëls & Baaten, 2019; Nikolova et al., 2014). This study hypothesizes that a favorable learning climate for environmental stewardship fostered by religious organizations can allow followers to develop their knowledge of and experience with green concerns. Contemporary religious studies underscore the role of spiritual organizations in teaching environmental concerns and values (Hung Lee et al., 2021; Rahmawati et al., 2019). Studies have also argued that religion could shape a person's norms, beliefs, and behavior (Buzinde, 2020; Friske et al., 2022). In addition, in pilgrimage tourism, the learning climate accentuates the pilgrims' sense of purpose, knowledge, experience, and connection to the environment, encouraging them to adopt green behavior and environmental responsibility. For example, many pilgrimage destinations, such as Christian and Muslim sites, promote responsible consumption, fasting, and waste and pollution reduction (Gutsche, 2019; Hope & Jones, 2014).

In addition, pilgrimage destinations facilitate experience sharing and learning from peers about the environment. According to conservation of resources theory, a positive learning climate can provide resources, including beliefs, norms, rules, code of conduct, and a collaborative environment. Such learning climates can enhance understanding of environmental issues and promote green behavior among pilgrims. Supporting this proposition, pilgrimage scholars have identified the importance of mental resources and guidance by religious organizations in promoting positive beliefs and attitudes toward natural resource conservation (LeSueur, 2018; Minton et al., 2022; Olsen, 2020). The importance of the role of the learning climate is also congruent with conservation of resources theory, which argues that a person may endeavor to safeguard and maintain resources, including the learning climate, that promote extra-role performance and innovative behavior. Accordingly, we expect that a positive learning climate as a moderator will likely strengthen the influence of green self-efficacy on the relationship between spiritual adherence and green innovative behavior.

*Hypothesis 4a:* The learning climate moderates the indirect effect of green self-efficacy on the relationship between spiritual adherence and green innovative behavior, such that the positive mediated relationship becomes stronger when the learning climate is positive (vs. negative).

*Hypothesis 4b:* The learning climate moderates the association between spiritual adherence and green innovative behavior, such that the positive effect of spiritual adherence on green innovative behavior is stronger when the learning climate is positive (vs. negative).

## **Methods**

### **Data collection and procedures**

The research setting for this study was Ethiopia. Located in northeast Africa, Ethiopia has a rich history of religious and pilgrimage practices, and religion is the fundamental driver of tourism in the country. Ethiopia is mentioned several times in the Holy Bible and the Holy Quran (Haggai, 2010), and many sites throughout Ethiopia are important pilgrimage destinations for people of various faiths. While the country is home to some tourism resources, including pilgrimage destinations, tourism is underdeveloped and has been subject to limited academic scrutiny. This study adopted a purposive sampling technique based on a predetermined criterion aiming to enhance the likelihood of gathering detailed descriptions of the lived experiences of the relevant participants and stakeholders (Grossoehme, 2014). The researcher chose the respondents, considering their pilgrimage experience and involvement. Accordingly, the research team initially collected survey data from pilgrims. We prepared the questionnaires in English and then translated them into Amharic (the local language in Ethiopia) using a back-to-back translation method (Sperber, 2004). We measured the theoretical constructs using psychometrically verified instruments from the literature. We informed the respondents about their anonymity and confidentiality was guaranteed. Before the primary survey, a pilot test was conducted with 39 respondents, including religious figures, experts, and pilgrims. The participants in the pilot study suggested modifications and amendments to the questionnaire survey, mainly for the learning climate and green innovative

behavior constructs. Research assistants distributed 473 questionnaires to pilgrims identified through the networks of religious figures and pilgrimage associations. After removing incomplete responses and missing data, we gathered 362 usable surveys, giving a response rate of 77%. According to the respondents' demographic data, 61% were male, 31% were between 18 and 25 years old, 35% were from 26 to 35 years old, and the remaining 33% were aged 36 and over.

**Measurement.** The measurement items were modified following the context of this study. A 7-point Likert scale (7 = strongly agree, 1 = strongly disagree) was used to measure all the constructs. The survey included spiritual adherence, green innovative behavior, learning climate, and green self-efficacy. Spiritual adherence was measured using Hodge's (2003) six items of spirituality scale. Sample items are "When I am faced with an important decision, my spirituality plays a greater role" and "Spirituality is the master motive of my life, directing every other aspect of my life." Cronbach's alpha for spiritual adherence was 0.87. Chen et al.'s (2001) six items were adopted to assess green self-efficacy of the pilgrims. Sample items are "I feel that I can be accomplishing environmental concerns" and "I believe that I can overcome environmental problems." Cronbach's alpha for green self-efficacy was 0.75. Learning climate was measured using Nikolova et al.'s (2014) 9-item. Sample items are: "My religious organization offers interesting learning opportunities about green environment" and "My religious organization provides opportunities to observe natural resource conservation efforts." Cronbach's alpha for learning climate was 0.74. Green innovative behavior was adopted using four items developed by Zhou and George (2001). Some items are: "I actively participate in green initiatives and resource conservation efforts during pilgrimage," and "I will try to minimize risks and reduce waste during pilgrimage." Cronbach's alpha for green innovative behavior was 0.86. These measurement items were recently used by scholars to assess green

innovative behavior (e.g., Wang et al., 2021; Zhang et al., 2022), showing the scales have addressed validity and reliability concerns.

## **Analysis and Results**

**Common method bias.** Procedures and statistical techniques were employed to verify the common method variance. Procedurally, respondents have ensured the confidentiality of all responses and assessed ambiguous definitions and interpretations. This approach alleviates common method variance issues caused by behavioral miscalculation, predetermined answers, and self-judgmental aspects. Statistically, the result drawn from Harman's single-factor analysis suggests that the highest variance explained by a single construct was 22%, below the threshold value of 50% (Harman, 1967). Furthermore, after testing the competing models, we found that the one-factor model demonstrates inflated chi-squares compared with the proposed hypothesized model. This finding indicates that the hypothesized model mitigates the risk of common method bias. Concerning the assumption of collinearity assessment, the value for the highest variation inflation factor was 2.3, indicating that the data did not deviate from the threshold variance inflation factor (VIF) value of 5 to 10 (Johnston et al., 2018).

**Measurement models.** Drawing from Confirmatory factor analysis (CFA) analysis, Table 2 shows that the factor loadings for all constructs were above 0.5, with t-values above 1.96 and a 95% confidence interval presented in Appendix II. The composite reliability values were above 0.70, supporting internal consistency and reliability (Hair et al., 2010). This finding implies that the item loadings and constructs were significantly related (Hair et al., 2010). Absolute and relative model fit indices were checked to assess the model, and the result indicates that the hypothesized model satisfied the acceptable model fit indices ( $X^2 = 386.45$ ;  $df = 252$ ,  $p < .01$ ,  $CFI = .93$ ;  $GFI = .91$ ;  $TLI = .90$ ;  $RMSEA = .031$ ). Furthermore, the AVE values surpassed the upper limit of 0.50, and the result supports the assumption of convergent validity (Fornell & Larcker, 1981). For the discriminant validity, the result demonstrates that the proposed hypothesized model is a better fit than the competing one-factor ( $X^2 = 1125.23$ ,

$df = 675, p < 0.01, GFI = 0.52, CFI = 0.68, TLI = 0.57, RMSEA = 0.62$ ) and three-factor model ( $X^2 = 422.41, df = 142, p < 0.01, CFI = 0.89, GFI = 0.91, TLI = 0.87, \text{ and } RMSEA = 0.49$ ). Moreover, Table 2 shows that the square root of AVE is greater than the construct correlations (Hair et al., 2010). In addition, all constructs' factor loadings achieved statistical significance with  $p < 0.01$ , signifying that the constructs satisfied the reliability and validity.

### **Hypotheses testing**

Table 2 exhibits the correlation result showed that spiritual adherence was positively correlated with green self-efficacy ( $r = .32, p < 0.05$ ) and green innovative behavior ( $r = .13, p < 0.05$ ). In addition, we found a positive relationship between green self-efficacy and green innovative behavior ( $r = .21, p < .05$ ). The results indicate that spiritual adherence was positively associated with green innovative behavior ( $\beta = .19, p < 0.05$ ) and green self-efficacy ( $\beta = .11, p < 0.05$ ). This finding supports Hypotheses 1 and 2. We performed a parametric bootstrap procedure using SPSS PROCESS macrocode (Taylor et al., 2008; Hayes, 2013) to estimate the indirect role of green self-efficacy on effect of spiritual adherence on green innovative behavior. The bootstrap results show the positive mediating role of green self-efficacy on the link between spiritual adherence and green innovative behavior (indirect effect = .07, 95% bias-corrected bootstrap CI [.002, .163]). Accordingly, the finding supports hypothesis 3.

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The moderated-mediation role of learning climate was performed based on two conditions (Edwards & Lambert, 2007; Muller et al., 2005): 1) the moderating role of learning climate on the direct relationship between the predictor (i.e., spiritual adherence) and the outcome variable (i.e., green innovative behavior), and/or 2) the moderating effect of learning climate on the path from the green self-efficacy to green innovative behavior. Based on these assumptions, we found that the interaction term (i.e., spiritual adherence  $\times$  learning climate)

was positively related to green self-efficacy ( $\beta = .13, p < .05$ ), and this finding supports hypothesis 4a. Figure 1 exhibits the interaction effect based on the conditional values of learning climate for the descriptive purpose by considering one SD above and below the mean. The figure shows that the impact of learning climate on green self-efficacy is stronger when the learning climate is positive.

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The interaction term (i.e., learning climate  $\times$  green self-efficacy) was also positively related to green innovative behavior ( $\beta = .08, p < .05$ ). Figure 2 shows that the effect of green self-efficacy on the association between spiritual adherence and green innovative behavior is stronger when the role of the learning climate is high. This finding supports hypothesis 4b. However, the coefficient size for the moderating effect of learning climate on the direct relationship was slightly smaller than the indirect effect via green self-efficacy. This finding implies that the learning climate helps to enhance green innovative behavior in the pilgrimage tourism setting. Figure 3 also shows that when the learning climate is high, the positive effect of green self-efficacy on green innovative behavior becomes stronger.

### **The Qualitative study**

To supplement the quantitative findings, we collected qualitative data using semi-structured interviews and media sources. The qualitative data in this study concerned the experiences of pilgrims with green innovative behavior and were collected to clarify, confirm, and explain the tested hypotheses (Creswell & Clark, 2018). A purposive sampling procedure (Campbell et al., 2020) was used to select interviewees based on the pilgrims' experience and engagement in pilgrimages. Semi-structured interviews were conducted with 13 pilgrims, whose profile is presented in Appendix I. The research team approached the respondents through professional networks and suggestions from the respondents. Before the interviews, we informed the respondents about the study's purpose and ethical considerations, such as the anonymity and

confidentiality of their profiles and responses. The average time for each online interview was 30 minutes. The interview questions focused on the association between spiritual adherence in pilgrimage tourism and green innovative behavior (see Appendix III for interview protocols). The interview format and protocol were partly derived from recent studies on green innovation, pilgrimage, and the environment (e.g., Felix et al., 2018; Oduro et al., 2021; Senbeto, 2023; Shinde, 2021).

In addition to the interviews, we examined media sources to explain the role of spiritual adherence and religious organizations in promoting green innovative behavior. Media sources, including news and reports, were extracted from media outlets and websites such as National Geographic, The Guardian (UK), and national and international tourism organizations. We performed data analyses using exploratory qualitative data analysis techniques that allow data from multiple sources to be combined to enable researchers to use observations, experiences, and opinions to draw generalizations and develop an understanding of an issue (Cox, 2017). We transcribed the interviews manually and then carried out member checking to review the structure and consistency of the final interview results (Guba & Lincoln, 1998). The data analyses drew on concepts and defined themes from the transcribed interviews and manual codes.

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## **Results and Discussion**

The findings indicate that spiritual adherence is positively related to green self-efficacy and green innovative behavior. Going beyond what we currently know about the emotional and psychological components of pilgrimage, the findings demonstrate the multidimensional outlook of pilgrimage tourism as a mechanism to leverage green innovative behavior. Our qualitative interviews also indicated that adherence to spiritual values enhances individuals' positive attitudes toward and respect for nature. Unlike previous studies on the role of

pilgrimage and religious tourism, the results extend the spiritual, communal, and learning aspects of pilgrimage tourism in fostering green innovative behavior. Most respondents noted that the understanding and awareness of ecological issues gained from spiritual adherence and pilgrimage practices encouraged them to engage in green behavior. The respondents mentioned that pilgrims' strong spiritual orientation enriches their sense of responsibility and stewardship toward the environment (I5, I8, and I11). For example, I5 noted the following:

I believe that we [pilgrims] have a better understanding of spiritual values, which is reflected in our deep respect for nature and the natural environment in and around the pilgrimage sites.

Although previous studies document the necessity of religious values toward green environment (Friske et al., 2022; Trono, 2021; Zagonari, 2021), the study advanced the current view of understanding pilgrimage tourism in demonstrating the devotion of spiritual values and meanings, which creates a suitable context for green innovative behavior. Extending this view, the results inform how pilgrims perform green innovative behavior by practicing green innovation in the emerging tourism market setting. The findings reveal that spiritual adherence could not only provide conducive environments that augment the green innovative behavior during pilgrimages. Supporting this proposition, a respondent (I13) made the following comment:

The sense of congruence with spiritual life enables me to respect the natural resources at sacred sites. I observe that, unlike other travelers, pilgrims show a sense of belonging and care about the environment. For example, we choose public transportation instead of private vehicles and prefer walking, which reduces congestion and pollution.

Consistent with this, another respondent I4, made the following comment:

We are always inclined to spiritual matters and to withhold our comfort to obey our faith and the spiritual duties that enhance a positive attitude and proactive engagement with the green environment.

Furthermore, most respondents noted that pilgrimages helped them understand the value of the environment; for example, they may observe the conservation and preservation of indigenous forests around a pilgrimage site (I2, I3, I11, and I12). Such practices support the underlying mechanisms of green self-efficacy and learning climate in developing green innovative behavior, driven by religious rules, ritual procedures, and learning to reinforce environmental awareness. This research in the tourism context extends the view that individual's values of condensing ecological concerns about promoting afforestation, preservation, and conservation of forests positively influence green innovative behavior. Hence, the findings showed the importance of responsibility and concern for the surrounding social and ecological conditions in pilgrims' decisions to practice green innovation.

In addition, the research offers empirical evidence that the higher the learning climate, the stronger individuals' attitude to green innovation. For example, some of the interviewees (I1, I6, and I9) emphasized that the rules and regulations of the church guided them in proper consumption and waste management behaviors (I1, I6, and I9). For instance, a respondent (I7) said the following:

Given our spiritual values and obligations, we prefer to consume products such as accommodation, food, and drink provided by the monastery. We also manage waste properly and keep the surrounding environment clean.

A media report from National Geographic supports the above proposition on the effect of pilgrimage on the green environment. Citing a local informant, Borunda (2019) reported the following:

Many church forests remain protected by their religious stewards and their communities. They are tiny fragments of a lost past and the center of hope for conservation and future restoration.

Another media report by Chandler (2019, *p.* 1) explained the implication of pilgrimage sites for green innovation as follows:

They [are] vital islands of biodiversity in a region burdened by deforestation and overgrazing. They help protect water supplies and soil quality and provide habitat for pollinators, which are essential for the forests and adjacent crops.

This study in the pilgrimage tourism context also verified the benefit of closer links between consumer values and sustainability innovation derived from behavioral, social, and psychographic characteristics. This research identified the role and importance of green innovation in the tourism industry, examining factors such as service authenticity (Lin & Chen, 2018), education and training, resource limitation (Zhang, Ma, & Guan, 2023), and maintaining competitive advantages (Wang, 2022). In line with the conservation of resources theory, the results indicate that social and psychological resources, such as learning and experiences, can foster innovative behavior (Luu, 2019; Nawaz Khan, 2022). Our results align with previous studies indicating that pilgrims are motivated mainly by spiritual adherence and embrace a proactive attitude to green practices (Robina-Ramírez & Pulido-Fernández, 2021; Senbeto, 2023; Shinde, 2021). By shedding light on pilgrimage tourism and green innovation, the study expands the current understanding of pilgrimage tourism and green innovation within the literature by demonstrating the intricate association between spiritual adherence and green innovative behavior in pilgrimage tourism destinations. Referring to the underlying mechanisms of green innovative behavior, this study adds empirical insights and knowledge in approaching green innovation in pilgrimage tourism destinations by reinforcing self-efficacy and learning climate. The findings provide a nuanced understanding of the sustainability

aspects of pilgrimage journeys that integrate spirituality, green self-efficacy, and learning environment in the pilgrimage tourism destination.

## **Implications and Conclusion**

### **Theoretical implications**

The study provides several theoretical implications. The first is our theoretical model of the mechanisms linking spirituality to green innovative behavior in pilgrimage destination settings. The model broadens the discussion of tourism's impact on the environment by examining the under-explored setting of pilgrimage tourism, extending to the existing insufficient studies on green innovation in non-commercial tourism market segments (Gürlek & Koseoglu, 2021; Oduro et al., 2021; Takalo et al., 2021). Second, the study provides insights into how learning climate and green self-efficacy are the mechanisms through which spiritual adherence influences green innovative behavior. This study closes a knowledge gap about the relationship between spirituality and green innovative behavior, which is relevant given the increasing demand on the tourism sector to adhere to environmental standards. The study also contributes to the conservation of resources theory (Beh et al., 2020; Hobfoll, 2001) by extending our understanding of how individuals acquire resources and experiences to maintain and protect resources. The findings show the importance of learning climate and green self-efficacy in shaping the impact of spirituality on green innovative behavior.

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Third, the study extends our understanding of pilgrimage tourism and green innovation in non-Western and emerging economies. The findings are a step toward extending the study of green innovation to emerging economies, as previous studies of green innovation (Arici & Uysal, 2022; Farooq et al., 2022) and religious tourism (Senbeto, 2022) are dominated by Western perspectives and settings. Despite the country's potential as an emerging economy and its substantial growth over the past decade (Gebremeskel et al., 2021; Hansen & Wethal,

2014), Ethiopia still faces socio-economic and political challenges, including political turmoil, poverty, and environmental concerns. Hence, this study provides a vital empirical analysis of pilgrimage tourism and green innovation in an emerging non-Western economy and helps illustrate the benefits of using indigenous resources in promoting green innovation in less-developed nations. Therefore, this research addresses the limited academic scrutiny of green innovative behavior and pilgrimage tourism in emerging economies.

### **Practical Implications**

The findings have practical implications for destination managers, tourism practitioners, and policymakers. The results suggest that tourism organizations and destination managers could emphasize religious tourism to mitigate the alarming climate crisis resulting from pollution, irresponsible consumption, and forest degradation. The results could help destination management organizations and managers formulate and implement learning strategies and activities focusing on experience-sharing, awareness-raising, and educational programs. Such pilgrimage-related learning activities could improve knowledge sharing, transform experiences, and nurture green innovation in the tourism industry. The findings may encourage managers and policymakers to use indigenous beliefs and practices in promoting sustainable development and the conservation of natural resources. In particular, they could develop educational programs and campaigns that promote pro-environmental behavior by teaching spiritual values and green self-efficacy. Policymakers could consider green innovation as a way to minimize environmental challenges, such as global warming, deforestation, drought, and resource shortage. Fostering ritual and indigenous practices, such as pilgrimages, may achieve the delicate balance between economic development and resource protection.

In addition, this study highlights the benefit of pilgrimage tourism for green innovation in supporting global sustainable developmental goals. The UN (2018) has identified tourism as a “sector of hope” for fostering ecosystem performance and economic development. In line with this, this research highlights the importance of encouraging eco-friendly business

strategies, responsible consumption, and energy-saving mechanisms in the tourism industry (Christofi et al., 2022; Otoo et al., 2022). The findings support the development of economically friendly resource management methods in lieu of expensive renewable energy projects. The findings of this study could strengthen efforts to achieve green innovation and sustainable socio-economic development in emerging economies. Policymakers could formulate cost-effective policies and directions to ensure environmental sustainability in tourism organizations. Bearing the spiritual adherence of the individual as a mechanism to augment innovative thinking toward the green environment, policymakers could implement innovative solutions for sustainability challenges.

### **Limitations and Future Directions**

Although we adopted purposive sampling to target respondents with relevant knowledge and experience, the non-probability sampling strategy and small sample size may compromise the generalizability and representativeness of the findings. Future studies could adopt a repeated measures design or conduct field experiments to examine the approximate causal relationship among the constructs with consideration of the consistency of individuals' green innovative behavior across different settings (Viglia & Acuti, 2023). Studies could investigate the role of different religions and ritual activities in green innovative behavior. To expand the current research model, studies could consider exploring other antecedents and intervening variables, such as green leadership (Bhutto et al., 2021), cognitive processes (Kim et al., 2022), and green orientation (Qin et al., 2023). In addition, future studies could investigate how socio-demographic variables such as gender and age affect pilgrims' behavior (Casalegno et al., 2022; Zhang et al., 2023). Replicating this study in different religious, socio-demographic, and geographical settings would also strengthen the inferences. Comparative studies of pilgrimage tourism and green innovation across developed and emerging economies would also be valuable.

## **Conclusion**

This study used pilgrimage tourism to examine how the tourism industry could positively impact the environment, given the global climate crisis. The results demonstrate that spiritual adherence augments green innovative behavior in pilgrimage tourism settings. The results underscore the function of pilgrimage travel in upholding green innovation strategies and the potential use of pilgrimage as a mechanism for promoting green innovative behavior. The empirical results may help the development of methods for tackling environmental concerns in tourism. They may provide the basis for future studies on this topic in both the tourism and non-tourism sectors. The findings demonstrate the integration of spiritual adherence and green behavior, highlighting how spiritual adherence embraces intrinsic values such as ethical principle, commitment, and stewardship, influencing green innovation. This integration extends our understanding of the underlying mechanism for fostering environmental sustainability. While the existing literature focuses on external factors in promoting green behavior, this study explores internal motivations and social norms that encourage green innovation derived from spirituality. The study demonstrates that spiritual adherence significantly shapes green behavior beyond external motivations and economic support. In summary, the findings expand the understanding of the multifaceted connections between spirituality and environmentally conscious actions, providing a more comprehensive view of the pathways toward sustainable behavior.

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**Table 1. Literature on green innovation**

Author	Location	Methodology	Issues addressed	Key findings/suggestions
Wang (2022)	Vietnam	Quantitative: Primary data	Promoting green innovation strategies helps to enhance public expectations and build competitiveness in the hotel industry in emerging economies.	Intellectual capital is a critical intangible resource for the hotels to augment green innovation, and is necessary for hotels' reputation, stock price, and other competitive advantages.
Chou et al., 2012	Taiwan	Quantitative: Primary data	Addressed the difficulty of advocating green innovation align with customer needs.	Emerging customer habits, such as diets and healthy meals enhances green innovative performance.
Tuan (2021)	Vietnam	Quantitative: Primary data	Employee's role in creating green innovative service with customers.	Employees' initiative through internal green marketing and green training.
Lin & Chen (2018)	Taiwan	Quantitative: Primary data	Underline authenticity of tourism services to address green innovation.	Argued on stakeholder collaboration, such as suppliers, partners, and customers to create more attractive products and services.
Mittal & Dhar (2016)	India	Quantitative: Primary data	Investigate the impact of transformational leadership on green creativity.	The study indicates that green transformational leadership plays an important role in leading tourist hotel employees to apply green innovative moves.
Senbeto (2023)	Ethiopia	Qualitative data	Examine the role of pilgrimage tourism to green innovation.	The paper explores factors influencing the implications of pilgrimage tourism to the green innovation development, such as spiritual adherence and the role of religious organizations.
Su & Swanson (2019)	China	Quantitative: Primary data	Emphasize corporate social responsibility through encouraging green behaviors of hotel employees.	Employee sense of belonging and well-being can directly inspire employee green behavior.
Bani-Melhem et al. (2022)	United Arab Emirates	Quantitative: Primary data	Examine the multi-level effect of green innovation performance in the hotel sector.	Green innovation lays positive influence on customer's loyalty. Hotels need to promote various strategies to different target groups to guarantee the success of hotel's green practices.
Qin et al. (2023)	China	Quantitative: Primary data	Probing the role of institutional pressures, future orientation, and past experience on green innovation in the event industry.	The study argued that the more an exhibitor focuses on long-term benefits, the more willing he is to adopt green innovations.
Kuo et al. (2022)	Taiwan	Quantitative: Primary data	Examining Eco-innovation, green competitive advantage, and green strategies in the hotel industry.	The study suggests that the importance of education and training to culminate success in green innovation in the hospitality industry.

Luu (2022)	Vietnam	Quantitative: Primary data	Exploring the necessity of customers' role on employees' green creative behavior.	The findings demonstrated that customers could support green creativity through their involvement in green service innovation and triggering employees' green creative behavior.
Casalegno et al. (2022)	Italy	Quantitative survey	Exploring the antecedents of green and sustainable purchase behavior.	Age, environmental concern, and perceived consumer effectiveness play a considerable role in promoting green innovation in the hospitality industry.
Zhang, Ma, and Guan (2023)	China	Quantitative survey	Financial scarcity on green consumption: Sequential mediating effects of anxiety and self-efficacy.	The findings indicate that financial scarcity hampers customer preference towards green services. In addition, social support, and self-efficacy influences customer intention toward green consumption.

**Table 2**  
**Means, Standard Deviations, and Correlations of Variables**

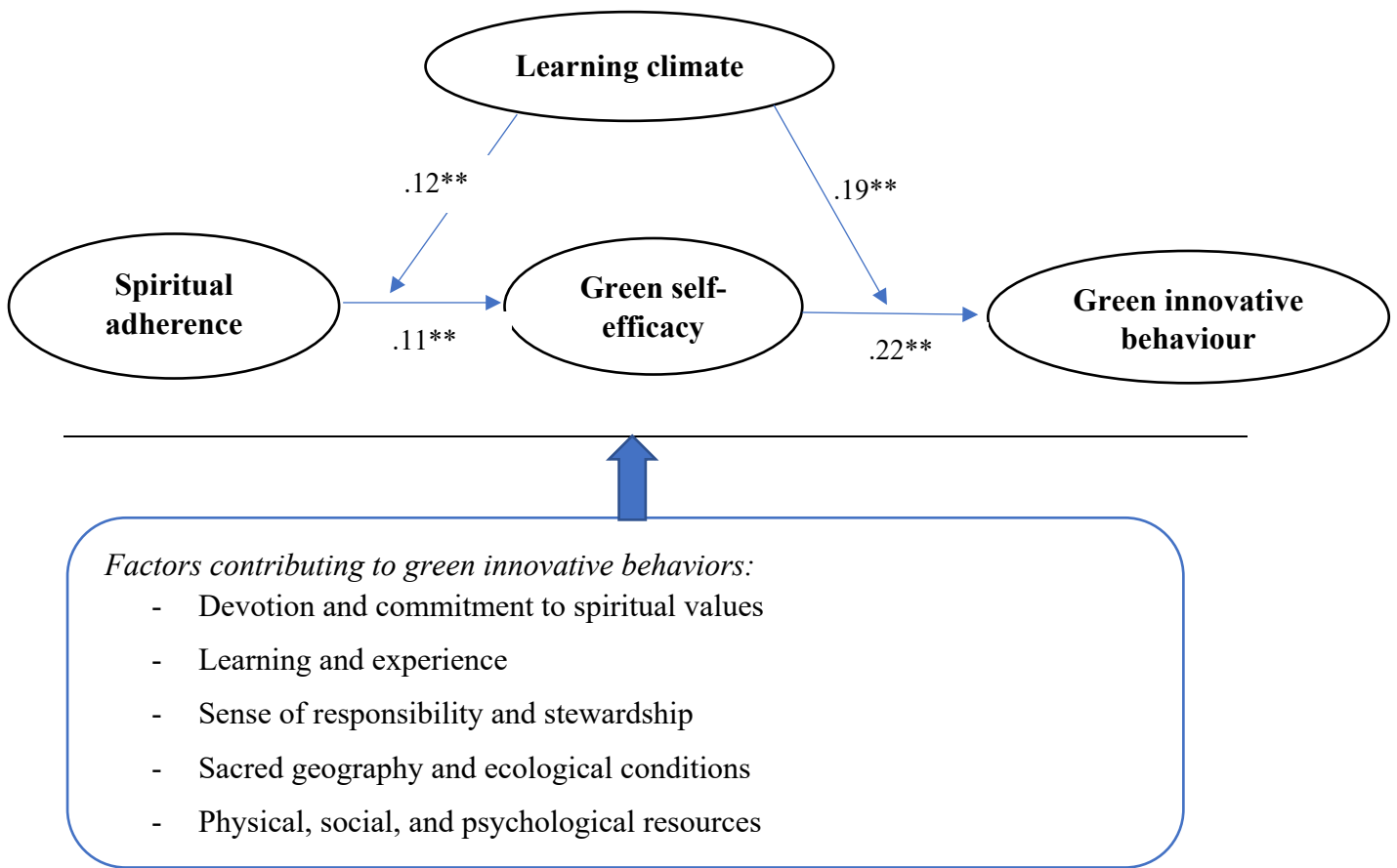
<b>Variable</b>	<b>Mean</b>	<b>SD</b>	<b>SA</b>	<b>GSE</b>	<b>GIVB</b>	
Spiritual adherence (SA)	5.6	.80	<b>.42</b>			
Green self-efficacy (GSE)	5.2	.96	.32*	<b>.35</b>		
Green innovative behavior (GIVB)	5.1	1.11	.13**	.21*	<b>.43</b>	
Learning climate (LEC)	4.7	.76	.15**	.18**	.12*	<b>.38</b>

*Note: Boldfaced diagonal values represent the square root of AVE; Off-diagonal numbers represent inter-construct correlation values.*

*\*\* Correlation is significant at the 0.01 level (2-tailed).*

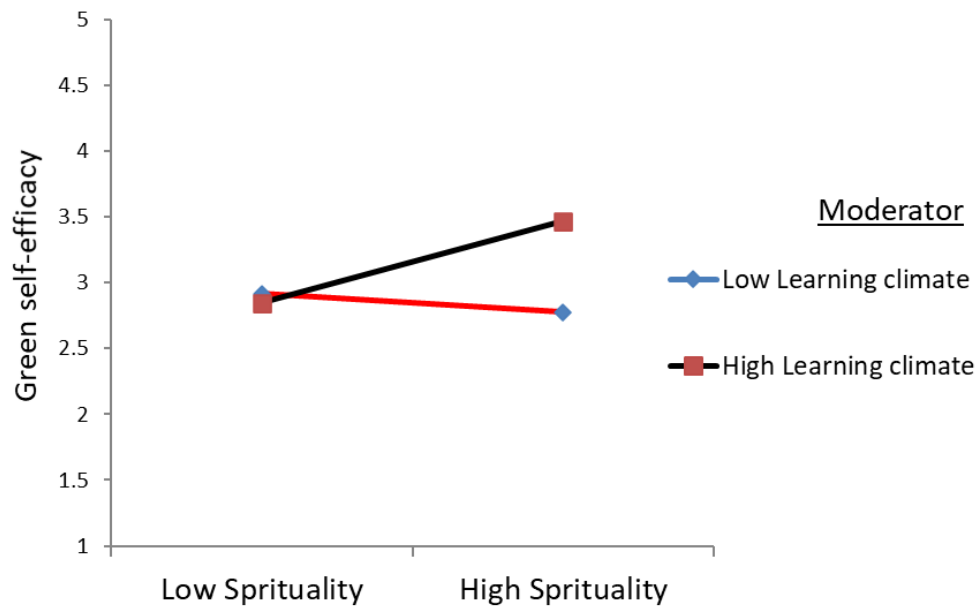
*\* Correlation is significant at the 0.05 level (2-tailed).*

**Figure 1**  
Research model on spiritual Adherence and green innovative behavior



**Figure 2**

The moderating effect of learning climate on the relationship between spiritual adherence and green self-efficacy



**Figure 3**

The moderating effect of learning climate on the relationship between green self-efficacy and green innovative behavior

