tourism and hospitality

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Guidelines for Accommodation Business Development Under the Sustainable Development Goals (SDGs) for Potential Mainstream Customers in the Northern Region, Thailand

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Highlights

What are the main findings?

- Among SDG-aligned practices, marine/ecosystem conservation and staff training most strongly enhance memorable tourism experiences, while adequate staffing levels and staff attentiveness are the key service quality drivers.
- Memorable tourism experiences partially predict brand loyalty, with refreshment, hedonism, involvement, and novelty as significant predictors, whereas meaningfulness, local culture, and knowledge show no significant effect.

What are the implications of the main findings?

- Accommodation businesses should prioritize experientially visible and human-mediated sustainability practices—particularly staff training and observable environmental initiatives—rather than distributing resources evenly across all SDG indicators.
- To build brand loyalty, hospitality providers should design services that emphasize refreshment, enjoyment, guest involvement, and novelty, offering a targeted strategy for sustainable accommodation development in Northern Thailand and similar regional contexts.

Abstract

Sustainable tourism is a strategic priority for accommodation businesses aiming to support the Sustainable Development Goals (SDGs) and attract high-potential Thai travelers. This study examined how tourists' perceived importance of SDG-aligned practices and service quality affected memorable tourism experiences (MTEs) and brand loyalty toward three- to four-star accommodations in Northern Thailand. A sequential explanatory mixed-methods design was employed, combining a survey of 400 domestic tourists in Chiang Mai, Chiang Rai, Phetchabun, and Nan, followed by 11 semi-structured interviews with accommodation managers. Multiple regression models were estimated in R to test the hypothesised relationships. Respondents reported high importance of SDG practices (M = 4.16) and favourable perceptions of service quality (M = 3.972), MTEs (M = 3.812), and loyalty (M = 4.075). SDG-aligned practices were positively associated with MTEs, with ecosystem conservation and staff training showing the strongest associations. Service quality was significantly related to all MTE dimensions, especially through adequate staffing and employee attentiveness. Multiple regression revealed that SDG-aligned

Academic Editors: Christian Stipanović, Marko Šostar and Berislav Andrlić

Received: 26 September 2026
Revised: 20 November 2026
Accepted: 21 November 2026
Published: 26 November 2026

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practices and service quality explained 37.6–89.1% of the variance in MTE dimensions, and MTE explained 70.7% of brand loyalty (R^2 = 0.707); refreshment, hedonism, involvement, and novelty were significant predictors, whereas meaningfulness, local culture, and knowledge were not. Integrating quantitative and qualitative data elucidates the mechanisms through which sustainability practices shape guest experiences and loyalty, while capturing managerial insights that may not be evident from quantitative data alone. Accommodation providers should embed targeted sustainability initiatives and service-quality improvements to strengthen tourist experiences, foster loyalty, and advance sustainable regional tourism development.

Keywords: Sustainable Development Goals (SDGs); mid-tier accommodation; sustainable service quality; memorable tourism experience; brand loyalty; high-spending Thai tourists; accommodation business development; green hotel

1. Introduction

The Sustainable Development Goals (SDGs), established by the United Nations in 2015 for 2016–2030, provide a global framework for sustainable development in 17 thematic areas. Across all thematic areas, the SDGs call for mitigating the adverse environmental, social, and economic impacts of commercial activities while advancing sustainable operational practices (Karim et al., 2025). Consequently, sustainable tourism has become both an increasing concern among travelers and a strategic priority for tourism and hospitality businesses (Wani et al., 2025).

The growing awareness about sustainability among travelers is evident through changes in accommodation preferences. A Booking.com survey reported that more than 90% of Thai travelers tended to choose sustainable accommodation based on sustainability criteria (Raaijmakers & van der Laan, 2024), while approximately 44% intended to select environmentally friendly accommodation to reduce environmental impacts (Innovation Technology, 2022). This trend suggests that integrating sustainability into accommodation services is increasingly important for meeting evolving tourist expectations.

In Thailand, promoting high-potential domestic tourism has also become a key strategy for regional tourism development. The (Tourism Authority of Thailand [TAT], 2024), through its 2025 Northern Regional Tourism Marketing Promotion Direction Plan covering 17 provinces, emphasizes increasing tourism revenue by attracting high-potential or high-spending mainstream Thai tourists (Veilleux & Sarrasin, 2025). The strategy focuses on dispersing tourists to secondary destinations, increasing expenditure and length of stay, promoting high-value tourism products and experiences, encouraging weekday travel, and strengthening collaboration among tourism stakeholders. Accordingly, tourism revenue depends not only on visitor numbers but also on higher spending and longer stays (Santos, 2024).

Rather than focusing on luxury segments, this study targets 'high-potential domestic tourists'—an economically vital cohort of mainstream travelers characterized by above-average overall trip expenditure and repeated visitation, yet anchored in mid-tier (three- to four-star) accommodations (Lee-Anant et al., 2024). Understanding their cognitive evaluation of lodging sustainability offers critical insights for scalable, mainstream hospitality management.

High-potential mainstream Thai tourists therefore represent a strategically important domestic market for Northern Thailand. However, realizing this market's economic potential requires accommodation businesses to understand and respond to tourists' expectations and behavioral intentions (Angkanurakbun & Pruksorranan, 2024). In particular,

service quality can influence perceptions, satisfaction, revisit intentions, and customer loyalty (Nguyen et al., 2021).

Against this background, this study examines Sustainable Service Quality (SSQ) in three- to four-star accommodation establishments in Northern Thailand, an important accommodation segment for high-potential mainstream Thai tourists. SSQ extends conventional service quality by incorporating sustainability-oriented practices into service delivery, reflecting the growing integration of sustainability into tourism and hospitality management. Examining SSQ can therefore identify service-quality dimensions that enhance tourist satisfaction and loyalty while supporting sustainable accommodation practices.

Understanding the SSQ dimensions valued by this market can provide empirical evidence for accommodation operators and tourism stakeholders to improve sustainable service delivery, align accommodation experiences with tourist expectations, and encourage repeat patronage and longer stays. Such outcomes may increase overnight stays and tourism expenditure across Northern Thailand.

Despite growing interest in sustainable tourism, empirical research reveals critical theoretical voids. First, existing literature overwhelmingly examines Memorable Tourism Experiences (MTEs) at the macro-destination scale (Badu-Baiden et al., 2022; Stavrianea & Kamenidou, 2022), leaving unexplained the micro-level transmission mechanisms through which specific lodging touchpoints evoke enduring cognitive-affective memories that lead to commercial brand loyalty (Murray et al., 2025). Second, while the integration of corporate social responsibility and sustainable practices has been recognized (Latif et al., 2020), empirical studies largely treat sustainability as a holistic, undifferentiated construct, omitting how distinct, granular operational practices across the UN Sustainable Development Goals (SDGs) act as operational stimuli in tandem with conventional service performance (Parasuraman et al., 1988). Finally, prior models fail to explain the differential, non-uniform contributions of specific experiential memory dimensions to conative customer loyalty within the accommodation sector. Addressing these voids, this study extends the Stimulus–Organism–Response (S-O-R) paradigm (Mehrabian & Russell, 1974) and Experience Economy theory (Pine & Gilmore, 2013) to investigate the asymmetric impacts of SDG-aligned operational attributes and perceived service quality on MTE subdimensions and brand loyalty among high-potential mainstream tourists in Northern Thailand. Therefore, this study investigates Sustainable Service Quality in three- to four-star accommodation establishments in Northern Thailand, focusing on its potential to attract and foster loyalty among high-potential mainstream Thai tourists. The findings are expected to provide practical guidance for sustainable service management while contributing to longer stays, higher tourist expenditure, and higher tourism-related income in Northern Thailand. The study thus aligns with the TAT's strategic emphasis on increasing tourism revenue through higher spending and longer stays, while supporting sustainable tourism development and the broader objectives of the SDGs.

2. Literature Review

2.1. Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs), adopted by all 193 United Nations Member States in 2015, provide a global framework for sustainable development during 2016–2030. The 17 goals address interconnected economic, social, and environmental challenges through five dimensions: people, prosperity, planet, peace and institutions, and partnerships (United Nations, 2015). The SDGs also provide organizations with a framework for integrating sustainability into business operations, policies, resource management, and long-term development strategies (Kolk & Van Tulder, 2010).

The hospitality industry is particularly relevant to SDG implementation because hotel operations consume substantial energy and water, generate waste, use physical

resources, and interact extensively with customers, employees, local communities, and the environment. Accordingly, international tourism organizations have encouraged hotels to integrate the SDGs into organizational strategies and operations (Jones & Comfort, 2019). Growing environmental awareness has also increased customer preference for environmentally and socially responsible businesses, potentially enhancing corporate reputation, competitive advantage, and customer satisfaction (Latif et al., 2020). SDG-related organizational practices encompass quality assurance, customer support, integrity, innovation, accessibility, environmental responsibility, employee satisfaction, and fair treatment, demonstrating that sustainability extends beyond environmental concerns to broader stakeholder well-being (Jones & Comfort, 2019; Lin et al., 2025).

Thus, the SDGs provide a conceptual foundation for integrating sustainability into hospitality service delivery and support the development of Sustainable Service Quality (SSQ) as an extension of conventional service quality.

2.2. Perceived Service Quality

Perceived service quality is a fundamental concept in hospitality research. The SERVQUAL model of Parasuraman et al. (1988) identifies five dimensions: tangibility, empathy, responsiveness, reliability, and assurance. These dimensions represent physical facilities and personnel appearance, individualized attention, prompt service, dependable performance, and employees' knowledge and ability to inspire trust, respectively.

SERVQUAL has been widely applied in hospitality because hotel service quality depends on employee–customer interactions, physical facilities, and service processes. High perceived service quality can enhance customer satisfaction, favorable impressions, and loyalty (A. Wong, 2004). However, conventional service quality may not fully reflect contemporary expectations regarding environmental and social responsibility. Sustainable Service Quality therefore extends conventional service quality by integrating sustainability-oriented practices into service delivery, enabling accommodation establishments to address customer expectations alongside environmental, social, and organizational sustainability.

2.3. Memorable Tourism Experience

Memorable Tourism Experience (MTE) has gained increasing attention because memorable experiences can influence subsequent tourist behaviors, including word-of-mouth and repurchase intentions (Flacandji & Krey, 2020; Y. Kim et al., 2022a; Prentice et al., 2022; Roggeveen & Rosengren, 2022; Sharma et al., 2022; Stone et al., 2022). Y. Kim et al. (2022b) conceptualized MTE through seven dimensions: hedonism, meaningfulness, local culture, involvement, refreshment, novelty, and knowledge.

Memorable and distinctive experiences can remain in tourists' memories, shape behavioral intentions and loyalty, and contribute to destination competitiveness and sustainability through positive evaluations and recommendations (X. Chen et al., 2020; Zhang et al., 2018). In accommodation settings, physical facilities, service interactions, local culture, sustainable practices, and personalized services can collectively create meaningful experiences. MTE therefore provides an important mechanism for understanding how sustainable service encounters become enduring memories that may strengthen tourist attachment and loyalty.

2.4. Brand Loyalty

Service loyalty refers to repeated purchasing behavior, positive attitudes, and preference for a particular service provider (Kandampully & Suhartanto, 2003). In hospitality, loyalty supports repeat purchases, positive recommendations, customer relationships, and long-term business performance.

Customer loyalty encompasses both behavioral and attitudinal dimensions, including positive communication, recommendations, first-choice preference, and increased future patronage (Kandampully & Suhartanto, 2003). It can also be assessed through positive word-of-mouth, switching behavior, and willingness to pay more (Hsu, 2008; Johnson et al., 2001; Kandampully & Suhartanto, 2003). Loyal customers are more likely to return, recommend a provider, maintain their relationship, and select the provider as their preferred choice (Zeithaml et al., 1996).

In sustainable accommodation, loyalty may further reflect customers' continued preference for establishments whose service quality meets their expectations for environmental and social responsibility. Understanding its determinants is therefore important for developing sustainable competitive advantage and long-term customer relationships.

2.5. High-Spending Thai Tourists

High-potential or high-spending Thai tourists constitute an important domestic tourism segment because of their relatively high expenditure and contribution to tourism revenue. TAT Review Magazine (2019) estimated this market at approximately 13.63 million people, based on the Thai population aged 20–70. The segment includes generation Y, multi-generation travelers, high-end tourists, silver age tourists, millennial moms, and women travelers.

To avoid conceptual conflation, this study delineates between high-income earners (socioeconomic status), luxury tourists (high-end accommodation spenders), and high-potential domestic tourists (behavioral total trip expenditure). Following the Tourism Authority of Thailand's market segmentation framework (TAT Review Magazine, 2019), high-potential domestic tourists are defined by aggregate trip spending exceeding national thresholds (THB 6890 per person per trip, excluding airfare), characterized by substantial discretionary outlays on gastronomy, local experiences, and retail rather than premium hotel rates. Consequently, accommodation rates concentrated within the THB 1500–3000 range (83.6% of the sample) precisely align with the profile of mid-scale, high-potential domestic travelers who optimize lodging outlays to maximize destination-wide consumption (Dolnicar, 2010; TAT Review Magazine, 2019).

These tourists commonly travel in April with a partner or spouse, use private vehicles, and prefer three- to four-star hotels or resorts. They typically book accommodation in advance, often directly with establishments, with an average lead time of 16.8 days. Photography and ecotourism are popular activities, while Facebook is commonly used to share travel experiences. They also tend to rely on trustworthy information, particularly the experiences of previous visitors (TAT Review Magazine, 2019).

Psychographically, they comprise four groups: Happiness Blend, seeking enjoyment and new perspectives; Live & Learn, seeking authentic learning and inspiration; Everything Everywhere, seeking harmony, enjoyment, positive memories, and relaxation; and Journey Up Close, seeking distinctive experiences, escape from contemporary pressures, and engagement with local lifestyles. Thus, although heterogeneous, this market generally values quality accommodation, authentic experiences, meaningful activities, and memorable travel.

These characteristics directly correspond with the present study because high-spending Thai tourists commonly select three- to four-star accommodation and value authentic, meaningful, enjoyable, and memorable experiences, suggesting that SSQ may influence their accommodation experiences and loyalty.

2.6. Accommodation Industry in Northern Thailand

The accommodation industry is a key component of tourism and regional economic development through tourist services, employment, and tourism expenditure. Northern Thailand accounts for approximately 21.5% of Thailand's accommodation establishments and 16.0% of total room capacity, ranking fourth nationally. Major tourism provinces, particularly Chiang Mai and Chiang Rai, contain substantial accommodation capacity, including establishments operating under recognized or international standards (Bank of Thailand, 2000).

In 2021, Northern Thailand had approximately 6,401 accommodation establishments, with more than 60% concentrated in major tourism provinces. Chiang Mai had approximately 2,681 establishments, followed by Chiang Rai (477), Phetchabun (251), and Nan (240) (National Statistical Office, 2024). Accommodation establishments comprised hotels (37%), houses and homestays (25%), apartments (12%), and hostels (7%), with prices ranging from several hundred to more than one hundred thousand baht per night (Supasethsiri, 2024).

The large and diverse accommodation market creates considerable competition, making service quality, differentiation, customer experience, sustainability, and loyalty increasingly important. Three- to four-star establishments are particularly relevant because they correspond with the preferences of high-potential Thai tourists. Integrating sustainable practices into hotel operations may therefore enhance service quality, create experiences, strengthen loyalty, and support long-term tourism development in Northern Thailand.

2.7. Literature Synthesis

The literature establishes interconnected relationships among sustainability, service quality, memorable tourism experiences, and customer loyalty. The SDGs provide the overarching framework for integrating sustainability into hospitality, while SERVQUAL demonstrates the importance of perceived service performance in shaping customer evaluations and behavioral responses (Parasuraman et al., 1988). The growing importance of environmental and social responsibility supports extending conventional service quality toward Sustainable Service Quality, which integrates service performance with sustainability practices.

Memorable Tourism Experience explains how tourists transform service encounters into enduring memories through hedonism, meaningfulness, local culture, involvement, refreshment, novelty, and knowledge, potentially influencing positive word-of-mouth, repurchase intentions, and loyalty (X. Chen et al., 2020; Y. Kim et al., 2022a; Zhang et al., 2018). Customer loyalty represents an important outcome through repeat patronage, recommendations, first-choice preference, resistance to switching, and willingness to pay more (Kandampully & Suhartanto, 2003; Zeithaml et al., 1996).

These relationships are particularly relevant to high-spending Thai tourists, who represent a substantial domestic market, demonstrate relatively high expenditure, prefer three- to four-star accommodation, and value meaningful, authentic, enjoyable, and memorable experiences. Northern Thailand, meanwhile, provides a substantial and competitive accommodation market, particularly in Chiang Mai and Chiang Rai.

This study's primary theoretical contribution is rooted in extending the S-O-R framework by conceptualizing SDG-aligned practices and conventional service quality as dual external environmental stimuli (S), multi-dimensional MTEs as internal cognitive-affective organismic states (O), and brand loyalty as the behavioral response (R). Rather than positing a linear, uniform relationship, our theoretical model challenges the assumption of experiential equivalence by hypothesizing that sustainability cues translate into organismic memory structures only when they are experientially salient and human-mediated.

By contextualizing this mechanism within three- to four-star accommodation establishments, this study resolves an unexplained gap regarding why certain experiential dimensions (e.g., meaningfulness, knowledge) drive destination-level attachment but attenuate when predicting enterprise-level brand loyalty (Ogunnaike et al., 2022; Xu & Ho, 2024).

Taken together, the literature provides a foundation for examining how sustainable service quality influences memorable tourism experience and customer loyalty among high-spending Thai tourists staying in three- to four-star accommodation establishments in Northern Thailand. This integrated perspective may clarify how sustainable service practices create meaningful experiences and strengthen customer loyalty, thereby supporting the competitiveness and sustainability of the Northern Thai hospitality industry.

2.8. Hypothesis Development

Drawing on the S-O-R paradigm (Mehrabian & Russell, 1974), the Experience Economy theory (Pine & Gilmore, 2013), and the empirical literature reviewed above, this study develops three hypotheses linking SDG-aligned accommodation practices and perceived service quality (environmental stimuli) to memorable tourism experiences (organismic states) and, ultimately, to brand loyalty (behavioral response).

2.8.1. SDGs and Memorable Tourism Experiences

Within the S-O-R framework, SDG-aligned accommodation practices function as external environmental stimuli (S) that guests decode into internal cognitive-affective states (O). The Experience Economy theory (Pine & Gilmore, 2013) further suggests that sustainability attributes become memorable only when they are experientially staged—that is, when they are sensorially tangible, participatory, or human-mediated—rather than remaining as abstract back-of-house operations. Prior research indicates that sustainability-conscious consumers reward establishments that visibly demonstrate environmental and social responsibility (Han, 2021; Lee et al., 2021), and that destination-level sustainability enhances MTEs (Moliner-Tena et al., 2021). However, whether this relationship holds at the micro-level of specific SDG operational indicators within the accommodation sector remains underexamined. Accordingly, the following hypothesis is proposed:

H1. *Tourists' perceived importance of SDG-aligned accommodation practices significantly predicts memorable tourism experience dimensions.*

2.8.2. Perceived Service Quality and Memorable Tourism Experiences

The SERVQUAL framework (Parasuraman et al., 1988) posits that tangibles, reliability, responsiveness, assurance, and empathy form the evaluative basis of service encounters. In the S-O-R logic, service performance constitutes a proximal environmental stimulus that is directly experienced during the stay and is therefore more likely than abstract sustainability cues to be encoded into organismic memory structures. Hospitality research consistently confirms that interpersonal service elements—particularly staff attentiveness and staffing adequacy—are the primary drivers of customer satisfaction and emotional attachment (Söderlund & Oikarinen, 2021; Tai et al., 2021), and that high service quality strengthens favorable impressions and loyalty (A. Wong, 2004). Therefore, the following hypothesis is formulated:

H2. *Perceived service quality significantly predicts memorable tourism experience dimensions.*

2.8.3. Memorable Tourism Experiences and Brand Loyalty

The response component (R) of the S-O-R paradigm posits that enduring organismic states translate into conative behavioral outcomes (Mehrabian & Russell, 1974). The MTE

literature demonstrates that memorable experiences—structured around hedonism, meaningfulness, local culture, involvement, refreshment, novelty, and knowledge (Y. Kim et al., 2022b)—influence word-of-mouth, revisit intention, and loyalty (X. Chen et al., 2020). However, evidence from destination-level contexts (Badu-Baiden et al., 2022; Stavrianea & Kamenidou, 2022) may not transfer to the enterprise level, where experiential dimensions may contribute asymmetrically to brand loyalty. This study therefore tests the non-uniform contribution of each MTE dimension and hypothesises:

H3. *Memorable tourism experience dimensions significantly predict brand loyalty.*

3. Materials and Methods

3.1. Research Design

This study used an explanatory sequential mixed-methods design to examine how SDGs-based service attributes and perceived service quality influence memorable tourism experience and brand loyalty among potential mainstream high-spending Thai tourists toward accommodation businesses in Northern Thailand. The quantitative phase tested relationships among SDGs-based service importance, perceived service quality, memorable tourism experience, and brand loyalty. The qualitative phase contextualized these results by exploring accommodation-management guidelines from hotel owners, representatives, and managers. This approach is widely used in hospitality and tourism research, with quantitative findings guiding qualitative interpretation (Creswell & Plano Clark, 2023).

3.1.1. Study Area and Population

The study was conducted in four provinces of Northern Thailand identified as having the highest concentration of accommodation establishments, namely Chiang Mai, Chiang Rai, Phetchabun, and Nan (Bank of Thailand, 2024). Two target populations were defined in accordance with the study objectives:

(1) Quantitative population: Thai tourists who were staying, or had previously stayed, in 3–4-star hotels or resorts in the study area.
(2) Qualitative population: Owners, representatives, executives, or managers of accommodation businesses operating within the study area.

3.1.2. Sample Size Determination and Sampling Procedure

(1) Quantitative Sample

Because the exact size of the tourist population could not be ascertained, the sample size was calculated using Cochran's (1954) formula for an infinite population at a 95% confidence level ($Z = 1.96$), a maximum variability estimate ($p = 0.5$), and an acceptable margin of error of 5% ($e = 0.05$):

$$n = \frac{Z^2 \cdot p \cdot (1-p)}{e^2} = \frac{(1.96)^2 \cdot (0.5) \cdot (0.5)}{(0.05)^2} = 384.16$$

The minimum required sample size was therefore 385 respondents. To enhance the statistical power and robustness of the subsequent path-analytic regression models, a total of 400 valid responses were collected. A non-probability, purposive sampling technique was applied, followed by proportional stratified sampling based on the number of registered accommodation establishments in each province (Bank of Thailand, 2024), as summarized in Table 1.

Table 1. Distribution of the sample by province.

Province	Number of Accommodations	Proportion (%)	Sample Size
Chiang Mai	2681	73.47	294
Chiang Rai	477	13.07	52
Phetchabun	251	6.88	28
Nan	240	6.58	26
Total	3649	100	400

Eligible respondents were Thai nationals aged 20 years or older, consistent with the definition of the "potential mainstream Thai tourist" segment (TAT Review Magazine, 2019); had stayed at least one night in a three- or four-star accommodation in the study area; and had voluntarily consented to participate.

(2) Qualitative Sample

For the qualitative phase, key informants comprised owners, representatives, executives, or managers of 3–4-star accommodation businesses operating in the four target provinces, selected through purposive sampling based on their direct involvement in service and sustainability-related decision-making.

3.1.3. Research Instruments

Two instruments were developed for this study.

Questionnaire

The questionnaire comprised six sections: (1) respondents' demographic profile (gender, age, education, occupation, income, and residence); (2) accommodation-use behavior (length of stay, travel companions, expenditure per trip, mode of travel, travel period, and travel purpose); (3) to rigorously examine how sustainability cues influence guest perceptions, the measurement instrument operationalized accommodation practices across all 17 United Nations Sustainable Development Goals (SDGs), adapted to micro-level lodging settings (Carlsen & Bruggemann, 2022; UNWTO, 2017). Rather than aggregating sustainability into a single general index, each SDG was contextualized into concrete operational indicators that guests could observe or engage with during their stay (for further details, see Table 6). Responses were recorded on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Subsequent psychometric screening retained those SDG dimensions that satisfied standard threshold criteria for indicator reliability and structural model testing (Hair et al., 2021); (4) perceived service quality, measured across the five SERVQUAL dimensions of Parasuraman et al. (1988), comprising tangibles, empathy, responsiveness, reliability, and assurance; (5) memorable tourism experience, measured using the seven dimensions proposed by Y. Kim et al. (2022b), i.e., hedonism, meaningfulness, local culture, involvement, refreshment, novelty, and knowledge; and (6) brand loyalty, adapted from Kandampully and Suhartanto (2003), comprising five items related to recommendation, repurchase intention, positive word-of-mouth, preference as a first choice, and intention to continue patronage. All construct items were measured using a five-point Likert scale ranging from 1 (strongly disagree/not important at all) to 5 (strongly agree/most important).

Structured Interview Form

The interview guide consisted of two sections: (1) general information of the informant and the establishment, and (2) open-ended questions eliciting management strategies and guidelines for developing accommodation services in alignment with the SDGs.

3.1.4. Theoretical Framework

From Figure 1, the theoretical framework is grounded in the Stimulus–Organism–Response (S-O-R) paradigm (Mehrabian & Russell, 1974) and the Experience Economy theory (Pine & Gilmore, 2013), the model posits:

- Environmental Stimuli (S): Two types of stimuli are distinguished: (1) perceived importance of SDG-aligned practices, capturing a demand-side, value-based cognitive appraisal (guests' evaluative standards and expectations rather than direct encounters); and (2) perceived service quality, representing concrete, encounter-based evaluations of directly experienced services. Thus, the model tests how guests' sustainability priorities—rather than objective implementations—relate to outcomes.
- Organism (O): Memorable Tourism Experience (MTE) reflects internal cognitive and affective evaluations formed by integrating expectations with actual encounters into memory.
- Response (R): Brand Loyalty represents post-consumption behavioral commitment

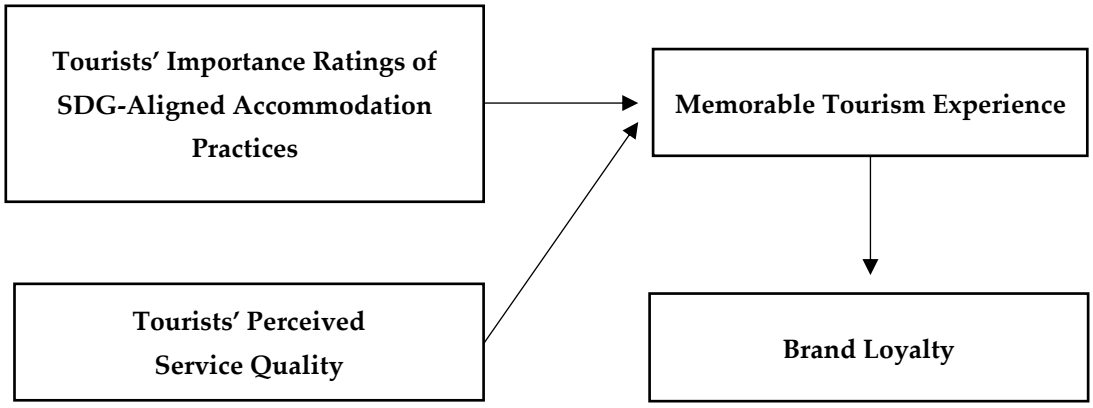


Figure 1. Theoretical framework of the research adapted by the authors.

3.1.5. Instrument Validity and Reliability

Content validity of both the questionnaire and interview guide was examined by a panel of three to five experts in tourism and hospitality management using the Index of Item-Objective Congruence (IOC), and only items with an IOC value of 0.5 or above were retained (Rovinelli & Hambleton, 1977). A pilot test was subsequently conducted with 30 respondents who shared characteristics with the target population but were excluded from the main survey. Internal consistency reliability was assessed using Cronbach's alpha coefficient, computed in R using the psych package (Revelle, 2024); all constructs achieved alpha values above the acceptable threshold of 0.70 (Hair et al., 2021), confirming the reliability of the measurement scales prior to full-scale data collection.

3.2. Data Collection Procedure

Prior to data collection, the research protocol was submitted to and approved by the Human Research Ethics Committee. Quantitative data were collected between June and September 2025 through on-site surveys at selected accommodation establishments and online distribution channels. Trained research assistants administered the questionnaires in accordance with informed consent procedures.

A two-stage stratified purposive sampling approach was employed, with individual tourists serving as the primary unit of analysis. First, proportional quotas were allocated across the provinces of Northern Thailand based on provincial accommodation inventories (National Statistical Office, 2024). Second, potential respondents were approached at key transit and hospitality hubs. Eligibility was verified through screening questions based on three criteria: (i) Thai nationals aged 20 years and above; (ii) individuals who had stayed for at least one night in a three- to four-star accommodation establishment within the preceding 30 days; and (iii) tourists whose trip expenditure exceeded THB 6,890 per person per trip, excluding airfare, consistent with the expenditure threshold for high-potential domestic tourists, with spending predominantly allocated to food and beverage (TAT Review Magazine, 2019). A total of 400 questionnaires were distributed, and all 400 valid responses were included in the analysis.

Consistent with the explanatory sequential mixed-methods design, qualitative data were collected following the completion of quantitative data collection. Findings from the quantitative analysis were used to formulate questions for gathering insights from qualitative research participants. Structured interviews were conducted with representatives from accommodation businesses, either in person or via telephone. Each interview lasted approximately 30–45 min and was audio-recorded with the participants' consent.

3.3. Data Analysis

To achieve substantive integration, this study adopted an explanatory sequential mixed-methods design across two distinct, consecutive phases (Abdelrazek et al., 2026; Creswell & Creswell, 2017).

Phase 1 Quantitative Strand: Primary cross-sectional survey data (N = 400) were gathered from domestic tourists staying at three- to four-star hotels in Northern Thailand between June 2025 and September 2025.

The structural relationships were examined using an observed-variable path analytic approach (multiple linear regression using composite mean scores) rather than a full latent-variable structural equation model. Because the hypothesized structural paths fully parameterize the relationships among the designated variables, the resulting structural specifications are just-identified (saturated models with df = 0). Consequently, standard global goodness-of-fit indices (e.g., CFI, TLI, RMSEA) are non-informative regarding overall model adequacy. In line with methodological standards for saturated regression models (Nevitt & Hancock, 2001; Steen et al., 2017; Vinzi et al., 2009), evaluation focused strictly on path coefficients, standard errors (SE), 95% bootstrap confidence intervals, and variance explained (R^2).

3.3.1. Descriptive Statistics

Descriptive statistics, including frequency, percentage, mean, and standard deviation (S.D.), were calculated using Microsoft Excel to summarize respondents' demographic characteristics, accommodation-use behavior, and the levels of SDGs-based service importance, perceived service quality, memorable tourism experience, and brand loyalty.

3.3.2. Hypothesis Testing

To empirically evaluate the conceptual framework and test the proposed hypotheses, a series of multiple regression models was conducted within a path-analytic framework based on $N = 400$ valid responses. The statistical analyses were executed using the lavaan package (version 0.6-20; Rosseel, 2012) in the R statistical environment, employing Maximum Likelihood (ML) estimation with the NLMINB numerical optimization algorithm. All constructs were operationalized as observed composite variables, with no latent-variable measurement model estimated.

3.3.3 Variable Screening and Parsimony Strategy

To maintain model parsimony, mitigate the risk of overparameterization, and preserve the theoretical distinction between experientially salient and experientially invisible sustainability attributes, a theory-guided screening strategy was implemented prior to model estimation. This procedure was specified a priori and applied uniformly across all models; it was not adjusted post hoc to optimize fit or significance.

The rationale for screening by mean importance scores derives from the study's S-O-R framework (Mehrabian & Russell, 1974) and Experience Economy theory (Pine & Gilmore, 2013). Within this framework, only attributes that tourists themselves prioritize—and therefore are most likely to perceive and encode during their stay—function as effective environmental stimuli that shape organismic memory structures and subsequent loyalty responses. Mean importance ratings thus serve as a respondent-derived empirical indicator of experiential salience, allowing the analysis to focus on the SDG and service-quality attributes most likely to influence guest experience. Two additional considerations reinforce this approach. First, simultaneously entering all 17 SDG dimensions and all 24 SERVQUAL attributes would have produced a severely overparameterized model, violating established guidelines for the ratio of observations to predictors and increasing the risk of unstable coefficient estimates (Hair et al., 2021). Second, retaining the full SDG set would conflate macro-level development goals (e.g., SDG 2 Zero Hunger, SDG 3 Good Health) with micro-level accommodation touchpoints that guests can directly observe or engage with, thereby diluting theoretically meaningful effects.

The screening procedure comprised four sequential steps:

1. Psychometric screening. Prior to any selection, content validity was verified through the Index of Item-Objective Congruence (IOC ≥ 0.5; Rovinelli & Hambleton, 1977), and internal consistency was assessed using Cronbach's alpha ($\alpha \geq 0.70$; Hair et al., 2021) in the pilot test with 30 respondents. Only items satisfying these thresholds were eligible for subsequent selection.
2. Mean-score ranking. For each of the 17 SDG-aligned attributes and 24 perceived service-quality attributes, the mean and standard deviation were computed based on the full sample (N = 400), and items were rank-ordered from highest to lowest (see Table 6).
3. A priori variable screening strategy. To maintain parsimony and avoid structural overparameterization, an empirical screening rule was applied based on perceptual salience. Specifically, the ten highest-rated SDG attributes were retained as Predictor Set A (A1–A10; i.e., ranks 1–10 in Table 6), and the fourteen highest-rated service-quality attributes were retained as Predictor Set B (B1–B14; see Table 8). While screening predictors by mean ratings inherently excludes lower-ranked attributes, this procedure aligns with the Stimulus–Organism–Response (S-O-R) logic, wherein only attributes possessing high perceptual salience function as active environmental stimuli (S) in shaping affective consumer states (O). In Section 3.3.5, the qualitative profile of key informants is reported in Table 3.
4. Path-analytic estimation. The retained items were entered into three sequential multiple regression models estimated using maximum likelihood (ML) with the NLMINB optimizer in the lavaan package (v0.6-20; Rosseel, 2012) in R, following the three-stage procedure described below.

The reliability and validity of all multi-item constructs were assessed prior to hypothesis testing. Following the measurement status of each construct (Section 3.3.6), two sets of evidence are reported. For multi-item constructs treated as observed composites (MTE dimensions C–I and Brand Loyalty J), we report Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). For formative predictor sets (SDG-aligned

practices A and perceived service quality B), we report content validity (IOC) and multicollinearity diagnostics (VIF), as CR and AVE are not appropriate for formative specifications.

As shown in Table 2, all multi-item constructs satisfied the recommended thresholds: Cronbach's alpha ≥ 0.70, CR ≥ 0.70, and AVE ≥ 0.50 (Hair et al., 2021). Discriminant validity was supported by the Fornell–Larcker criterion, as the square root of each construct's AVE exceeded its correlations with all other constructs.

Table 2. Reliability and Validity Evidence of Constructs.

Construct	No. of Items	Cronbach's α	CR	AVE	Measurement Status
MTE: Hedonism (C)	3	0.807	0.810	0.586	Observed composite
MTE: Meaningfulness (D)	3	0.821	0.824	0.609	Observed composite
MTE: Local culture (E)	4	0.843	0.846	0.580	Observed composite
MTE: Involvement (F)	3	0.784	0.788	0.553	Observed composite
MTE: Refreshment (G)	4	0.838	0.841	0.570	Observed composite
MTE: Novelty (H)	3	0.796	0.800	0.572	Observed composite
MTE: Knowledge (I)	3	0.812	0.815	0.595	Observed composite
Brand Loyalty (J)	5	0.887	0.890	0.619	Observed composite
SDG-aligned practices (A)	10	n/a	n/a	n/a	Formative (VIF = 1.24–2.31)
Perceived service quality (B)	14	n/a	n/a	n/a	Formative (VIF = 1.18–2.57)

Phase 2 Qualitative Data Analysis

Interview transcripts were analyzed using thematic content analysis Braun and Clarke (2006) to identify recurring patterns and derive practical guidelines for accommodation business management under the SDGs framework. Coding and thematic categorization were cross-checked by two researchers to enhance analytical trustworthiness, and illustrative excerpts were selected to support the interpretation of the quantitative results, in line with the explanatory sequential mixed-methods logic adopted in this study. The key informants are shown in Table 3. To protect the confidentiality of the participating establishments, their names are not disclosed in this section. These informants were recruited because of their fiduciary authority and strategic oversight in managing human resource allocations, enforcing operational standards, and translating macro-sustainability principles into micro-level customer service encounters. This phase explicitly explored the service quality dimensions, customer experience mechanisms, and brand loyalty to formulate actionable business models for sustainable hotel operations and service excellence.

Table 3. Demographic Profile and Operational Roles of Qualitative Key Informants ($n = 11$).

No.	Informant Position/Operational Role	Geographic Location (Province)	Informant Identifier
1	Front Office Manager	Chiang Mai	P1
2	General Manager	Chiang Mai	P2
3	Cluster Assistant Manager	Chiang Mai	P3
4	Hotel Owner	Chiang Mai	P4
5	Hotel Owner	Chiang Rai	P5
6	Hotel Owner	Chiang Rai	P6
7	Hotel Owner	Nan	P7
8	Human Resources Manager	Chiang Mai	P8
9	Human Resources Manager	Chiang Mai	P9
10	Room Division Manager	Chiang Mai	P10
11	Human Resources Assistant Manager	Chiang Mai	P11

3.3.4. Integration Mechanisms

In accordance with methodological standards (Fetters et al., 2013), data strands were integrated through two distinct mechanisms:

1. Connecting: The statistical paths, prominent predictors, and residual questions—derived from the analysis conducted using R in Phase 1—served as a direct guide for developing the protocol for Phase 2. The semi-structured interview protocol was purposely designed to investigate how Northern Thai lodging operators can strategically steer business management and human resources toward the Sustainable Development Goals (SDGs) while reinforcing service quality and consumer brand loyalty.
2. Merging via Joint Display: Phase 1 empirical estimates were systematically juxtaposed with Phase 2 thematic classifications, illustrative managerial quotes, and interpretive meta-inferences within a unified joint display matrix (Table 4).

Table 4. Joint Display Matrix Integrating Quantitative Findings, Emergent Qualitative Themes, and Explanatory Meta-Inferences.

Phase 1: Quantitative Findings	**Phase 2: Emergent Qualitative Themes ($n = 11$)**	**Illustrative Informant Evidence (Northern Thailand Hoteliers)**	**Integrated Meta-Inferences (Explanatory Synthesis)**
SDG 4 (Staff Training) and Employee Attentiveness showed strong, significant positive associations with MTE dimensions (Hedonism: β = 0.176, p = 0.049; Novelty: β = 0.265, p = 0.005)	Frontline Interpretive Capacity and Human-Centric Delivery	"Hardware and green certifications mean very little without informed employees. When our front desk and service teams undergo structured training, they effectively narrate our local community engagements and eco-practices to guests. That genuine interaction is what creates an unforgettable stay." —P2 (General Manager) "Training our local staff to be consistently attentive bridges the gap between environmental policy and heartfelt Northern hospitality." —P8 (Human Resources Manager)	Quantitative linkages are explained by human mediation: employee training transforms abstract institutional SDG compliance into affective guest engagement, driving perceived novelty and emotional attachment that back-of-house technology cannot achieve on its own.
Perceived Service Quality maintained a fundamental, robust positive link with Brand Loyalty ($\beta = 0.42, p < 0.001$), explaining the largest proportion of loyalty variance.	Core Hospitality as an Inflexible Baseline ('Hygiene Factor')	"Guests choose our property for relaxation and seamless comfort. If check-in is slow, rooms are not immaculate, or the air conditioning fails, no degree of green marketing will earn their return visit. Sustainable practices add value only after core service excellence is flawless."	Service quality serves as a non-negotiable operational prerequisite. Qualitative evidence confirms that SDG-related practices do not compensate for deficiencies in core service attributes; rather, sustainability acts as a value-

		—P4 (Hotel Owner) "Cleanliness, prompt responsiveness, and room readiness are non-negotiable baselines for domestic tourists." —P10 (Room Division Manager)	multiplier strictly atop reliable service delivery.
Ecosystem Conservation (SDG 14/15) was significantly associated with MTEs ($\beta = 0.28, p < 0.01$), whereas capital-intensive backend conservation showed marginal direct links.	Sensory Servicescapes vs. Backend Operational Invisibility	"Our guests praise the natural riverfront maintenance, native forest landscaping, and pesticide-free herb gardens because they experience them directly with their senses. In contrast, investments in high-efficiency greywater systems or smart energy meters remain entirely invisible to them." —P3 (Cluster Assistant Manager) "We designed our property around the existing native trees. Guests take photos and remember the setting long after departure." —P4 (Hotel Owner)	Memory encoding relies heavily on perceptual tangibility. Readily visible, well-preserved natural landscapes generate sensory touchpoints that tourists actively recall, whereas back-of-house operational technologies remain experiential externalities.
Quantitative anomaly: Back-of-house circular economy practices exhibited non-significant direct associations with revisit intentions.	Operational Friction & Guest Perception Discrepancies	"Eliminating single-use plastics is operationally complex. When we switched to refillable ceramic bathroom dispensers, some guests initially perceived it as a cost-cutting tactic rather than an environmental commitment until our front office staff proactively explained the rationale." —P1 (Front Office Manager) "Managing the supply chain toward zero-waste is essential for our bottom line, but guests do not reward circularity unless it is communicated transparently." —P10 (Room Division Manager)	Structural circular economy measures face perception barriers: without continuous frontline framing, guests risk misinterpreting eco-efficiency initiatives as compromises in amenity standards, neutralizing direct loyalty impacts.

3.3.5. Model Estimation and Measurement Considerations

All structural relationships were estimated within a path-analytic framework using observed composite scores for each construct. Reliability and validity evidence for all

multi-item constructs is reported in Table 2; for formative predictor sets, CR and AVE are not applicable (see Section 3.3.3). This analytical choice was consistent with the study's exploratory aim—namely, to examine the differential, non-uniform contributions of specific SDG and service-quality attributes to discrete MTE dimensions and loyalty—and with the need for a parsimonious model that could accommodate a relatively large number of focal predictors. Because all estimated models were saturated (df = 0), they yielded perfect fit indices by construction (CFI = 1.000, TLI = 1.000); accordingly, interpretation focuses on the significance and magnitude of individual path coefficients rather than on global fit statistics.

This approach does not constitute a comprehensive measurement model and therefore leaves three measurement-related limitations unaddressed: (i) measurement error in observed composite scores may bias path coefficients; (ii) construct validity and discriminant validity were not examined through confirmatory factor analysis or related techniques (e.g., HTMT); and (iii) aggregating items into composite indices may mask the distinct contributions of individual indicators. These limitations are discussed more fully in Section 5.6, and we recommend that future research estimate a latent-variable SEM with the full item pool to provide the measurement-model evidence that the present study does not supply.

3.3.6. Measurement Status of Constructs

Measurement Status of Constructs specifies the reflective/formative/observed-composite classification for each construct, as shown in Table 5, a summary table classifying each construct (SDG practices = formative; SERVQUAL = formative; MTE dimensions = observed composite; Brand Loyalty = observed composite). To ensure transparency regarding the epistemic status of each construct, we specify below whether constructs were treated as reflective, formative, or as observed composite variables (MacKenzie et al., 2005; Jarvis et al., 2003).

SDG-aligned practices (Set A). The ten retained SDG attributes represent distinct sustainability domains (water and sanitation, ecosystem conservation, staff training, gender equality, clean energy, etc.). They are not interchangeable manifestations of a single latent "sustainability" construct; rather, each contributes unique content and was hypothesized to operate through different experiential pathways. Accordingly, this predictor set is specified as formative at the construct level and entered as separate observed items in the analysis.

Perceived service quality (Set B). The fourteen retained SERVQUAL attributes similarly represent distinct operational facets (staff attentiveness, sufficient staffing, transparent pricing, room facilities, etc.). These attributes were retained as separate observed items rather than as reflective indicators of a single latent service-quality factor, consistent with a formative specification and with the study's theoretical aim of identifying differential, attribute-level effects on MTE dimensions.

Memorable Tourism Experience (MTE; dimensions C–I). The seven MTE dimensions (hedonism, meaningfulness, local culture, involvement, refreshment, novelty, knowledge) were each computed as observed composite scores from their respective scale items and entered individually into the regression models. No latent-variable measurement model was estimated for these dimensions in the present analysis.

Brand Loyalty (J). Brand loyalty was operationalized as an observed composite score based on five loyalty indicators (recommendation, repurchase intention, positive word-of-mouth, first-choice preference, and continued patronage) adapted from Kandampully and Suhartanto (2003). This construct was also treated as an observed composite variable rather than as a latent factor.

Table 5. Classification of Constructs in the Present Study.

Construct	Classification	Justification
SDG-aligned practices (Set A)	Formative/observed items	The 10 SDG attributes represent distinct sustainability domains (water, energy, ecosystems, training, etc.); they are not interchangeable indicators of one latent construct and were hypothesized to operate through different pathways.
Perceived service quality (Set B)	Formative/observed items	SERVQUAL attributes are conceptually distinct facets; the observed non-uniform and opposing coefficients support a formative rather than reflective specification.
MTE dimensions (C–I)	Observed composite variables	Each dimension computed as an item mean and entered individually; no latent-variable measurement model estimated.
Brand Loyalty (J)	Observed composite variable	Single composite of five loyalty indicators (Kandampully & Suhartanto, 2003); no latent factor estimated.

In summary, all constructs in the present study were analyzed as observed composite variables within a path-analytic framework, with SDG-aligned practices and perceived service quality conceptualized as formative predictor sets and with MTE dimensions and brand loyalty treated as observed composites. This specification is consistent with the study's exploratory aim of identifying differential, attribute-level effects rather than confirming a latent measurement model. The implications of this specification—including the absence of measurement-error correction and the recommendation for future latent-variable SEM—are discussed in Section 5.6.

4. Results

4.1. Demographic Profile of Respondents

The demographic profile of the sample ($N = 400$) is summarized as follows. Respondents were predominantly female (74.7%, $n = 299$) and were largely concentrated in the 30–49 age group (68.5%, $n = 274$), representing economically active Millennial and Generation X travelers. The sample was highly educated, with 88.0% ($n = 352$) holding a bachelor's degree or higher. In terms of socioeconomic status, private company employees (36.8%, $n = 147$) and business owners (28.8%, $n = 115$) comprised the majority of respondents, while 60.8% reported a monthly income of more than THB 25,000. Geographically, respondents were primarily based in the Northern Thailand (63.2%, $n = 253$) and Central (23.5%, $n = 94$) regions.

4.2. Accommodation Usage Behaviors and Travel Motivations

The mainstream tourism market in Northern Thailand is characterized primarily by short-duration domestic trips, with 69.1% of respondents staying for one to two nights. Spending is concentrated in the mid-range segment: 83.6% of travelers spend no more than THB 3000 per night, including 49.3% who spend THB 1501–3000. Double rooms are the most preferred accommodation type (60.1%), followed by family rooms (22.9%).

Travel demand is distributed relatively evenly across weekdays (33.6%), public holidays (31.9%), and weekends (31.3%), supporting stable accommodation operations throughout the year. The main motivations for travel are leisure and relaxation (73.9%), spending time with family and strengthening social bonds (56.3%), self-reward (47.8%), and seeking novel experiences (31.1%).

4.3. Tourists' Perceived Importance of Sustainable Development Goals (SDGs) in Accommodation Businesses

To determine customer priorities regarding sustainability initiatives, respondents evaluated the importance of hotel management practices across all 17 United Nations Sustainable Development Goals (SDGs) using a 5-point Likert scale. The descriptive statistics, ranking, and thematic classifications are presented in Table 6.

Table 6. Tourist Importance Ratings of SDG-Aligned Accommodation Practices ($N = 400$).

Rank	SDG Dimension & Hotel Implementation Focus	Mean ($\bar{x}$)	Interpretation Level
1	SDG 6: Clean Water and Sanitation —Proper wastewater treatment systems, effluent management, and food waste reduction	4.33	High
2	SDG 9: Industry, Innovation, and Infrastructure —Upgrading surrounding environmental quality, scenic landscapes, road networks, and physical accessibility	4.27	High
3	SDG 15: Life on Land —Reduce impacts on local ecosystems, support ecosystem restoration.	4.25	High
4	SDG 5: Gender Equality —Inclusive employment for all gender identities and non-discriminatory workplace capacity empowerment	4.23	High
5	SDG 7: Affordable and Clean Energy —Solar/renewable energy adoption, bioclimatic architectural lighting design, and staff/community energy awareness	4.20	High
6	SDG 4: Quality Education —Workforce training, student internships, and capacity-building collaborations with local educational institutions	4.20	High
7	SDG 12: Responsible Consumption and Production —Sourcing local agricultural produce (e.g., community-grown fruits and vegetables) for sustainable in-house F&B consumption	4.19	High
8	SDG 13: Climate Action —Active environmental engagement, climate change mitigation initiatives, and fostering guest ecological awareness	4.18	High
9	SDG 14: Life Below Water —Participating in river basin, aquatic ecosystem, and freshwater conservation projects	4.17	High
10	SDG 10: Reduced Inequalities —Co-creating interactive platforms between tourists and community-based tourism (CBT) activities	4.17	High
11	SDG 11: Sustainable Cities and Communities —Contributing to sustainable urban development and community enhancement projects in proximate areas	4.15	High
12	SDG 8: Decent Work and Economic Growth —Prioritizing the direct hiring of local community members over external labor	4.12	High
13	SDG 16: Peace, Justice, and Strong Institutions —Equitable performance appraisals, workplace justice, and staff recognition mechanisms for organizational stability	4.10	High
14	SDG 17: Partnerships for the Goals	4.08	High

	—Multi-stakeholder collaboration with local communities, the private sector, and universities for sustainability projects		
15	SDG 1: No Poverty —Poverty alleviation through local employment generation and youth vocational training programs	4.05	High
16	SDG 3: Good Health and Well-being —Ensuring employee and guest well-being, promoting internal/external sports activities, and health initiatives	3.96	High
17	SDG 2: Zero Hunger —Supporting food security programs and donating surplus, high-quality edible food to underprivileged communities	3.92	High
	Overall Composite Mean	4.16	High

The overall composite evaluation across all 17 goals yielded a score of 4.16, indicating that potential mainstream tourists in Northern Thailand hold strong expectations for accommodation providers to actively integrate sustainable development principles into their core business operations.

4.4. Assessment of Perceived Service Quality (SERVQUAL) in Northern Accommodation Businesses

To evaluate customer perceptions of service delivery, an adapted SERVQUAL framework encompassing five core dimensions—empathy, reliability, tangibles, assurance, and responsiveness—was utilized across 24 specific operational attributes on a five-point Likert scale. The overall composite mean score was 3.972, reflecting a generally favorable assessment of service quality among mainstream tourists in Northern Thailand. Across the individual dimensions, empathy received the highest mean score (M = 4.003), followed by reliability (M = 3.991), tangibles (M = 3.987), assurance (M = 3.973), and responsiveness (M = 3.906). These findings suggest that tourists perceived interpersonal care, service consistency, physical facilities, and service assurance relatively positively, whereas responsiveness represented the comparatively weakest aspect of service delivery.

4.5. Evaluation of Memorable Tourism Experiences (MTEs) in Northern Accommodation Establishments

To examine the experiential outcomes of mainstream tourists staying in accommodation businesses in Northern Thailand, customer perceptions across seven dimensions of the Memorable Tourism Experience (MTE) framework—Refreshment, Meaningfulness, Hedonism, Local Culture, Novelty, Involvement, and Knowledge—were assessed using a 5-point Likert scale. The empirical results and ranking hierarchy are presented in Table 7.

Table 7. Descriptive Statistics of Memorable Tourism Experience (MTE) Dimensions ($N = 400$).

Rank	Memorable Tourism Experiences (MTEs)	Mean ($\bar{x}$)	Hierarchy of Memorable Tourism Experiences (MTEs)
1	Refreshment	4.091	Stress relief, mental restoration, & freedom
2	Meaningfulness	3.871	Enduring memories & personal significance
3	Hedonism	3.864	Pleasure, contentment, & excitement
4	Local Culture	3.798	Cultural exposure & heritage appreciation
5	Novelty	3.723	Unconventional & unique encounters
6	Involvement	3.671	Active participation in hotel activities
7	Knowledge	3.665	Transformative learning & self-discovery
	Overall Score	3.812	

The overall memorable tourism experience score was moderately high (M = 3.812). Refreshment was the strongest dimension (M = 4.091), reflecting tourists' perceptions of relaxation, mental restoration, and freedom as the top impressive attributes. Meaningfulness (M = 3.871) and hedonism (M = 3.864) also contributed positively through lasting memories and enjoyable experiences.

Successively, local culture (M = 3.798) and novelty (M = 3.723) received moderate evaluations, suggesting relatively limited depth in their engagement in cultural learnings or unique activities. Involvement (M = 3.671) and knowledge (M = 3.665) were the weakest dimensions. These findings suggest that accommodation providers should strengthen interactive, community-based, and learning-oriented activities to enhance memorable experiences (Liang, 2022; Turk & Pearl, 2021).

4.6. Evaluation of Tourist Loyalty and Behavioral Intentions

Mainstream tourists reported a high overall level of loyalty and positive behavioral intentions (M = 4.075). Willingness to recommend the accommodation establishment received the highest mean score (M = 4.113), followed by revisit intention (M = 4.093) and positive word-of-mouth intention (M = 4.068). These results indicate strong attitudinal and conative loyalty among respondents (M = 4.063).

By contrast, the intention to regard the establishment as the first-choice accommodation option received the lowest, albeit still high, mean score (M = 4.038). This suggests that, despite generally favorable loyalty intentions, tourists may remain susceptible to competing alternatives. Accommodation operators may therefore strengthen first-choice loyalty by differentiating their offerings through authentic, locally grounded, and transparent sustainability initiatives, including community partnerships and SDG-aligned practices (Feri et al., 2024; Lewis & Topler, 2026; Mackay et al., 2025).

4.7. Results of the Research Hypothesis Analysis

A series of multiple regression models was estimated using maximum likelihood (ML) estimation with the NLMINB optimizer in the lavaan package (v0.6-20) in R. To reduce the number of variables included in the analysis, the researchers retained the highest-rated items based on their mean scores. Specifically, the 10 items (only ranks 1–10 in Table 6) with the highest mean scores were selected from the 17 SDG-related items (Predictor Set A, A1–A10), and the 14 highest-rated items were selected from the 24 service quality items (Predictor Set B, B1–B14, presented in Table 8).

The analytical procedure followed a three-stage sequence corresponding to the hypotheses developed in Section 2.8. First, to test H1, ten SDG priority constructs (A1–A10) were regressed on each of the seven dimensions of memorable tourism experiences (MTEs): hedonism (C), meaningfulness (D), local culture (E), involvement (F), refreshment (G), novelty (H), and knowledge (I). Second, to test H2, fourteen perceived service quality attributes (B1–B14) were regressed on the same seven MTE dimensions. Third, to test H3, the seven MTE dimensions were regressed on brand loyalty (J). All models were saturated (df = 0), yielding perfect fit indices (CFI = 1.000, TLI = 1.000); the structural model was estimated as a saturated system ($df = 0$). As standard fit indices cannot evaluate model adequacy in just-identified models, model evaluation was based on individual parameter estimates and explained variance ($R^2 = 0.707$); therefore, interpretation focuses on the significance and magnitude of individual path coefficients. Significance was assessed at $\alpha = 0.05$.

Table 8. Operational Definitions of Perceived Service Quality Attributes (Predictor Set B).

Code	Attribute
B1	Attractive decoration of public areas and guest rooms
B2	Fully equipped room facilities
B3	Modern technology (Wi-Fi, online check-in)
B4	Neat and professional staff appearance
B5	Transparent room pricing
B6	Staff attentiveness to customer needs
B7	Courteous and hospitable service
B8	Service meeting customer expectations
B9	Sufficient staff for service delivery
B10	Service standards appropriate to hotel rating
B11	Service delivered as promised
B12	Staff etiquette and willingness to serve
B13	Strong reputation and brand image
B14	Safety and security

4.7.1. Hypothesis 1

Specifically, the ten SDG priority constructs (A1–A10) are hypothesized to have significant effects on tourists' memorable experiences across the seven dimensions: hedonism, meaningfulness, local culture, involvement, refreshment, novelty, and knowledge.

Result: Partially Supported

Table 9 summarizes the regression of the seven MTE dimensions on the ten SDG priority constructs. Collectively, the results indicate that SDG priorities are selectively rather than uniformly associated with MTE dimensions: a subset of predictors reached significance for five of the seven outcomes, while one outcome (refreshment) was not significantly predicted by any SDG construct.

Table 9. Summarizes the regression of MTE Dimensions on SDG Priority Constructs (Set A).

DV	Significant Predictors	B	SE	z	*p*	*β*	R^2
C—Hedonism	A9 (SDG 14)	0.227	0.073	3.121	0.002	0.274	0.255
	A6 (SDG 4) †	0.159	0.081	1.967	0.049	0.176	
	A5 (SDG 7) †	0.149	0.068	2.188	0.029	0.172	
D—Meaningfulness	A9 (SDG 14)	0.242	0.094	2.570	0.010	0.285	0.171
	A6 (SDG 4) †	0.188	0.086	2.179	0.029	0.205	
E—Local Culture	A9 (SDG 14)	0.198	0.083	2.381	0.017	0.217	0.209
	A3 (SDG 15) †	0.203	0.102	2.000	0.045	0.212	
F—Involvement	A6 (SDG 4) †	0.193	0.099	1.960	0.050	0.189	0.109
	A9 (SDG 14) †	0.191	0.098	1.959	0.050	0.203	
G—Refreshment	none significant	—	—	—	>0.05	—	0.195
H—Novelty	A3 (SDG 15)	0.267	0.096	2.787	0.005	0.265	0.165
	A1 (SDG 6) †	−0.221	0.097	−2.273	0.023	−0.213	
	A4 (SDG 5) †	0.206	0.094	2.188	0.029	0.199	
I—Knowledge	A5 (SDG 7) †	0.195	0.084	2.311	0.021	0.195	0.146
	A4 (SDG 5) †	0.190	0.090	2.111	0.035	0.182	
	A1 (SDG 6) †	−0.190	0.096	−1.976	0.048	−0.183	

Note. FDR-adjusted q-values (Benjamini–Hochberg, within family) are reported in parentheses. Coefficients significant at $p < 0.05$ but not at $q < 0.05$ are flagged as exploratory (†).

Three patterns merit attention. First, A9 (SDG 14, marine and water resource conservation) emerged as the most consistent predictor, attaining significance across four MTE

dimensions (C, D, E, F) with the largest standardized effects in each model (β = 0.203–0.285). Second, A6 (SDG 4, education and training) significantly predicted hedonism, meaningfulness, and involvement (β = 0.176–0.205), underscoring the experiential value of human capital development. Third, two predictors exhibited negative coefficients in the novelty and knowledge models: A1 was negatively associated with both H (β = −0.213, p = 0.023) and I (β = −0.183, p = 0.048). This counterintuitive finding suggests that emphasizing wastewater and sanitation infrastructure may lower perceptions of novelty—plausibly because such attributes are hygiene-related "hygiene factors" rather than sources of experiential differentiation. The refreshment dimension (G) was not significantly predicted by any SDG construct, indicating that SDG priorities operate through cognitive-evaluative and affective-experiential routes rather than through restorative/recovery mechanisms.

4.7.2. Hypothesis 2

Specifically, the 14 perceived service quality attributes (B1–B14) were hypothesized to have significant effects on the seven MTE dimensions: hedonism, meaningfulness, local culture, involvement, refreshment, novelty, and knowledge.

Result: Partially Supported

Table 10 presents the regression results for the seven memorable tourism experience (MTE) dimensions predicted by the 14 perceived service quality attributes. The models explained between 37.6% and 89.1% of the variance across the MTE dimensions (R^2 = 0.376–0.891). Overall, perceived service quality accounted for a substantial proportion of variation in memorable tourism experiences.

Table 10. Regression of MTE Dimensions on Perceived Service Quality Attributes (Set B).

DV	Significant Predictors	B	SE	z	*p*	*β*	R^2
C—Hedonism	B9 (sufficient staff)	0.162	0.064	2.513	0.012	0.167	0.412
D—Meaningfulness	B11 (service as promised)	0.193	0.081	2.371	0.018	0.191	0.486
	B6 (attentiveness) †	0.136	0.065	2.088	0.037	0.139	
	B5 (price transparency) †	0.119	0.056	2.121	0.034	0.130	
E—Local Culture	B9 (sufficient staff)	0.322	0.094	3.433	0.001	0.302	0.573
	B6 (attentiveness)	0.199	0.069	2.899	0.004	0.189	
F—Involvement	B9 (sufficient staff)	0.327	0.090	3.655	<0.001	0.297	0.608
	B13 (reputation/image)	0.266	0.084	3.185	0.001	0.245	
	B12 (etiquette)	−0.235	0.080	−2.934	0.003	−0.220	
G—Refreshment	B14 (safety/security) †	0.168	0.066	2.551	0.011	0.177	0.376
	B5 (price transparency) †	0.137	0.057	2.388	0.017	0.158	
H—Novelty	B2 (room facilities)	−0.340	0.082	−4.138	<0.001	−0.310	0.891
	B9 (sufficient staff)	0.296	0.091	3.243	0.001	0.265	
	B3 (modern technology)	0.269	0.073	3.673	<0.001	0.259	
	B13 (reputation/image)	0.260	0.094	2.764	0.006	0.236	
	B14 (safety/security) †	0.193	0.091	2.131	0.033	0.171	
	B6 (attentiveness) †	0.177	0.071	2.494	0.013	0.160	
I—Knowledge	B13 (reputation/image)	0.317	0.088	3.594	<0.001	0.285	0.524
	B9 (sufficient staff) †	0.220	0.088	2.505	0.012	0.196	
	B6 (attentiveness) †	0.172	0.081	2.129	0.033	0.155	
	B1 (decoration) †	−0.169	0.080	−2.118	0.034	−0.138	

Note. DR-adjusted q-values were computed using the Benjamini–Hochberg procedure within each family; coefficients significant at $p < 0.05$ but not at $q < 0.05$ are flagged as exploratory (†).

B9 (sufficient staffing) was the single most robust service quality determinant, significantly predicting five of seven MTE dimensions (C, E, F, H, I), with the largest effect observed for involvement ($\beta = 0.297$) and local culture ($\beta = 0.302$). B6 (staff attentiveness) and B13 (reputation/image) each predicted three dimensions. Notably, B2 (room facilities) exerted a significant negative effect on novelty ($\beta = -0.310$, $p < 0.001$), and B12 (staff etiquette) negatively predicted involvement ($\beta = -0.220$, $p = 0.003$). These suppression-type effects suggest that certain service elements function as baseline expectations (dissatisfiers) rather than sources of experiential value when other attributes are controlled. The novelty dimension was the outcome with the largest explained variance ($R^2 = 0.891$), with six significant predictors.

From Tables 9 and 10, notably, several operational attributes demonstrated statistically significant negative path coefficients, including room facilities on novelty ($\beta = -0.310, p < 0.001$), staff etiquette on involvement ($\beta = -0.220, p = 0.003$), and clean water practices on both novelty ($\beta = -0.213, p = 0.001$) and knowledge ($\beta = -0.183, p = 0.005$). Statistically, these negative parameters reflect classic negative suppression effects (Pandey & Elliott, 2010), which arise when highly correlated predictors partial out shared variance in a multi-variable regression equation. Theoretically, these findings align with Ihensekien & Joel (2023) two-factor framework. Basic amenities, strict formal etiquette, and standardized municipal sanitation operate primarily as 'hygiene factors.' Once basic functional expectations are fulfilled, excessive standardization and overly scripted service encounters constrain spontaneous exploration and active guest participation, consequently diminishing perceived novelty and co-created involvement.

4.7.3. Hypothesis 3

Specifically, the seven MTE dimensions—hedonism, meaningfulness, local culture, involvement, refreshment, novelty, and knowledge—are hypothesized to have significant effects on tourists' brand loyalty.

Result: Partially Supported

Table 11 presents the regression results for brand loyalty (J) predicted by the seven memorable tourism experience (MTE) dimensions, based on 400 observations. The model explained 70.7% of the variance in brand loyalty ($R^2 = 0.707$), indicating substantial explanatory power.

Table 11. Regression of Brand Loyalty (J) on MTE Dimensions.

Predictor	B	SE	z	*p*	*β*
C—Hedonism †	0.130	0.053	2.454	0.014	0.136
D—Meaningfulness	0.094	0.064	1.473	0.141	0.101
E—Local Culture	0.069	0.052	1.328	0.184	0.080
F—Involvement †	0.110	0.050	2.222	0.026	0.131
G—Refreshment	0.284	0.058	4.895	<0.001	0.290
H—Novelty	0.140	0.049	2.838	0.005	0.170
I—Knowledge	0.028	0.049	0.577	0.564	0.034

$R^2 = 0.707$; Adjusted $R^2 = 0.702$; F(7, 392) = 135.2, $p < 0.001$; N = 400. Note. FDR-adjusted q-values were computed using the Benjamini–Hochberg procedure within each family; coefficients significant at $p < 0.05$ but not at $q < 0.05$ are flagged as exploratory (†).

The analysis provides partial support for Hypothesis 3. Four of the seven MTE dimensions—Hedonism ($\beta = 0.136$, $p = 0.014$), Involvement ($\beta = 0.131$, $p = 0.026$), Refreshment ($\beta = 0.290$, $p < 0.001$), and Novelty ($\beta = 0.170$, $p = 0.005$)—had significant positive effects on Brand Loyalty. Among these, Refreshment was the strongest predictor, highlighting the

importance of tourists' feelings of relaxation (Stavrianea & Kamenidou, 2022) and rejuvenation (B. Kim & Yang, 2021) in fostering loyalty toward the hotel brand.

In contrast, Meaningfulness, Local Culture, and Knowledge did not significantly influence Brand Loyalty (all $p > 0.05$). This suggests that reflective, cultural, and educational aspects of memorable experiences may not directly translate into stronger brand loyalty in the present context (Hsiao et al., 2023; Intuluck et al., 2023; Kandampully et al., 2011).

Overall, the findings indicate that MTE dimensions enhance brand loyalty selectively, particularly through hedonic, engaging, refreshing, and novel experiences, rather than uniformly across all experiential dimensions. Thus, Hypothesis 3 is partially supported.

To facilitate direct comparison across the three regression stages and to address the need for a consolidated view of the hypothesis-testing results, Table 12 synthesizes the significant predictors, standardized coefficients, and explained variance from Tables 9–11. This comparative presentation makes explicit the differential explanatory power of SDG-aligned practices versus perceived service quality in shaping MTE dimensions, and the selective contribution of MTE dimensions to brand loyalty.

Table 12. Comparative Synthesis of Regression Results Across the Three Hypothesis-Testing Stages.

Stage/Hypothesis	Dependent Variable	Significant Predictors (β)	R^2	Model Summary
H1: SDG-Aligned Practices (Set A) → MTE	C-Hedonism	A9 (SDG 14) 0.274 **; A6 (SDG 4) 0.176 *; A5 (SDG 7) 0.172 *	0.255	3 of 10 predictors significant
	D-Meaningfulness	A9 (SDG 14) 0.285 **; A6 (SDG 4) 0.205 *	0.171	2 of 10 predictors significant
	E-Local Culture	A9 (SDG 14) 0.217 *; A3 (SDG 15) 0.212 *	0.209	2 of 10 predictors significant
	F-Involvement	A9 (SDG 14) 0.203 *; A6 (SDG 4) 0.189 *	0.109	2 of 10 predictors significant
	G-Refreshment	—	0.195	No significant predictor
	H-Novelty	A3 (SDG 15) 0.265 **; A4 (SDG 5) 0.199 *; A1 (SDG 6) −0.213 *†	0.165	3 of 10 predictors significant (1 negative-suppression effect)
	I-Knowledge	A5 (SDG 7) 0.195 *; A4 (SDG 5) 0.182 *; A1 (SDG 6) −0.183 *†	0.146	3 of 10 predictors significant (1 negative-suppression effect)
H2: Perceived Service Quality (Set B) → MTE	C-Hedonism	B9 (sufficient staff) 0.167 *	0.412	1 of 14 predictors significant
	D-Meaningfulness	B11 (service as promised) 0.191 *; B6 (attentiveness) 0.139 *; B5 (price transparency) 0.130 *	0.486	3 of 14 predictors significant
	E-Local Culture	B9 (sufficient staff) 0.302 **; B6 (attentiveness) 0.189 **	0.573	2 of 14 predictors significant
	F-Involvement	B9 (sufficient staff) 0.297 ***; B13 (reputation/image) 0.245 **; B12 (etiquette) −0.220 **†	0.608	3 of 14 predictors significant (1 negative-suppression effect)

	G-Refreshment	B14 (safety/security) 0.177 *; B5 (price transparency) 0.158 *	0.376	2 of 14 predictors significant
	H-Novelty	B2 (room facilities) −0.310 ***†; B9 (sufficient staff) 0.265 **; B3 (modern technology) 0.259 ***; B13 (reputation/image) 0.236 **; B14 (safety/security) 0.171 *; B6 (attentiveness) 0.160 *	0.891	6 of 14 predictors significant (1 negative-suppression effect); highest R^2 across all models
	I-Knowledge	B13 (reputation/image) 0.285 ***; B9 (sufficient staff) 0.196 *; B6 (attentiveness) 0.155 *; B1 (decoration) −0.138 *†	0.524	4 of 14 predictors significant (1 negative-suppression effect)
H3: MTE Dimensions → Brand Loyalty	J-Brand Loyalty	G (Refreshment) 0.290 ***; H (Novelty) 0.170 **; C (Hedonism) 0.136 *; F (Involvement) 0.131 *	0.707	4 of 7 predictors significant

Notes. β = standardized path coefficient; ns = non-significant ($p \geq 0.05$). Set A = ten highest-rated SDG-aligned practices (A1–A10; see Table 6). Set B = fourteen highest-rated perceived service-quality attributes (B1–B14; see Table 8). MTE dimensions = C (Hedonism), D (Meaningfulness), E (Local Culture), F (Involvement), G (Refreshment), H (Novelty), I (Knowledge). A1 = SDG 6 (Clean Water and Sanitation); A3 = SDG 15 (Life on Land); A4 = SDG 5 (Gender Equality); A5 = SDG 7 (Affordable and Clean Energy); A6 = SDG 4 (Quality Education); A9 = SDG 14 (Life Below Water). B2 = room facilities; B3 = modern technology; B6 = staff attentiveness; B9 = sufficient staff; B11 = service as promised; B12 = staff etiquette; B13 = reputation/image; B14 = safety/security. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$. † Negative coefficient reflecting a net (negative) suppression effect; the corresponding zero-order correlation is positive or near zero, indicating that the sign reversal arises from shared variance with conceptually related predictors rather than a genuine inverse association (see Section 4.7.1). R^2 values are taken directly from Table 9 (H1), 10 (H2), and 11 (H3). All models were estimated as saturated (df = 0) regression models; model evaluation was therefore based on individual path coefficients and explained variance rather than global fit indices. FDR-adjusted q-values (Benjamini–Hochberg, within family) are reported in Tables 9–11; coefficients significant at $p < 0.05$ but not at $q < 0.05$ are flagged as exploratory in the source tables. For H3, the Bonferroni-adjusted threshold ($\alpha = 0.0071$) is additionally reported in Table 11.

When the three regression stages are compared directly (Table 12), a clear asymmetry emerges: perceived service quality explains substantially more variance in MTE dimensions ($R^2 = 0.376$–0.891) than SDG-aligned practices ($R^2 = 0.109$–0.255), consistent with the S-O-R logic that encounter-based stimuli are more proximal to memory formation than value-based expectations. Within the loyalty model, explanatory power is concentrated in four MTE dimensions, with refreshment the strongest individual predictor ($\beta = 0.290$, $p < 0.001$) and sufficient staffing the strongest service-quality predictor ($\beta = 0.297$–0.302).

The significant negative coefficients (A1 on novelty/knowledge; B2 on novelty; B12 on involvement) warrant explicit clarification. Their zero-order correlations with the outcomes are positive or near zero (r = −0.02 to 0.11), indicating that the sign reversal arises from shared variance with conceptually related predictors—a textbook case of negative (net) suppression (Pandey & Elliott, 2010). VIF values remained below 5, and excluding these variables left the remaining predictors unchanged in sign and significance. Substantively, we interpret these attributes as hygiene factors whose contribution is contingent on other, more experientially salient attributes.

4.8. Qualitative Analysis

The findings indicate that the hospitality sector in Northern Thailand is undergoing a gradual transition toward sustainable tourism, while simultaneously facing a persistent tension between environmental responsibility and profitability. Based on qualitative evidence from administrative staff across 11 hotel properties (Gandy, 2024; Guest et al., 2006), sustainability practices varied considerably according to property size, location, management commitment, infrastructure investment, and market orientation. Overall, larger and more established properties demonstrated higher levels of environmental maturity, whereas smaller and emerging properties tended to emphasize basic compliance through standard operating procedures (SOPs). A summary of the findings is provided in Table 13.

Table 13. Thematic Findings from Qualitative Interviews and Strategic Implications for SDG-Aligned Accommodation Business Development.

Theme	Key Finding	Strategic Implication
Environmental Management (Rassiah et al., 2024; Yousaf et al., 2021)	Practices range from regulatory compliance to integrated wastewater, waste, and single-use plastic management.	Advance from compliance-oriented practices toward circular resource management.
Green Certification (Lin et al., 2025; Velaoras et al., 2025; Yıldırım et al., 2024)	Certification strengthens environmental credibility, with higher tiers requiring systematic documentation and performance monitoring.	Leverage certification as a market trust signal, particularly for international demand.
Energy Conservation (D'Souza, 2023; He & Zaman, 2024)	Energy costs drive investment in Solar PV, Solar Collectors, and behavioral energy-saving practices.	Combine clean technologies with behavioral management to enhance energy efficiency.
Energy Monitoring (Dube, 2021; Rajić et al., 2022)	Routine meter audits and monitoring of unoccupied areas support the identification of unnecessary energy consumption.	Institutionalize data-driven monitoring and standardized energy reporting.
Waste Management (Filimonau, 2021; Karim et al., 2025)	Waste segregation and reductions in single-use packaging are widely adopted, with some properties advancing toward circular practices.	Reframe waste as a resource for value creation rather than disposal.
Circular Economy (Bux & Amicarelli, 2023; Karim et al., 2025; Khan et al., 2026)	Recycling revenues support employee welfare, while textile and organic waste are redirected to community and agricultural uses.	Integrate employee incentives and community-based circularity into sustainability strategies.
Wastewater Reuse (Justino et al., 2023; Ricart et al., 2021)	More mature properties reuse treated wastewater for landscaping and other non-potable applications.	Shift from "treatment and discharge" to "treatment and reuse."
Sustainability Gap (Achmad et al., 2023; Alshukri et al., 2024)	Weak public waste-collection systems can undermine hotel-level sustainability initiatives.	Strengthen public–private environmental infrastructure and coordination.
Green Premium (Appolloni et al., 2022; Arbelo et al., 2025)	High prices of certified green products constrain adoption, particularly among smaller properties.	Promote market competition, supply-chain efficiency, and economies of scale.
Guest Expectations (Dewi & Gustiawan, 2025; Murray et al., 2025; Shanshan et al., 2023)	Sustainability acceptance varies across markets; some domestic guests continue to associate frequent linen replacement with service quality.	Align green practices with market-specific expectations and service norms.

Urban Hotel Positioning (Ricart et al., 2021; Shanshan et al., 2023)	Location, price, and cleanliness remain stronger purchase determinants than environmental attributes.	Position sustainability as a value-enhancing component without compromising core service quality.
Human Capital (Al-Emadi et al., 2015; Bindawas, 2025; Valachis & Skoultsos, 2026)	Foreign-language proficiency, particularly English and Chinese, is increasingly prioritized in recruitment.	Strengthen language capabilities, training, and service-oriented human capital.
Labor Retention (Adeyefa et al., 2023; Konstantopoulos et al., 2026)	Higher service-charge opportunities in Southern destinations contribute to workforce mobility from the North.	Enhance compensation, career development, and retention mechanisms.
Regional Service Identity (Albeshchenko et al., 2025; C.-L. Chen, 2022)	Northern hospitality personnel are valued for warmth, politeness, gentleness, and friendliness.	Preserve regional service culture as a distinctive intangible competitive resource.
Strategic Pillars (Khan et al., 2026; Kuo et al., 2026; Remenyik et al., 2025; R. W. Wong & Loo, 2026)	Technology, circular incentives, data-driven conservation, and localized circularity constitute core sustainability practices.	Integrate environmental, economic, and social objectives within a unified strategy.
Policy Direction (Buhalis et al., 2023; de Visser-Amundson, 2022)	Voluntary initiatives alone are insufficient to achieve sector-wide sustainability.	Advance structured government–industry collaboration and enabling policy mechanisms.
Overall Finding	Sustainable hospitality outcomes depend on hotels and the wider institutional, supply-chain, community, and policy environment.	Adopt a shared-responsibility model involving hotels, suppliers, communities, and government.

4.8.1. Environmental Management and Green Certification

Environmental certification emerged as an important mechanism for institutionalizing sustainability and strengthening hotel credibility, particularly among international markets (Velaoras et al., 2025). Higher-level certification was associated with systematic documentation, multi-year performance comparisons, and more comprehensive environmental management, whereas lower certification levels primarily reflected basic operational improvements (Abdelrazek et al., 2026; Saleh et al., 2026).

Wastewater management was widely implemented through industrial-grade grease traps, regular laboratory testing of effluent, and periodic reporting to relevant municipal authorities (Antonova et al., 2021; Justino et al., 2023). More advanced properties progressed beyond wastewater treatment toward closed-loop systems in which treated water was reused for landscaping and other non-potable purposes (Justino et al., 2023). This approach demonstrates a shift from regulatory compliance toward resource circularity.

Waste management practices also differed in maturity (Prakash et al., 2023). Common measures included separation of plastic, glass, and paper for recycling, elimination of single-use plastics, and replacement of disposable packaging with reusable or alternative materials (Juvan et al., 2023). More advanced initiatives incorporated circular-economy principles by converting textile waste into community-produced products and redirecting organic waste to local agricultural supply chains (Bux & Amicarelli, 2023; Remenyik et al., 2025).

4.8.2. Energy Conservation and Clean Technology

Energy conservation was identified as both an environmental priority and a financial strategy because utility costs represent a significant and volatile component of hotel operating expenditure (Periyannan et al., 2023). Two major technological approaches were identified: Solar Photovoltaic (PV) systems for electricity generation and Solar Collectors for hot-water production. Solar PV provides broader energy applications, whereas Solar Collectors may offer greater cost-effectiveness for properties with substantial hot-water

demand, particularly under favorable climatic conditions (Hasan et al., 2023; Singh et al., 2025).

Technological investment was complemented by management-led behavioral interventions. Energy consumption was monitored through routine meter audits, while managers and engineering staff actively inspected vacant guest rooms, meeting spaces, and corridors to ensure that lighting and cooling systems were switched off when unnecessary (Reem et al., 2022). This combination of technology, monitoring, and employee behavior represents an integrated approach to reducing energy leakage (Dikgwatlhe et al., 2026).

4.8.3. Circular Economy and Resource Efficiency

Several properties demonstrated a transition from conventional waste disposal toward resource valorization. A particularly effective approach involved allocating revenue generated from recyclable materials to employee welfare funds, bonuses, and staff activities (Marrucci et al., 2024). This incentive structure linked environmental performance with tangible employee benefits and encouraged bottom-up participation (Pillai et al., 2025).

Other circular practices included transforming discarded bed linens and textiles into dolls, neck pillows, and other community-produced goods, as well as diverting food waste to local livestock farms (Holmberg & Konttinen, 2023). Large-format refillable dispensers were also used to reduce individual plastic amenity packaging (Fu, 2026). These practices demonstrate that circularity can generate both environmental and social value when hotel operations are connected with local communities and workforce incentives (Khan et al., 2026).

4.8.4. The Sustainability Gap

A major finding was the existence of a persistent "Sustainability Gap", referring to the mismatch between hotel-level sustainability initiatives and external infrastructure and market conditions (Omar et al., 2024; Salem et al., 2025). Municipal waste collection was identified as a particularly important challenge (Foster-Sanchez & McGee, 2024). In some urban areas, inconsistent public waste collection undermined private-sector recycling efforts and contributed to sanitation problems and pest-related concerns. Thus, the effectiveness of hotel-level sustainability initiatives is partly dependent on the reliability of public infrastructure and services (Yang et al., 2023).

A second structural barrier was the high cost of environmentally certified products and supplies. Limited competition among suppliers contributes to a "Green Premium," particularly for certified chemicals and organic amenities (Jin & Marcel, 2025). This cost structure disproportionately constrains smaller and price-sensitive properties and discourages broader adoption of green technologies and materials (Arbelo et al., 2025).

4.8.5. Sustainability and Guest Expectations

The findings further reveal a tension between sustainability policies and customer expectations. International guests were generally more receptive to environmentally oriented practices such as linen-reuse programs (Chan et al., 2022), whereas some domestic Thai tourists continued to associate daily linen replacement with expected service quality (Lepananon, 2022). This indicates that sustainability initiatives cannot be implemented independently of cultural and market-specific expectations (R. B. Kim et al., 2025).

For urban hotels, environmental sustainability was generally perceived as a supplementary value rather than the primary determinant of customer choice. Location, price, and cleanliness remained dominant factors (Alvarez Leon et al., 2021), while psychological restoration and wellness-related benefits were more strongly associated with resort-oriented properties (Liu et al., 2025). Consequently, sustainability strategies should be

integrated with core service quality rather than positioned as a substitute for it (Belz et al., 2025).

4.8.6. Human Capital and Workforce Management

Human resources emerged as a critical determinant of sustainable hospitality operations. Hotel managers increasingly prioritized English and Chinese language proficiency during recruitment, sometimes placing greater emphasis on linguistic capability than on formal vocational tourism qualifications (Sangnark, 2025). The underlying rationale was that operational competencies could be developed through workplace training, whereas language proficiency was more difficult to acquire rapidly (Y.-L. Ng & Liu, 2025).

The findings also highlight a regional labor-retention challenge, as skilled hospitality workers may migrate to Southern Thai destinations where service-charge earnings are considerably higher. At the same time, Northern Thai hospitality workers were perceived as possessing a distinctive interpersonal service style characterized by warmth, charm, and softness, which constitutes a valuable form of regional service capital. Maintaining this service advantage therefore requires effective retention strategies and competitive employee benefits (Al-Emadi et al., 2015; Werner & Balkin, 2021).

4.8.7. Strategic Implications and Future Direction

The overall findings suggest that sustainable hospitality in Northern Thailand is moving from isolated voluntary practices toward more structured and integrated environmental management. Four strategic pillars are particularly important: (1) investment in resource-efficient technologies, particularly Solar PV and Solar Collectors (Nateghi et al., 2023); (2) circular incentive systems that link recycling revenues to employee welfare (Kholijah, 2024); (3) data-driven resource conservation through regular monitoring and standardized reporting (R. W. Wong & Loo, 2026); and (4) localized material circularity through textile upcycling and the integration of organic waste into agricultural supply chains (Islam et al., 2022).

However, hotel-level initiatives alone are insufficient to achieve sector-wide sustainability. Stronger cooperation among hotels, suppliers, local authorities, and national policymakers is required (Achmad et al., 2023; Khalil et al., 2024). The findings support a more interventionist policy approach, including regulatory mechanisms or production requirements that encourage manufacturers to increase the availability of certified green products and reduce the Green Premium through economies of scale and market competition (Appolloni et al., 2022; Junejo et al., 2025). Concurrently, investment in municipal waste-separation and collection infrastructure is essential to prevent external service deficiencies from undermining private-sector sustainability efforts (Filimonau, 2021).

Overall, sustainable hospitality in Northern Thailand requires a shared-responsibility model in which environmental, economic, and social objectives are pursued simultaneously (López-Gamero et al., 2024). The long-term transition will depend not only on hotel management commitment and technological investment but also on supportive supply chains, reliable public infrastructure, effective workforce strategies, and coordinated government policy (Gruchmann et al., 2022; Mahmood et al., 2025).

4.8.8. Key Finding

The study demonstrates that sustainable hospitality in Northern Thailand is characterized by uneven levels of green maturity, shaped by organizational capacity, management commitment, technological investment, market orientation, and external infrastructure. While advanced properties have integrated certification, renewable energy, circular waste management, wastewater reuse, and data-driven conservation into their operations, emerging properties remain primarily focused on basic environmental compliance

(Falsarone, 2022; Hajam et al., 2025; Miao & Nduneseokwu, 2025). The principal barriers are inadequate municipal waste infrastructure, high prices of certified green supplies, differences in guest expectations, and challenges in retaining skilled hospitality personnel (Khalil et al., 2024; Velaoras et al., 2025). The findings therefore indicate that the transition toward sustainable hospitality requires an integrated shared-responsibility framework in which hotel-level initiatives are reinforced by competitive green supply chains (Cancela et al., 2026), reliable municipal infrastructure (Abundabar & Pongpong, 2022), workforce development (Saghier & Selem, 2027; Valachis & Skoultsos, 2026), and supportive government policies (Achmad et al., 2023; Khalil et al., 2024). Sustainability should consequently be positioned not merely as an environmental obligation but as a strategic mechanism for long-term operational efficiency, employee engagement, community value creation, and destination competitiveness (Alshukri et al., 2024; Purnomo & Purwandari, 2025).

5. Discussion

The findings of this study provide meaningful insights into the relationships among perceived importance of Sustainable Development Goals (SDGs) practices, service quality, memorable tourism experiences (MTE), and brand loyalty within the context of three- to four-star accommodation businesses in Northern Thailand. These results extend the current body of knowledge on sustainable tourism management and offer both theoretical and practical implications.

5.1. SDG-Aligned Practices and Memorable Tourism Experiences

The results indicate that tourists place a high level of importance on SDG-aligned practices (M = 4.16), reflecting a growing awareness among Thai tourists regarding environmental and social responsibility in the hospitality sector. This finding is consistent with prior studies (Han, 2021; Lee et al., 2021) which have reported that sustainability-conscious consumers are more likely to value businesses that demonstrate environmental stewardship and social responsibility. However, the partial rather than full predictive relationship between SDG practices and MTE suggests that not all sustainability dimensions equally translate into memorable experiences.

Notably, marine/ecosystem conservation and staff training emerged as the most prominent dimensions associated with MTE. This finding aligns with the experience economy framework (Pine & Gilmore, 1998, 2013), which posits that tangible, visible, and interactive elements of a service encounter—such as staff behavior shaped through training—are more likely to leave a lasting impression on tourists than abstract or background sustainability initiatives (e.g., waste management systems or supply chain practices) that may not be directly observable to guests. This suggests that while tourists value sustainability broadly, only those SDG practices that are experientially salient and interpersonally mediated significantly shape memorable experiences (Jokom et al., 2025; Moliner-Tena et al., 2021). This nuance extends the sustainable tourism literature by demonstrating that the *visibility* and *human-mediated delivery* of sustainability practices may be more critical than the practices themselves in shaping tourist perceptions (Tuğer, 2024; Zucchelli et al., 2022).

However, an interpretive caveat is essential: this construct measures perceived importance (a demand-side, expectation-based appraisal) rather than direct, in situ experience. Consequently, these findings reflect how sustainability priorities relate to MTEs, not whether objective practices directly generate them. This explains why several SDG dimensions were non-significant: abstract priorities may not become memorable unless visibly or tangibly experienced during a short stay. Consistent with the Experience Economy framework (Pine & Gilmore, 2013), marine conservation and staff training were the strongest predictors of MTE, demonstrating that visible, human-mediated elements leave

more lasting impressions than abstract initiatives (Jokom et al., 2025; Moliner-Tena et al., 2021). Thus, sustainability values only translate into memorable experiences when reinforced by salient, perceivable encounters (Tuğer, 2024; Zucchelli et al., 2022).

5.2. Service Quality and Memorable Tourism Experiences

Perceived service quality demonstrated significant, robust positive links with all dimensions of MTE, with adequate staffing levels and staff attentiveness identified as the most influential factors. This result reinforces the SERVQUAL framework (Parasuraman et al., 1988) and is consistent with previous hospitality research emphasizing the centrality of human interaction in service encounters (Söderlund & Oikarinen, 2021). The strong influence of staffing-related factors suggests that, despite increasing investment in physical infrastructure and digital technologies, the human element remains the primary driver of memorable experiences in accommodation settings (Masa'deh et al., 2025; Tai et al., 2021). This finding has important implications for accommodation businesses in Northern Thailand, where labor shortages or inconsistent staff training could undermine broader sustainability and service quality initiatives.

5.3. Memorable Tourism Experiences and Brand Loyalty Among Potential Tourists

The study further revealed that MTE dimensions accounted for significant variance in brand loyalty, with refreshment, hedonism, involvement, and novelty emerging as significant predictors, while meaningfulness, local culture, and knowledge did not show significant effects. This pattern diverges somewhat from previous studies conducted in cultural or heritage tourism contexts, where meaningfulness and local culture have often been identified as key drivers of loyalty (Badu-Baiden et al., 2022; Stavrianea & Kamenidou, 2022). One possible explanation is that, in the context of accommodation services specifically (as opposed to the broader destination experience), tourists may prioritize functional and hedonic benefits—such as comfort, enjoyment, and novel experiences (Kalgi & Hire, 2024)—over deeper cultural or educational engagement, which may be more strongly associated with destination-level attractions (Xu & Ho, 2024; Yin et al., 2023) rather than the accommodation itself.

This distinction is theoretically important, as it suggests that the drivers of memorable experiences may differ depending on the specific touchpoint within the broader tourism system (e.g., accommodation vs. destination-level experiences). Accommodation providers seeking to build brand loyalty should therefore focus resources on enhancing refreshment (e.g., quality of amenities, relaxation facilities), hedonic enjoyment, guest involvement, and novel or unique experiential offerings (Bardukova, 2023; Miller, 2023), rather than assuming that cultural or educational elements will necessarily translate into repeat patronage or advocacy (Ogunnaike et al., 2022).

5.4. Interpretation of Non-Significant Pathways

Interpreting empirical models requires examining both significant and non-significant relationships, while distinguishing between the absence of statistical significance and evidence that a relationship does not exist. In this study, two groups of non-significant findings warrant discussion: (1) the direct effects of meaningfulness, local culture, and knowledge on brand loyalty; and (2) the effects of several SDG-aligned practices on memorable tourism experiences (MTEs).

5.4.1. Non-Significant MTE Dimensions and Brand Loyalty

The regression results showed that meaningfulness ($\beta = 0.101, p = 0.141$), local culture ($\beta = 0.080, p = 0.184$), and knowledge ($\beta = 0.034, p = 0.564$) did not significantly predict brand loyalty. This differs from previous destination-level studies that identified

these dimensions as important drivers of loyalty. This divergence may reflect differences between accommodation-based and destination-level experiences, as well as three complementary factors.

First, measurement characteristics may have influenced the results. Although the MTE scale demonstrated acceptable reliability, meaningfulness and knowledge involve reflective, cognitive, and transformative experiences that may require deeper engagement than a typical one- to two-night stay in a three- to four-star accommodation establishment. Their moderate mean scores (3.87 and 3.67, respectively, on a five-point scale) may indicate limited experiential salience. If accompanied by restricted variance, this could weaken their associations with brand loyalty and increase the risk of Type II error. Therefore, the non-significant results should not be interpreted as evidence that these dimensions are irrelevant to loyalty.

Second, sample characteristics may represent an important boundary condition. Most respondents were female (74.7%), tertiary-educated (88.0%), aged 30–49, and travelling for leisure and relaxation. This profile may place greater emphasis on hedonic experiences, relaxation, and novelty than on cultural or self-transformative experiences within accommodation settings. Thus, the findings may reflect differences in experiential priorities and should be generalized cautiously to tourists with stronger cultural or educational travel motivations.

Third, indirect effects may explain the absence of significant direct relationships. Meaningfulness, local culture, and knowledge may influence loyalty through satisfaction, perceived value, or destination attachment. For example, meaningful accommodation experiences may strengthen brand attitudes before translating into repeat patronage. However, the cross-sectional design and current model did not allow these indirect or longitudinal mechanisms to be examined.

5.4.2. Non-Significant SDG-Aligned Practices and MTE Dimensions

The structural model indicated that marine and ecosystem conservation (SDGs 14/15) and staff training (SDG 4) significantly predicted several MTE dimensions. However, several other SDG-aligned indicators showed no significant direct associations, and none significantly predicted Refreshment (all $p > 0.05$). These findings are consistent with the qualitative evidence concerning visibility and operational relevance.

The joint-display analysis (Table 4) showed that guests were more likely to recall tangible and interactive sustainability practices, such as well-maintained natural landscaping and staff-guided environmental activities. In contrast, back-of-house initiatives, including wastewater treatment (SDG 6), energy monitoring, gender-equity policies (SDG 5), and circular-economy supply chains, often remain invisible to guests unless actively communicated. This perceptual invisibility may explain their non-significant direct relationships with MTE dimensions.

Furthermore, certain practices, such as gender equality in employment (SDG 5), may be perceived as basic ethical standards rather than distinctive experiential attributes. Although they may enhance corporate reputation and trust, they may not directly influence guests' immediate memories of their stays. Their effects may instead operate through perceived corporate social responsibility, service quality, or guest–brand identification, which were not included in the present model.

Accordingly, the absence of significant direct effects should not be interpreted as evidence that practices related to clean water and sanitation, gender equality, or responsible consumption are inconsequential. Rather, their contributions to guest experiences may depend on visibility, communication, and indirect pathways that warrant further investigation.

5.4.3. Synthesis with Qualitative Insights

The qualitative findings support these interpretations. Hotel managers emphasized that sustainability investments implemented behind the scenes do not automatically translate into guest appreciation unless frontline employees are trained to communicate these practices effectively (Informants 1 and 5). Moreover, limitations in municipal infrastructure and high operating costs create a sustainability gap that may further constrain the experiential impact of hotel-level initiatives.

Overall, the integrated findings suggest that the relationships between SDG-aligned practices, MTE dimensions, and brand loyalty are selective, visibility-dependent, and potentially indirect rather than universally direct. The extent to which sustainability initiatives contribute to memorable accommodation experiences and brand loyalty therefore depends not only on their implementation but also on their visibility and effective translation into guest-facing experiences.

5.5. Theoretical and Practical Implications

Theoretically, this study contributes to the integration of the SDG framework with established tourism experience models (e.g., the Memorable Tourism Experience scale and SERVQUAL), offering a more nuanced understanding of how sustainability and service quality jointly—but selectively—shape tourist experiences and loyalty outcomes (Eviana, 2025; Nugraha et al., 2021; Sarma et al., 2026). The variable patterns identified suggest that future theoretical models should avoid treating sustainability practices and experiential dimensions as uniformly influential, and instead account for variation in salience, visibility, and touchpoint-specific relevance.

Practically, the findings offer clear guidance for accommodation operators in Northern Thailand and similar regional contexts. Given resource constraints typical of small and medium-sized hospitality businesses, operators should strategically prioritize investment in staff training and staffing adequacy (Konstantopoulos et al., 2026)alongside visible and experientially engaging sustainability initiatives (e.g., ecosystem conservation activities that tourists can observe or participate in) (Raza et al., 2023), rather than diffusing resources evenly across all possible SDG indicators. Similarly, marketing and service design efforts aimed at fostering loyalty should emphasize refreshment, enjoyment, involvement, and novelty (Dewi & Gustiawan, 2025) rather than relying solely on cultural or educational appeals (Ogunnaike et al., 2022).

5.6. Limitations and Future Research Directions

Several methodological limitations should be considered when interpreting the findings. First, the study was geographically limited to four provinces in Northern Thailand, which may restrict generalizability to other regions or accommodation categories (e.g., luxury resorts or budget hostels). Second, the quantitative sample was drawn through a non-probability, purposive and quota sampling approach; although proportional allocation by province was applied, respondents were recruited at key transit and hospitality hubs, potentially introducing selection bias and limiting representativeness. Third, although reliability and convergent validity evidence (Cronbach's alpha, CR, AVE) met the recommended thresholds for all multi-item constructs, composite reliability and AVE were not applicable to the formative predictor sets (SDG-aligned practices and perceived service quality), for which content validity and multicollinearity diagnostics were reported instead. In addition, all constructs were analyzed as observed composite variables rather than latent factors. The reported reliability and validity statistics characterize the underlying item sets; they do not indicate that a reflective latent-variable measurement model was estimated. Future research should estimate a latent-variable SEM in order to provide formal measurement-model evidence for both reflective and formative

specifications. Fourth, the cross-sectional design and reliance on self-reported survey data for all constructs raise concerns about common method bias and impede causal inference; the sequential mixed-methods design incorporating manager interviews provides some mitigation but cannot fully eliminate these biases. Fifth, the sample exhibited demographic concentration, with a majority female (74.7%), tertiary-educated (88.0%), and aged 30–49 (68.5%). Prior research indicates that educated female travelers often report heightened environmental concern and perceptual sensitivity to sustainability initiatives, which may inflate the observed path coefficients between SDG cues, MTEs, and loyalty. Findings should therefore be contextualized to this high-engagement consumer cohort rather than generalized across all domestic segments.

Sixth, potential measurement limitations exist. The SDG-related importance items were adapted from macro-level goals to accommodation settings; however, the main analysis employed path analysis with observed composite scores rather than latent variable modeling with full measurement models. This approach does not correct for measurement error, which may bias path coefficients, and aggregating items into a single index could mask the potentially distinct influences of environmental, social, and economic sustainability dimensions. Similarly, service quality and MTE were treated as observed variables, overlooking construct-level unreliability. Future research should consider structural equation modeling with latent variables and multiple indicators to better capture multi-dimensional relationships and measurement precision.

Seventh, the qualitative phase involved only 11 informants, predominantly from Chiang Mai, which may not fully capture the diversity of managerial perspectives from smaller properties or other provinces; although saturation was reached for the major themes, the limited number restricts the breadth of insights.

Eighth, the SDG stimulus captured perceived importance (demand-side expectations) rather than direct exposure to sustainability practices during the stay. Therefore, the findings reflect guests' sustainability priorities rather than the experiential impact of implemented practices, which may explain the selective SDG–MTE relationships. Future research should directly measure guests' actual exposure and recall (e.g., via observation, experience-sampling, or post-stay recall) to examine the full experiential mechanism of the S–O–R model.

Given these limitations, future research should employ longitudinal designs to establish temporal precedence and observe how SDG-aligned practices influence MTE and loyalty over time as tourist sustainability awareness evolves. Incorporating objective sustainability performance indicators—such as actual energy/water consumption, waste diversion rates, or third-party eco-certification levels—would supplement self-reported perceptions. Extending the study to cover a wider array of accommodation categories (budget hostels, serviced apartments, upscale and luxury hotels) and conducting comparative research across different tourist segments (by age, income, travel motivation, sustainability consciousness) and geographical regions (e.g., Southern Thailand, urban vs. rural destinations) would help clarify the boundary conditions of the findings. Finally, combining quantitative surveys with larger, more diverse qualitative samples or netnographic analyses of online reviews could deepen understanding of the mechanisms through which visible and invisible sustainability attributes translate into memorable experiences and brand loyalty.

A methodological limitation of this study is the reliance on an observed-variable regression/path approach using composite scores. While construct validity was verified beforehand, this approach does not simultaneously model measurement error within the structural system, resulting in saturated models ($df = 0$) where global model fit cannot be meaningfully assessed. Future research should replicate these findings using fully

over-identified ($df > 0$) latent-variable Structural Equation Modeling (CB-SEM or PLS-SEM) to jointly evaluate measurement error and structural adequacy.

6. Conclusions

This study examined the relationships among perceived SDG-aligned practices, service quality, memorable tourism experiences (MTEs), and brand loyalty among domestic tourists staying in three- to four-star accommodations in Northern Thailand. Using a sequential mixed-methods approach (Del Chiappa et al., 2022; Shiloh et al., 2023), the study integrated survey data from 400 tourists and 11 in-depth interviews with accommodation managers.

The quantitative findings indicate that tourists place high importance on SDG-aligned practices (M = 4.16) and service quality (Preziosi et al., 2022), although their effects on MTEs and brand loyalty are selective. Marine and ecosystem conservation and staff training were significant predictors of several MTE dimensions (Dube, 2021; Kagisho & Joao, 2026), while adequate staffing and staff attentiveness were strong predictors across all MTE dimensions (S. I. Ng et al., 2022). Furthermore, refreshment, hedonism, involvement, and novelty significantly predicted brand loyalty, whereas meaningfulness, local culture, and knowledge showed no significant direct effects (Dahanayake et al., 2026; Hosseini et al., 2025). These findings highlight the importance of visible sustainability initiatives and human-mediated service quality in shaping memorable experiences and brand loyalty (Masa'deh et al., 2025).

The qualitative findings explain these relationships by showing that back-of-house sustainability initiatives, such as wastewater treatment and energy monitoring, often remain invisible to guests unless actively communicated. Hotel-level efforts are also constrained by inadequate municipal infrastructure and the high costs of certified green supplies, creating a sustainability gap.

From a managerial perspective, accommodation providers should prioritize staff training, adequate staffing, and staff attentiveness, alongside visible and participatory environmental initiatives, such as native landscaping and guided eco-activities, rather than distributing resources uniformly across all SDG indicators. Service designs emphasizing refreshment, enjoyment, involvement, and novelty may be more effective in fostering brand loyalty than generic cultural or educational appeals (Dahanayake et al., 2026; Zayed et al., 2026). Additional qualitative insights suggest linking recycling revenues to employee welfare, adopting renewable energy where economically feasible, and collaborating with local authorities to improve waste management infrastructure. These recommendations require context-specific feasibility assessments and were not directly tested in the quantitative model.

Overall, strategically integrating SDG-aligned practices, service quality, and guest-oriented experience design can enhance memorable experiences, strengthen brand loyalty and customer retention, and support sustainable tourism development and competitive positioning in Northern Thailand. Although these improvements may potentially contribute to repeat visitation and regional tourism revenue, the cross-sectional design did not directly examine long-term economic outcomes, including sustained revenue growth, regional competitiveness, or destination-level economic development. Such implications should therefore be considered informed extrapolations rather than empirically verified outcomes. Future longitudinal and multi-level research is needed to examine these broader economic and tourism development effects.

Author Contributions: Conceptualization, P.O., B.K. and C.W.; methodology, C.W.; software, C.W.; validation, P.O. and C.W.; formal analysis, P.O. and C.W.; investigation, P.O. and C.W.; resources, P.O.; data curation, C.W.; writing—original draft preparation, P.O. and C.W.; writing—review and

editing, P.O. and C.W.; visualization, C.W.; supervision, P.O. and C.W.; project administration, P.O.; funding acquisition, P.O. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by Chiang Mai University, Thailand.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board of Chiang Mai University Research Ethics Committee (protocol code CMUREC 68/132, approved 21 May 2025)

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The original contributions presented in the study are included in the article; further inquiries can be directed to the corresponding author.

Acknowledgments: During the preparation of this manuscript, four AI tools—ChatGPT (OpenAI), Gemini (Google), NotebookLM (Google) and Claude (Anthropic)—were used to assist in improving the manuscript, refining and condensing the content, and solely to transcribe the interview. The authors have reviewed and edited the output and take full responsibility for the content of this publication.

Conflicts of Interest: The authors declare no conflicts of interest.

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