



Value Before Satisfaction: Serial Mediation of Tourist Experience and Perceived Value in the Smart Tourism–Satisfaction Relationship in a Heritage Tourism District of Tamil Nadu, India

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Abstract – Destinations are investing in QR codes, mobile applications and other smart tourism features, yet little is known about the psychological route by which such features translate into tourist satisfaction. This study tests whether tourist experience and perceived value transmit the effect of smart tourism destination attributes on satisfaction. Data were collected from 94 tourists who had visited Mayiladuthurai District, Tamil Nadu, through an online questionnaire (27–30 September 2026; convenience sampling), and six attributes – destination branding, tourism infrastructure, QR-based smart tourism, mobile application quality, accessibility and service quality – were averaged into a composite. Reliability analysis, correlation, multiple regression and a bootstrap-based serial mediation model (5,000 resamples) were applied. The six attributes explained 54.7% of the variance in tourist experience, and only mobile application quality ($\beta = 0.40$) and service quality ($\beta = 0.38$) were significant individual predictors. The total effect on satisfaction (0.909) comprised a significant direct effect (0.528) and a significant total indirect effect (0.381, 95% CI [0.139, 0.623]). Indirect effects ran through perceived value alone (0.242) and through experience and value in sequence (0.242), whereas the path through experience alone was not significant (−0.103); the pattern held after removing 12 straight-lining respondents. A good experience therefore raises satisfaction chiefly by first creating perceived value, evidence from a district-level heritage destination that is rarely studied in smart tourism research. Destination managers should pair digital services with visible value cues and fix basic services (cleanliness, safety, transport) first, because value, not experience alone, converts into satisfaction.

Keywords - smart tourism; destination branding; QR code; mobile application; tourist experience; perceived value; tourist satisfaction; serial mediation; heritage tourism; India.

I. INTRODUCTION

Tourism destinations around the world are becoming digital. Smart tourism, understood as tourism supported by technology-enabled data, information and services, is now a central theme in destination management (Gretzel et al., 2015; Li et al., 2017). Smart destinations promise real-time information, personalised services and seamless navigation (Buhalis & Amaranggana, 2014), and technology-supported experiences can change how tourists plan, enjoy and remember a trip (Neuhofer et al., 2014; Wang et al., 2012; Dickinson et al., 2014). Tourists' experience of smart tourism technologies is also linked with their behavioural intentions (Jeong & Shin, 2020; Um & Chung, 2021) and happiness (Lee et al., 2018).

Two limitations of this literature motivate the present study. First, empirical work concentrates on large cities and internationally known destinations (Mehraliyev et al., 2020), whereas small heritage districts, where information still travels mainly by word of mouth, receive little attention. Second, most studies test whether technology affects satisfaction or intentions and say less about the route through which the effect travels. Services research offers a well-established quality–value–satisfaction chain (Cronin et al., 2000; Petrick, 2004), applied to heritage tourism by Chen and Chen (2010), but destination-level smart attributes are seldom placed at the start of this chain, and the separate roles of *experience* and *value* are rarely decomposed in a serial mediation model.

Mayiladuthurai District in Tamil Nadu, formed in December 2020, combines renowned Shiva temples, the Danish heritage town of Tharangambadi and the ancient port of Poompuhar. Tourists rely mostly on friends and relatives for information (54.3% of respondents), and the district has neither a QR-based information system nor an official tourism application, so choices about digital investment are still open. The study addresses three research questions. **RQ1:** Do smart tourism destination attributes improve tourist experience, and which matter most? **RQ2:** Do tourist experience and perceived value transmit the effect of these attributes on satisfaction? **RQ3:** Through which route does the effect operate – experience alone, value alone, or experience followed by value? The paper contributes (i) a serial mediation test of the attribute–experience–value–satisfaction chain in an understudied heritage district, (ii) evidence that value, rather than experience, is the proximate driver of satisfaction, and (iii) sequenced managerial implications for a destination preparing to introduce QR and mobile services.

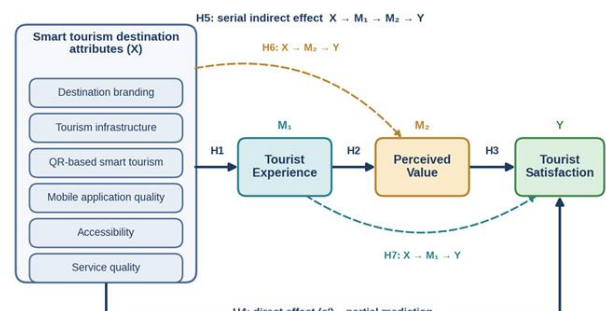
II. CONCEPTUAL BACKGROUND AND HYPOTHESES

The model draws on the Technology Acceptance Model (Davis, 1989), the Information Systems Success Model (DeLone & McLean, 2003) and the experience economy (Pine & Gilmore, 1998). Six destination attributes form the “smart tourism” bundle: destination branding, tourism infrastructure, QR-based smart tourism, mobile application quality, accessibility and service quality (Parasuraman et al., 1988). Together they should make a visit more enjoyable, informative and comfortable, which defines tourist experience here. **H1:** Smart tourism destination attributes have a positive effect on tourist experience.

Perceived value is the tourist’s overall assessment of what is received relative to what is given (Zeithaml, 1988; Sweeney & Soutar, 2001). Experience is largely an affective and cognitive response, whereas value requires weighing benefits against money, time and effort, so a positive experience should raise the sense that the trip was worthwhile (Chen & Chen, 2010). Satisfaction is an evaluative judgement formed by comparing expectations with outcomes (Oliver, 1980), and value precedes satisfaction in tourism and service settings (Cronin et al., 2000; Petrick, 2004). **H2:** Tourist experience has a positive effect on perceived value. **H3:** Perceived value has a positive effect on tourist satisfaction.

Combining these links gives the serial mediation model in Figure 1, in which attributes (X) influence satisfaction (Y) through experience (M1) and perceived value (M2). Some effect may remain direct, because tourists judge facilities

and services directly when reporting satisfaction, so mediation is expected to be partial. Because experience is hedonic whereas satisfaction is evaluative, experience should contribute to satisfaction mainly by first increasing value. **H4:** Attributes retain a direct positive effect on satisfaction (partial mediation). **H5:** Attributes influence satisfaction through experience and value in sequence ($X \rightarrow M1 \rightarrow M2 \rightarrow Y$). **H6:** Attributes influence satisfaction through value alone ($X \rightarrow M2 \rightarrow Y$). **H7:** Attributes influence satisfaction through experience alone ($X \rightarrow M1 \rightarrow Y$).



Theoretical anchors: M1 – experience economy (Pine & Gilmore, 1998); M2 – value-satisfaction chain (Zeithaml, 1988); Y – expectation-disconfirmation (Oliver, 1980)

Figure 1. Conceptual framework: serial mediation of tourist experience (M1) and perceived value (M2) between smart tourism destination attributes (X) and tourist satisfaction (Y).

III. METHODOLOGY

A descriptive and causal cross-sectional survey was conducted in Mayiladuthurai District, covering six destinations: Mayuranathaswami Temple, Vaitheeswaran Koil, Thirukadaiyur Amritagateswarar Temple, Tharangambadi Danish Fort, Poompuhar and Thiruvankadu Swetharanyeswarar Temple. Respondents were adults (18+) who had visited the district. A structured questionnaire in English and Tamil was administered online (Google Forms) between 27 and 30 September 2026 and shared with tourists and persons known to have visited (non-probability convenience sampling); participation was voluntary and anonymous. All 94 complete responses were used. Twelve respondents gave identical answers to all attitude statements; they were retained in the main analysis and removed in a robustness check.

All constructs were measured with multi-item statements on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree; Table 1). Example items are “My visit to Mayiladuthurai was enjoyable” (experience), “I got good value for the time and money I spent” (value) and “Overall, I am satisfied with my visit” (satisfaction). Because the district has no official QR system or



application, the QR and mobile application items are worded prospectively (e.g., “I would download and use an official Mayiladuthurai tourism app”) and capture the *anticipated* usefulness of such services, not an existing platform; the other four attributes describe the destination as experienced. The composite X is the mean of the six attribute scores (3.79). Reliability was assessed with Cronbach’s alpha (Cronbach, 1951).

Descriptive statistics, Pearson correlations and a multiple regression of experience on the six attributes (H1, with variance inflation factors) were computed first, and H2–H3 were tested with simple regressions. The serial mediation (H4–H7) followed the regression-based approach of Preacher and Hayes (2008) and Hayes (2018): $M1 = i1 + a1X + e1$; $M2 = i2 + a2X + d21M1 + e2$; $Y = i3 + c'X + b1M1 + b2M2 + e3$. The specific indirect effects are $a1b1$ (via experience), $a2b2$ (via value) and $a1d21b2$ (serial). Percentile intervals came from 5,000 bootstrap resamples; an indirect effect is significant when its 95% interval excludes zero. Effects are unstandardised, mediation type follows Zhao et al. (2010), and the significance level is 5%.

IV. RESULTS

1. Respondent profile, reliability and descriptives

The typical respondent is a young female student from outside the district who travels with family: 60.6% were female, 55.3% aged 18–25, 47.9% students and 80.9% non-residents. Smartphone use is almost universal (96.8%), only 11.7% were first-time visitors, and friends and relatives (54.3%) and social media (24.5%) were the main information sources. Reliability was acceptable for eight of nine constructs ($\alpha = 0.70$ – 0.81); accessibility, a three-item scale, was lower ($\alpha = 0.616$) and is interpreted cautiously (Table 1). All means were high (3.69–4.00); destination branding (4.00) and experience (3.91) were rated highest and satisfaction (3.69) lowest, so tourists are positive but not fully satisfied.

Table 1. Reliability and descriptive statistics of the constructs

Construct	Items	Cronbach’s α	Mean	SD	% Agree
Destination branding	5	0.721	4.00	0.62	75.7
Tourism infrastructure	4	0.767	3.72	0.79	60.6
QR-based smart tourism	4	0.742	3.78	0.76	64.9
Mobile application quality	4	0.806	3.76	0.83	63.3
Accessibility	3	0.616	3.79	0.77	65.2

Construct	Items	Cronbach’s α	Mean	SD	% Agree
Service quality	4	0.786	3.71	0.79	63.3
Tourist experience (M1)	4	0.744	3.91	0.69	73.1
Perceived value (M2)	3	0.701	3.82	0.75	64.9
Tourist satisfaction (Y)	4	0.791	3.69	0.80	62.5

Note. % Agree = share of item responses coded “agree” or “strongly agree”.

2. Correlations and attributes → experience (H1)

All correlations among the nine constructs were positive and significant at the 1% level ($r = 0.44$ to 0.76). The strongest were value–satisfaction ($r = 0.76$) and experience–value ($r = 0.73$), pointing to the value-centred chain tested below; correlations among the attributes reached 0.72, so VIF diagnostics were used. The six attributes jointly explained 54.7% of the variance in experience ($R^2 = 0.547$, adjusted $R^2 = 0.515$, $F(6, 87) = 17.48$, $p < .001$; all VIF < 3.1), so H1 is supported at the composite level (Table 2). Only mobile application quality ($\beta = 0.404$, $p = .001$) and service quality ($\beta = 0.376$, $p = .002$) had significant independent effects. Given the high intercorrelations and small sample, the non-significant attributes reflect overlapping contributions and limited power, not unimportance; the small negative coefficients for infrastructure and QR are not significant and should not be interpreted.

Table 2. Multiple regression: dependent variable – tourist experience

Predictor	B	SE	β	t	p	VIF
(Constant)	1.238	0.347	–	3.57	< .001	–
Destination branding	0.094	0.125	0.084	0.75	.453	2.37
Tourism infrastructure	–0.130	0.107	–0.148	–1.21	.230	2.88
QR-based smart tourism	–0.048	0.101	–0.053	–0.47	.636	2.35
Mobile application quality	0.338	0.100	0.404	3.38	.001	2.73
Accessibility	0.123	0.112	0.137	1.10	.276	3.01
Service quality	0.330	0.101	0.376	3.26	.002	2.56

Note. $R = 0.739$, $R^2 = 0.547$, adjusted $R^2 = 0.515$, $F(6, 87) = 17.48$, $p < .001$. Significant predictors in bold.

3. Serial mediation of experience and perceived value (H2–H7)

The links in the chain were individually supported: experience predicted value ($\beta = 0.73$, $R^2 = 0.533$, $p < .001$; H2) and value predicted satisfaction ($\beta = 0.76$, $R^2 = 0.574$, $p < .001$; H3). Figure 2 shows the full serial model and Table 3 the decomposition of effects. The total effect of attributes on satisfaction was 0.909 (95% CI [0.687, 1.116]), of which 0.528 was direct (95% CI [0.256, 0.870]) and 0.381 indirect (95% CI [0.139, 0.623]). Both are significant and share the same sign, indicating complementary partial mediation (Zhao et al., 2010) and supporting H4. The serial path through experience then value (0.242, 95% CI [0.074, 0.456]; H5) and the path through value alone (0.242, 95% CI [0.058, 0.499]; H6) were significant, whereas the path through experience alone was not (-0.103 , 95% CI $[-0.303, 0.065]$; H7 not supported). With value in the model, the direct path from experience to satisfaction was also not significant ($b_1 = -0.140$, 95% CI $[-0.399, 0.089]$).

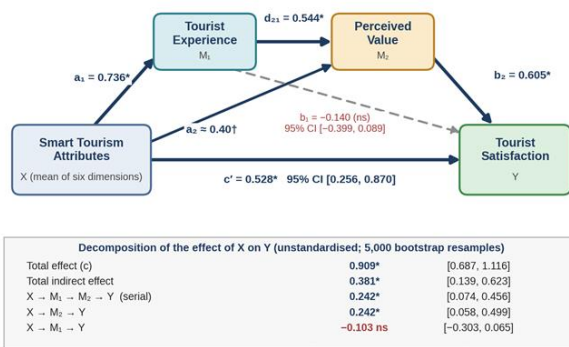


Figure 2. Path diagram of the serial mediation model (unstandardised coefficients; 5,000 bootstrap resamples).

Solid lines are significant paths; the dashed line is not significant. † a_2 is derived from the reported indirect effect (0.242) divided by b_2 (0.605).

Table 3. Serial mediation: total, direct and indirect effects on tourist satisfaction

Effect	Estimate	95% CI lower	95% CI upper	Sig.
Total effect (X → Y)	0.909	0.687	1.116	Yes
Direct effect (c')	0.528	0.256	0.870	Yes
Total indirect effect	0.381	0.139	0.623	Yes
X → M1 → M2 → Y (serial; H5)	0.242	0.074	0.456	Yes
X → M2 → Y (H6)	0.242	0.058	0.499	Yes
X → M1 → Y (H7)	-0.103	-0.303	0.065	No

Note. Unstandardised effects, 5,000 bootstrap resamples. a_1 (X → M1) = 0.736; d_{21} (M1 → M2) = 0.544; b_2 (M2

→ Y) = 0.605; b_1 (M1 → Y) = -0.140 . Total effect = direct + total indirect effect.

4. Downstream outcomes and robustness

Satisfaction significantly predicted destination loyalty ($\beta = 0.68$, $R^2 = 0.463$), revisit intention ($\beta = 0.71$, $R^2 = 0.501$) and positive word-of-mouth ($\beta = 0.61$, $R^2 = 0.376$), all $p < .001$. Repeating the analyses on the 82 respondents who did not straight-line left the conclusions unchanged: mobile application quality ($p = .002$) and service quality ($p = .006$) remained the only significant attributes ($R^2 = 0.458$), experience → value ($R^2 = 0.446$) and value → satisfaction ($R^2 = 0.489$) remained significant at $p < .001$, and the total indirect effect remained significant (0.342, 95% CI [0.099, 0.593]), with somewhat smaller effect sizes. In sum, H1–H6 are supported and H7 is not.

V. DISCUSSION

The central result is that experience matters for satisfaction mainly because it creates perceived value. Attributes improve experience, experience raises value and value raises satisfaction; the route through experience alone is not significant. A pleasant, informative and comfortable visit is therefore not automatically a satisfying one: satisfaction follows when tourists conclude that the trip was worth the money, time and effort, consistent with Zeithaml (1988) and with heritage-tourism evidence linking experience quality to satisfaction through value (Chen & Chen, 2010). Mobile application quality and service quality stand out as drivers of experience. The service finding fits the long-standing role of service delivery in tourist evaluations (Parasuraman et al., 1988). The application finding must be read with the measurement caveat above: the items express anticipated usefulness of an app that does not yet exist, so it signals demand and readiness, not proof that a launched application would raise experience by the same amount. The significant direct effect (0.528) shows that experience and value do not capture everything, since satisfaction items also refer to transport, accommodation, food and cleanliness.

Theoretically, the study moves smart tourism research from direct-effect models to a mechanism-based one, separates two mediators often treated as interchangeable (value is the proximate driver; experience works through value), and applies the framework to a small Indian heritage district in a literature dominated by large smart cities (Mehraliyev et al., 2020; see also Gautam et al., 2024). Managerially, three priorities follow for the district administration, Tourism Department and temple authorities. **(1) Make value visible:** QR pages and the future app should present entry and ticket details, transport fares and timings, time-saving circuits, and food and stay



options with clear prices. **(2) Fix the basics first:** tourists most often chose cleanliness (38.3%), safety and security (35.1%) and transportation (33.0%) for improvement, ahead of QR codes and mobile services (23.4%), and service quality is itself a significant driver, so training guides and staff matters as much as technology. **(3) Build digital services in phases** on top of improved basic services, because a good application cannot compensate for poor cleanliness or safety, which is the logic of the SMART MAYILAI TOURISM model proposed in the wider project from which these data come.

The findings should be read in light of several limitations. The sample is small ($N = 94$), non-random and dominated by young students, so results are indicative and power for individual predictors is limited. The data are cross-sectional and self-reported from a single source, which may inflate relationships (Podsakoff et al., 2003), and mediation describes statistical pathways, not proven causal order. The QR and application constructs are anticipatory, accessibility has modest reliability, the composite X merges six distinct attributes, and a_2 in Figure 2 is derived from the reported indirect effect. Future studies should use larger, more representative on-site samples across seasons, test the model with structural equation modelling, evaluate a working QR/app prototype in a field or quasi-experimental design, and compare residents with visitors and first-time with repeat tourists.

VI. CONCLUSION

Mobile application quality and service quality were the strongest drivers of tourist experience in Mayiladuthurai District, and the effect on satisfaction ran partly directly and partly through perceived value, either alone or after experience; the route through experience alone was not significant. In short, value comes before satisfaction: destinations earn satisfied tourists not merely by providing pleasant experiences or digital tools, but by ensuring that tourists judge the visit to be worth what they invested. For a heritage district preparing to introduce QR codes and an official application, the practical message is to strengthen basic services, communicate value clearly and introduce digital services in phases.

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