IMPACT OF SERVICE DESIGN ON CUSTOMER EXPERIENCE IN DIGITAL PAYMENTS: THE MEDIATING ROLE OF PERCEIVED ENJOYMENT

*N. Rajarajeswari[1], Dr. S. Preetha[2]**

[1] Research Scholar, Department of Management Studies, VISTAS, Chennai, India.
Email: rajarajeswari2023scholar@gmail.com.
[2] Professor, Department of Management Studies, VISTAS, Chennai, India. Email: preetha.sms@vistas.ac.in.

Abstract
Digital payment service providers must consider customer experience, as it has become a key factor in how customers make payments on digital payment platforms. This study examines how Service Design influences Customer Experience and explores the role of Perceived Enjoyment among digital payment users in Chennai. Service Design is defined as an intuitive interface, a structured payment process, reliability, clear navigation, automated support, instant confirmation, and a seamless transaction workflow; Perceived Enjoyment is defined as the pleasant, engaging, satisfying, and intrinsically rewarding nature of digital payment interactions. The study is quantitative, descriptive, and cross-sectional. A purposive sampling of 400 digital payment users is chosen from the Chennai area. The study uses primary data collected through a structured questionnaire with a 5-point Likert scale. Partial Least Squares Structural Equation Modelling (PLS-SEM) is used to evaluate the measurement model, the structural model, and to observe the direct relationships between Service Design, Perceived Enjoyment and Customer Experience. The mediating effect of Perceived Enjoyment is tested through bootstrapping with 5,000 resamples, using the specific indirect effect and 95% bootstrap confidence intervals. The study is expected to give insights into the effectiveness of Service Design, both directly and indirectly via Perceived Enjoyment, in enhancing Customer Experience. The results can help payment service providers design customer-centered payment services that are not only functional and efficient but also provide positive experiential value for customers.

Keywords
Service Design, Customer Experience, Perceived Enjoyment, Digital Payments, PLS-SEM, Chennai

1. Introduction

In India, digital payment systems are an integral part of the modern financial landscape. The advent of smartphones, mobile banking, the Unified Payments Interface (UPI), digital wallets, QR code payments, and app-based financial services has significantly changed how consumers conduct regular financial transactions. From shopping and paying bills to sending money worldwide and managing finances, digital payment applications are now used in many ways. Therefore, alongside technology, the user experience of digital payment service providers has become a key factor in competition between them.

Service Design is crucial for shaping the user experience in digital payment systems, affecting both usability and customer satisfaction. Service Design is the process of defining and combining various service elements in a systematic way, which makes the customer interaction easier and seamless. Within a digital payments ecosystem, it encompasses user-friendly visual design, streamlined transaction workflows, reduced user involvement, smooth system performance, user-friendly navigation, error avoidance, automated support, immediate confirmation, and hassle-free transaction finalisation. The dimensions are the same as the Service Design indicators in the proposed model.

However, a technically efficient payment application may not necessarily provide a superior customer experience. Digital customers increasingly state that they expect it to be easy, enjoyable, engaging, and fulfilling to interact with. The emotional or affective aspect of digital service use has therefore become a significant feature. Perceived Enjoyment indicates how enjoyable, pleasant, engaging, satisfying, and self-rewarding users find their interaction with a digital payment platform to be, beyond the financial value of the transaction.

Customer Experience is the overall assessment coming from the customers' experience of interacting with a digital payment service. A positive customer interaction can create a lasting positive impression, meet expectations, enable smooth financial transactions, drive overall satisfaction, and encourage customers to recommend the application to others.

This creates a functional and emotional link between Service Design and Customer Experience. By reducing effort and interactional hurdles, an intuitively designed, reliable application can directly enhance the customer experience. Meanwhile, a well-designed digital transaction can be more pleasant and engaging, thus boosting Perceived Enjoyment. This enjoyment can then strengthen the overall Customer Experience.

The city of Chennai is an appropriate context to study these relationships, due to its large urban population and the extent of digital financial services usage among its consumers. Insights from digital payment users' experiences in Chennai can inform payment application service design strategies. Hence, this study investigates the direct effect of Service Design on customer experience and perceived enjoyment, and further examines whether Perceived Enjoyment mediates the relationship between Service Design and Customer Experience among digital payment users in Chennai.

2. Review of Literature

Service Design and Customer Experience

Bellos and Kavadias (2020) developed a process framework that explains how service design can support the entire customer experience process. The authors viewed service delivery as a chain of interdependent phases that provide functional benefits and subjective experiences to customers. They have found that service design decisions at various points during the service process affect the customer's service experience. The study applies to digital payment applications due to the interface design, transaction procedures, navigation, confirmation, and support – together creating the "service journey" for customers. Therefore, the overall Customer Experience can be enhanced when these elements are coordinated to support positive customer interaction.

Shree et al. (2021) examined the role of digital payments and consumer experience in India, using empirical survey data. This study examined the relationship between consumers' perceptions, trust in digital payment systems, their experience of online fraud, and their payment behavior. The results showed that the convenience of digital payments is not the only factor affecting consumers' experience; confidence and trust in the payment environment also matter. This study is significant for the Indian context as it shows how the design and reliability of digital payment systems can affect consumers' perceptions and adoption of digital payment systems.

Budiarani et al. (2021) measured the service quality attributes of a digital wallet by applying the Kano model. The study examined users of OVO and Shopee Pay and found that some attributes are essential for user satisfaction. The results showed that many digital-wallet attributes were seen as basic requirements or performance expectations. In addition, they found that customers' dissatisfaction with digital wallets stemmed from unmet expectations. The study illustrates how payment applications are evolving and need to adjust their functional and service-design features to provide a better customer experience.

Shahid et al. (2022) investigated the antecedents and consequences of consumers' experience of mobile banking applications by analysing the data of 473 consumers. The results indicated that convenience, trust, and social influence were significant factors in improving the Customer Experience, which in turn was significant for increasing Customer loyalty and intentions to use the products again. The research shows that customers assess m-financial services based on functional convenience and customer satisfaction in their interaction with the m-service. This supports viewing Service Design as an antecedent to Customer Experience in digital payment products.

Sun et al. (2022) studied Customer Experience in the smart retail environment of mobile payment through WeChat. The authors used data from 462 mobile-payment customers and concluded that smart payment technology led to better Customer Experience through Customer Relationships, interaction effectiveness, and communication. Customer Experience also contributed to the positive relationship quality effect. The results show that payment technology design can improve the service encounter and customers' perception of technology-based service.

Service Design and Perceived Enjoyment

Similarly, Salam and Taufik (2020) examined the influence of Perceived Enjoyment on digital-payment usage by millennial consumers. Their research showed that enjoyment is a psychological aspect of digital-payment usage. If consumers enjoy and like digital payment more than they see it as a tool, they will be more receptive to the technology. The study directly supports including Perceived Enjoyment in digital payment research and suggests that service attributes that enable pleasurable interactions can enhance customer responses.

The study was conducted by Lee et al. (2023) whose research focused on the Perceived Enjoyment and satisfaction of users of Generation Y and Generation Z e- wallets. The authors tested 201 responses to determine relationships among the variables using PLS-SEM, and concluded that perceived interactivity positively affected perceived enjoyment and that visual appeal also positively affected enjoyment. Perceived Enjoyment then impacted consumers' behavioural responses. The results are highly applicable to Service Design, as they indicate that users can enjoy interactive and visually attractive e-wallet features.

Hasan et al. (2024) explored the influencing factors of behavioural intentions of digitally-paid young Indian consumers. The study used 482 usable responses and, based on Structural Equation Modeling, identified Perceived Value, Trust, Compatibility, Social Influence, and Perceived Enjoyment as the key variables. Trust and Compatibility were especially identified as key predictors of an individual's intention to use digital payment, while Perceived Enjoyment was also explicitly included as an experiential factor affecting digital-payment behaviour. The study shows that affective variables still play an important role in the study of consumer interaction with m-payment systems in India.

Perceived Enjoyment and Customer Experience

Chakraborty et al. (2022) examined the values that drive consumers' adoption of mobile payment applications, surveying 880 Indian consumers. The study found that functional, conditional, epistemic, and emotional values significantly affected adoption intention. Most importantly, emotional value emerged as a key factor in consumers' evaluation of mobile payment apps. The results indicate that consumers don't consider payment apps only on functional factors, but also on emotional factors. This indirectly supports the role of Perceived Enjoyment in shaping positive digital-payment experiences.

Muhtasim et al. (2022) found that customers are highly satisfied with digital wallets, which depend heavily on the quality and reliability of the technological environment. The study highlights that seamless system performance and secure transaction design can enhance consumers' evaluations of their digital-wallet experience. These attributes can also lessen frustration and make the interactions less stressful and more pleasurable.

Nurcahyo et al. (2023) conducted a study to assess the satisfaction of users using e-wallets in Indonesia by analysing users' perceptions and expectations for various dimensions of service quality. The authors found that improving these attributes is crucial to enhancing user satisfaction. This finding is especially relevant to the current study because the design of the applications presented on screen could be enhanced to improve the functional and experiential aspects of digital payment interactions.

Eren (2024) explored users' attitudes toward QR-code payment experiences using PLS-SEM and data from QR-code payment users. The study shows that several design and performance attributes of the payment system are related to the evolution of the Customer Experience in mobile payments. The study thus offers direct empirical evidence of the relationship between digital service characteristics and customers' overall payment experience.

The study is relevant to the present study because it brings current evidence from the Indian digital financial services environment to the surface, showing a direct link between Perceived Enjoyment and Customer Experience. It thus provides empirical support for using Perceived Enjoyment to explain digital-payment experiences.

Service Quality, Customer Experience and Mediating Relationships

Arora and Banerji (2024) analysed the quality of digital banking services, Customer Experience, customer satisfaction, and customer loyalty in Indian public-sector banks from 524 valid responses. The results indicated that service quality dimensions significantly affected Customer Experience, which in turn positively influenced Customer Satisfaction and Customer Loyalty. The study also showed an intermediate link between experience and loyalty through customer satisfaction. Although it did not explicitly assess the mediating role of Perceived Enjoyment, the results support the idea that psychological and evaluative mechanisms can carry the impact of digital service characteristics to other customer outcomes.

Alkadi and Abed (2023) reviewed 84 peer-reviewed studies on consumer acceptance of fintech payment services. They identified factors most commonly mentioned to explain fintech payment acceptability, including perceived usefulness, perceived ease of use, trust, and attitude. The authors also noted that the research in the field has focused mainly on technology acceptance and behavioural intention. This discovery opens the door to research on digital-payment factors beyond acceptance, such as Perceived Enjoyment and Customer Experience.

Research Gap

Based on the recent literature (2020-25), it is established that the following factors influence customers' assessments of digital banking, mobile payments and e-wallet services: digital service quality, interface characteristics, convenience, reliability, visual appeal, interactivity, emotional value, and Perceived Enjoyment. A few studies have addressed either Service Design or service quality and Customer Experience, and others have shown the significance of Perceived Enjoyment in digital payments and e-wallet consumption. Even recent research from India has validated Perceived Enjoyment as a significant factor in online customers' Customer Experience.

The reviewed studies give, however, limited empirical support for the overall mechanism of Service Design → Perceived Enjoyment → Customer Experience in digital payment applications. Most studies focus on adoption intention, satisfaction, loyalty, trust, convenience, or service quality, and do not specifically test perceived enjoyment as a mediator between service design and customer experience. Moreover, evidence from Chennai digital-payment users remains limited. Hence, the present study fills this gap by considering both the direct relationship between Service Design and Customer Experience and the indirect relationship through Perceived Enjoyment.

3. Objectives of the Study

1. To examine the influence of Service Design on Customer Experience among digital payment users in Chennai.
2. To assess the influence of Service Design on Perceived Enjoyment and the influence of Perceived Enjoyment on Customer Experience among digital payment users in Chennai.
3. To examine the mediating role of Perceived Enjoyment in the relationship between Service Design and Customer Experience among digital payment users in Chennai.

4. Research Hypotheses

H1: Service Design has a significant positive influence on Customer Experience among digital payment users in Chennai.

H2: Service Design has a significant positive influence on Perceived Enjoyment among digital payment users in Chennai.

H3: Perceived Enjoyment has a significant positive influence on Customer Experience among digital payment users in Chennai.

H4: Perceived Enjoyment significantly mediates the relationship between Service Design and Customer Experience among digital payment users in Chennai.

5. Research Methodology

The study uses a descriptive, analytical, quantitative, cross-sectional research design to analyze the relationships among Service Design, Perceived Enjoyment, and Customer Experience in the context of digital payment services. The study is conducted in Chennai, Tamil Nadu, and the population comprises customers who rely on electronic payment applications for their banking activities. The study selected a purposive sample of 400 digital payment

users in Chennai. The study selected respondents based on their experience using digital payment applications. A structured questionnaire will be used to collect primary data. The questionnaire will include six items to assess the service design construct, five items to assess the perceived enjoyment construct, and five items to assess the customer experience construct, consistent with the constructs in the study model. The answers will be given on a Likert scale from Strongly Disagree to Strongly Agree. To select respondents who actively use digital payment apps in Chennai, a purposive sampling technique, also known as non-probability sampling, can be employed. Respondents must have experience with digital payment applications, as they will be able to assess service design, fun and overall customer experience.

The collected data were analysed using descriptive statistics to identify the demographic characteristics of the respondents and the overall pattern of the responses. Partial Least Squares Structural Equation Modelling (PLS-SEM) will be used in the analysis of the main relationships. The source study follows a two-stage PLS-SEM procedure (measurement-model assessment and structural-model assessment). The structural model will then be evaluated using R^2, adjusted R^2, effect size (f^2), standardised path coefficients, t-statistics, and p-values. The hypothesis tests will be performed with 5,000 bootstrap replications, as in the source study.

The specific indirect effect of Service Design → Perceived Enjoyment → Customer Experience will be explored using bootstrapping to test the mediating effect of Perceived Enjoyment. A bootstrap confidence interval will be examined to determine the statistical significance of mediation. This approach is consistent with the mediation procedure used in the existing model.

4. Data Analysis and Results

The structural model was subsequently evaluated using R^2, adjusted R^2, f^2, path coefficients, t-statistics, and p-values. To test mediation and hypotheses, we drew 5,000 bootstrap samples.

4.1 Measurement Model Assessment

4.1.1 Indicator Reliability and Descriptive Statistics

We used the outer loadings of the reflective measurement items to assess indicator reliability. If outer loadings exceed 0.70, indicator reliability is satisfactory (Hair et al., 2022). All indicator loadings exceeded the recommended threshold, ranging from 0.809 to 0.915 (Table 1). The loadings for the six Service Design items ranged from 0.809 to 0.915; the six Perceived Enjoyment items ranged from 0.876 to 0.908; and the six Customer Experience items ranged from 0.872 to 0.914. All indicators were thus kept. The outer loadings were significant at the 5,000 bootstrap resampling level ($p < 0.001$). (Hair et al., 2022; Guenther et al., 2023).

As shown in the descriptive statistics in Table 1, indicator means ranged from 3.087 to 3.550, and standard deviations ranged from 1.051 to 1.524. Skewness ranged from −0.547 to −0.111 and excess kurtosis ranged from −1.357 to −0.500. All observed values fall within the normal range, suggesting no considerable irregularity in the distribution of responses.

Table 1. Outer Loadings and Descriptive Statistics

Construct	Item	Item Statement	Outer Loading	Mean	SD	Excess Kurtosis	Skewness
Service Design	SD1	The digital payment app features an intuitive visual interface and layout.	0.915	3.204	1.427	-1.357	-0.304
	SD2	The payment process is well-structured and minimizes user steps.	0.809	3.517	1.348	-0.916	-0.498
	SD3	The app operates reliably with fast response times and minimal glitches.	0.898	3.413	1.272	-1.314	-0.151
	SD4	Clear guidance, navigation, and error prevention are built into the design.	0.912	3.546	1.154	-0.500	-0.538
	SD5	The app provides automated support features and instant confirmations.	0.907	3.292	1.322	-0.991	-0.539
	SD6	The overall navigation workflow allows seamless completion of transactions.	0.902	3.362	1.384	-1.182	-0.339
Perceived Enjoyment	PE1	Using this digital payment app is an enjoyable experience for me.	0.891	3.550	1.524	-1.221	-0.547

	PE2	I find the interaction with this payment platform pleasant and engaging.	0.877	3.087	1.051	-0.648	-0.111
	PE3	Conducting transactions brings me a sense of satisfaction and fun.	0.876	3.375	1.291	-1.244	-0.282
	PE4	Using this app is intrinsically rewarding beyond financial utility.	0.897	3.204	1.416	-1.260	-0.304
	PE5	The interactive features of the payment app keep me visually stimulated.	0.908	3.358	1.383	-1.152	-0.388
Customer Experience	CX1	My overall interaction leaves a lasting positive impression.	0.872	3.296	1.366	-1.169	-0.320
	CX2	The app consistently meets expectations across every stage of use.	0.895	3.237	1.186	-0.959	-0.122
	CX3	Using this platform makes daily financial activities seamless.	0.914	3.371	1.348	-1.090	-0.432
	CX4	I feel completely satisfied with the total experience provided by this app.	0.887	3.354	1.199	-0.850	-0.375
	CX5	I would strongly recommend this digital payment app based on my experience.	0.914	3.379	1.152	-0.918	-0.434

4.1.2 Internal Consistency Reliability and Convergent Validity

Cronbach's alpha greater than or equal to 0.70 and composite reliability greater than or equal to 0.70 indicate satisfactory internal consistency, and an AVE of 0.5 or higher indicates convergent validity (Hair et al., 2022). The AVE values ranged from 0.792 to 0.804. Therefore, all constructs fell within the confidence interval above the suggested limits, indicating good internal consistency reliability and convergent validity.

Table 2. Internal Consistency Reliability and Convergent Validity

Construct	Cronbach's Alpha	Composite Reliability (rho_c)	AVE	Decision
Service Design	0.948	0.959	0.794	Established
Perceived Enjoyment	0.935	0.950	0.792	Established
Customer Experience	0.939	0.953	0.804	Established

4.1.3 Discriminant Validity

HTMT is suggested to determine if conceptually different constructs are empirically distinguishable (Henseler et al., 2015; Guenther et al., 2023). The threshold was set at 0.85, which is conservative.

Table 3. Discriminant Validity Using HTMT

Construct	Customer Experience	Perceived Enjoyment	Service Design
Customer Experience	—	—	—
Perceived Enjoyment	0.683	—	—
Service Design	0.668	0.534	—

4.2 Structural Model Assessment

After confirming the measurement model, the structural model was assessed using R^2, adjusted R^2, f^2, and bootstrapped path coefficients. The structural relationships were tested using 5,000 bootstrap resamples (Hair et al., 2022; Guenther et al., 2023).

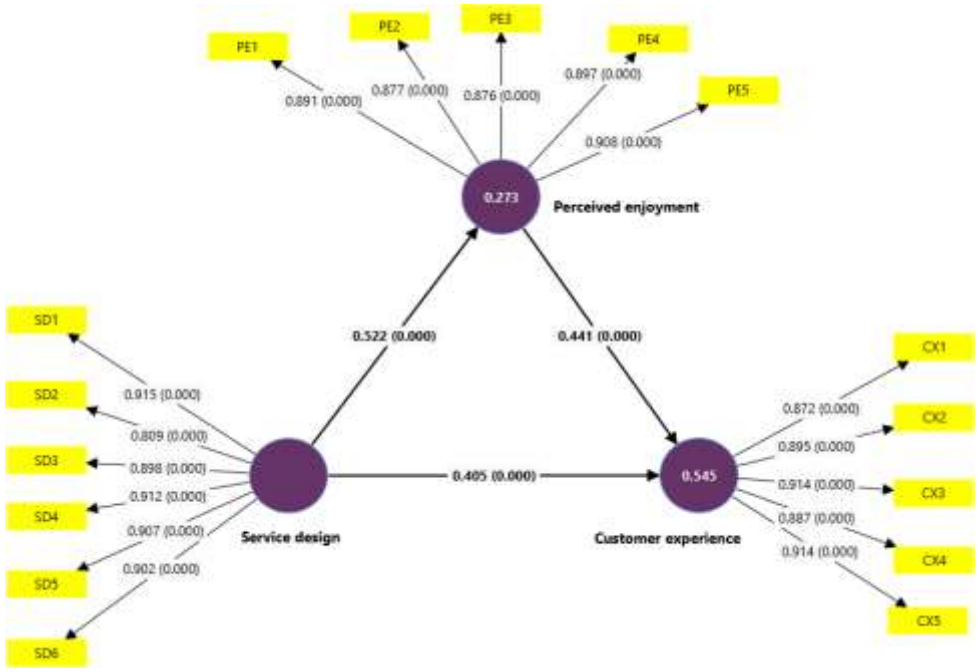
4.2.1 Coefficient of Determination (R^2) and Effect Size (f^2)

Hair et al. (2022) define R^2 as weak at 0.25, moderate at 0.50, and substantial at 0.75. There is moderate explanatory power for both constructs, with the model accounting for 54.5% of the variance in Customer Experience ($R^2 = 0.545$, adjusted $R^2 = 0.541$) and 27.3% of the variance in Perceived Enjoyment ($R^2 = 0.273$, adjusted $R^2 = 0.270$). The effect sizes (f^2) of 0.02, 0.15, and 0.35 correspond to small, medium, and large effects, respectively (Cohen, 1988). When considering the contribution to the endogenous construct, Perceived Enjoyment had the highest effect size for Customer Experience, suggesting that this factor contributed relatively more.

Table 4. Coefficient of Determination and Effect Sizes

Endogenous Construct	R^2	Adjusted R^2	Predictor	f^2	Effect Size
Customer Experience	0.545	0.541	Service Design	0.262	Medium
			Perceived Enjoyment	0.310	Medium
Perceived Enjoyment	0.273	0.270	Service Design	0.375	Large

Figure 1: Structural model



4.2.2 Direct Effects and Hypothesis Testing

Standardised path coefficients (β), standard errors, t-statistics and p-values from 5,000 bootstrap resamples were used to examine the hypothesised direct relationships. A t-value > 1.96 and a p-value < 0.05 (two-tailed) were considered statistically significant.

Regarding H1, Service Design had a significant positive impact on Customer Experience (β = 0.405, t = 5.420, p < 0.001). In addition, Service Design had a strong positive influence on Perceived Enjoyment (β = 0.522, t = 9.612, p < 0.001), which was hypothesised in H2. In addition, Perceived Enjoyment positively influenced Customer Experience (β = 0.441, t = 6.071, p < 0.001), supporting H3. So all direct hypothesis were therefore accepted.

4.2.3 Direct Effects and Mediation Analysis

The specific indirect effect for mediation was assessed using bootstrapping. The indirect effect of Service Design and Customer Experience (via Perceived Enjoyment) was positive and significant (β = 0.230, t = 5.565, p < 0.001). The 95% bootstrap CI was (0.150, 0.312), which excludes zero, thus proving the indirect relationship significant. The results also suggest partial mediation because the direct impact of Service Design on Customer Experience did not change when Perceived Enjoyment was introduced. The overall impact of Service Design on Customer Experience was 0.635.

Table 5. Direct Effects and Mediation Analysis

Hypothesis	Relationship	Standardized path coefficient β	STDEV	t-value	p-value	95% Bootstrap CI	Decision
H1	Service Design → Customer Experience	0.405	0.075	5.420	<0.001	—	Supported
H2	Service Design → Perceived Enjoyment	0.522	0.054	9.612	<0.001	—	Supported

H3	Perceived Enjoyment → Customer Experience	0.441	0.073	6.071	<0.001	—	Supported
H4	Service Design → Perceived Enjoyment → Customer Experience	0.230	0.041	5.565	<0.001	[0.150, 0.312]	Supported; Partial Mediation

Note: STDEV = standard deviation; CI = confidence interval.

5. Discussion

The results point to the pivotal role of Service Design in creating Customer Experience in digital payment services. Because the quality of the designed service encounter is positively related to overall user evaluation, it is worth exploring this further. Intuitive interfaces, streamlined processes, reliable performance, and clear navigation can minimize interactional friction and streamline the customer journey. This result aligns with other studies highlighting the importance of customer-centered, seamless digital touchpoints in shaping the online customer experience (Bhatnagr & Rajesh, 2024).

Service Design also proved to be one of the most significant antecedents of Perceived Enjoyment, indicating that the experiential value of a digital payment service in part lies in the design and delivery of the service. Effective service design isn't just about improving transaction efficiency; it can also increase engagement and delight in routine digital interactions. In this regard, design elements such as ease of navigation, responsiveness, visual coherence, and immediate feedback can turn otherwise functional transactions into more pleasant user experiences. It extends digital service design as a contribution to service evaluation that goes beyond its functional aspect and adds an affective dimension.

The positive correlation between Perceived Enjoyment and Customer Experience also suggests that customers' affective experiences influence overall assessments of digital payment services. While functional performance is not a complete reflection of the experiential value of digital services, users also react to how the interaction is experienced in terms of being pleasant, engaging, and satisfying. This finding aligns with the growing focus on experiential aspects in digital financial services and with studies highlighting perceived enjoyment as a key element of online customer experience (Bhatnagr & Rajesh, 2024).

This relationship is further explained by the mediation finding that Service Design influences Customer Experience partially via Perceived Enjoyment. This implies that the value service design brings to the customer experience is conveyed not only directly to the customer but also indirectly through a positive affective response in the service encounter. Therefore, the partial mediation offers a more nuanced account of the relationship between service design and customer experience, suggesting that service design contributes both directly through experience and indirectly through users' enjoyment of the interaction.

5.1 Theoretical Implications

The results extend the existing literature on service and digital experience by elevating Service Design as the key antecedent of Customer Experience, rather than simply a design consideration at the operational or interface level. The results show measurable experiential outcomes that are related to service design characteristics.

In terms of the findings, mediation offers empirical evidence of the mechanism between service design and customer experience. Partial mediation shows that Service Design affects Customer Experience both directly and indirectly via an affective path. It allows for a more complex explanation than a direct-effect relationship and responds to the need for theoretically based structural explanations in PLS-SEM-based research.

5.2 Managerial Implications

The results indicate that digital payment providers should take Service Design as an integral part of Customer Experience Management. The Service Design indicators performed well, especially in intuitive interface design, clear navigation, and trouble-free transaction completion, highlighting the importance of reducing user effort and friction throughout the payment journey.

The important role of Service Design on Perceived Enjoyment also suggests that functional design can affect the affective dimension of digital interaction. Providers should therefore consider responsive interfaces, clear instructions, immediate confirmation, and consistent interaction flows in service design strategies, alongside transaction speed and reliability.

Perceived Enjoyment significantly mediated the relationship between the other constructs and Customer Experience and also strongly influenced it, implying that the emotional aspect of digital interaction can positively affect Customer Experience. As such, service providers should consider service design projects using both operational measures and user-perceived enjoyment and experience.

5.3 Limitations and Future Research

The study's cross-sectional design is a limitation because it does not identify changes in customer experiences over time. Future research can investigate whether the relationships found persist over time as consumers become more familiar with digital payment services.

The study also focuses specifically on digital payment services. Future studies could apply the model to other fintech environments to evaluate its generalizability. Lastly, the mediating mechanism is Perceived Enjoyment. Future research could explore whether other experiential mechanisms can further explain the relationship between Service Design and Customer Experience, such as trust, perceived security, or customer engagement.

6. Conclusion

This study shows that Service Design affects Customer Experience in digital payment services both directly and indirectly through Perceived Enjoyment. The results suggest that well-designed digital interactions can enhance both functional service delivery and users' affective reactions. The partial mediation also implies that customer experience is affected not only by the effectiveness of service design, but also by how customers interact with it. This study therefore emphasises the need to combine functional and experiential aspects in the design of digital payment services.

Declaration of generative AI use:

Generative AI tools were used to improve language clarity and readability in this manuscript. The authors conducted all research design, data collection, analysis, and interpretation. The authors take full responsibility for the content

References

1. Alkadi, R. S., & Abed, S. S. (2023). Consumer acceptance of fintech app payment services: A systematic literature review and future research agenda. *Journal of Theoretical and Applied Electronic Commerce Research, 18*(4), 1838–1860. https://doi.org/10.3390/jtaer18040093.
2. Arora, P., & Banerji, R. (2024). The impact of digital banking service quality on customer loyalty: An interplay between customer experience and customer satisfaction. Asian Economic and Financial Review, 14(9), 712–733. https://doi.org/10.55493/5002.v14i9.5199.
3. Bellos, I., & Kavadias, S. (2020). Service design for a holistic customer experience: A process framework. Management Science, 67(3), 1718–1736. https://doi.org/10.1287/mnsc.2020.3609.
4. Budiarani, V. H., Maulidan, R., Setianto, D. P., & Widayanti, I. (2021). The Kano model: How the pandemic influences customer satisfaction with digital wallet services in Indonesia. *Journal of Indonesian Economy and Business, 36*(1), 61–82. https://doi.org/10.22146/jieb.59879.
5. Bhatnagr, P., & Rajesh, A. (2024). Online customer experience in Indian digital banks impacting continuous intention usage: Generation Y and Z perspective. *Journal of Financial Reporting and Accounting, 23*(2), 830–850.
6. Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates
7. Chakraborty, D., Siddiqui, A., Siddiqui, M., Rana, N. P., & Dash, G. (2022). Mobile payment apps filling value gaps: Integrating consumption values with initial trust and customer involvement. *Journal of Retailing and Consumer Services, 66*, 102946. https://doi.org/10.1016/j.jretconser.2022.102946
8. Chauhan, S., Akhtar, A., & Gupta, A. (2022). Customer experience in digital banking: A review and future research directions. *International Journal of Quality & Service Sciences, 14*(2), 311–348. https://doi.org/10.1108/IJQSS-02-2021-0027
9. Eren, B. A. (2024). QR code m-payment from a customer experience perspective. *Journal of Financial Services Marketing, 29*, 106–121. https://doi.org/10.1057/s41264-022-00186-5
10. Guenther, P., Guenther, M., Ringle, C. M., Zaefarian, G., & Cartwright, S. (2023). Improving PLS-SEM use for business marketing research. *Industrial Marketing Management, 111*, 127–142.
11. Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Sage.
12. Hair, J. F., Sarstedt, M., Ringle, C. M., Sharma, P. N., & Liengaard, B. D. (2024). Going beyond the untold facts in PLS-SEM and moving forward. *European Journal of Marketing, 58*(13), 81–106.
13. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135.
14. Hasan, A., Sikarwar, P., Mishra, A., Raghuwanshi, S., Singhal, A., Joshi, A., Singh, P. R., & Dixit, A. (2024). Determinants of behavioral intention to use digital payment among Indian youngsters. *Journal of Risk and Financial Management, 17*(2), 87. https://doi.org/10.3390/jrfm17020087
15. Lee, Y. Y., Gan, C. L., & Liew, T. W. (2023). Do e-wallets trigger impulse purchases? An analysis of Malaysian Gen-Y and Gen-Z consumers. *Journal of Marketing Analytics, 11*(2), 244–261. https://doi.org/10.1057/s41270-022-00164-9
16. Muhtasim, D. A., Tan, S. Y., Hassan, M. A., Pavel, M. I., & Susmit, S. (2022). Customer satisfaction with digital wallet services: An analysis of security factors. *International Journal of Advanced Computer Science and Applications, 13*(1), 195–206. https://doi.org/10.14569/IJACSA.2022.0130124

17. Nurcahyo, R., Prabuwono, A. S., Fainusa, A. F., Wibowo, N., Habiburrahman, M., & Hindriyandhito, K. (2023). Enhancing user satisfaction in Indonesia's e-wallet market: A comprehensive analysis of factors and priorities. *Human Behaviour and Emerging Technologies, 2023*, Article 8864865. https://doi.org/10.1155/2023/8864865
18. Nitzl, C., Roldán, J. L., & Cepeda, G. (2016). Mediation analysis in partial least squares path modelling: Helping researchers discuss more sophisticated models. *Industrial Management & Data Systems, 116*(9), 1849–1864.
19. Salam, K. N., & Taufik, M. I. (2020). The effect of perceived enjoyment on the decision of digital payment utilization in millennial generation. *Hasanuddin Economics and Business Review, 4*(2), 50–52. https://doi.org/10.26487/hebr.v4i2.2442
20. Shahid, S., Islam, J. U., Malik, S., & Hasan, U. (2022). Examining consumer experience in using m-banking apps: A study of its antecedents and outcomes. *Journal of Retailing and Consumer Services, 65*, 102870. https://doi.org/10.1016/j.jretconser.2021.102870
21. Shree, S., Pratap, B., Saroy, R., & Dhal, S. (2021). Digital payments and consumer experience in India: A survey based empirical study. *Journal of Banking and Financial Technology, 5*(1), 1–20. https://doi.org/10.1007/s42786-020-00024-z
22. Sun, Y., Xue, W., Bandyopadhyay, S., & Cheng, D. (2022). WeChat mobile-payment-based smart retail customer experience: An integrated framework. *Information Technology and Management, 23*, 77–94. https://doi.org/10.1007/s10799-021-00346-4
23. Sarstedt, M., Hair, J. F., Nitzl, C., Ringle, C. M., & Howard, M. C. (2022). Beyond a tandem analysis of SEM and PROCESS: Use of PLS-SEM for mediation analyses. *International Journal of Market Research, 64*(3), 303–316.