MORE THAN TASTE: INVESTIGATING THE MODERATING IMPACT OF CAFE ATMOSPHERE BETWEEN FOOD QUALITY AND SERVICE QUALITY THROUGH CUSTOMER SATISFACTION

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ABSTRACT

This research examines the impact moderating Café Atmosphere (CA)between food quality (FQ) and service quality (SQ) through customer satisfaction (CS) within the café sector. Research method using structural equation modeling (SEM) via SmartPLS. The goal is to explore both the direct impacts of these factors and the moderating effect of the store atmosphere on customer satisfaction. Data was gathered from 100 participants, and the analysis included both outer and inner model assessments to confirm the construction of validity and reliability. The findings indicate SQ ($\beta = 0.391$, $t = 4.025$, $p < 0.001$), FQ ($\beta = 0.279$, $t = 2.996$, $p = 0.001$), and CA ($\beta = 0.161$, $t = 1.888$, $p = 0.030$) all have a significant positive impact on customer satisfaction. Moderation analysis reveals that CA plays a significant role in moderating the relationship between SQ and CS ($\beta = -0.176$, $t = 2.766$, $p = 0.003$), suggesting that an enhanced environment can compensate for other factors. However, the store atmosphere's moderating effect on the link between FQ and CS is found to be not statistically significant ($\beta = 0.077$, $t = 1.240$, $p = 0.108$). The model explains 76.3% of the variance in CS ($R^2 = 0.763$), demonstrating substantial explanatory power. These results offer valuable theoretical insights into service management and practical recommendations for café businesses seeking to improve customer satisfaction through a comprehensive service approach.

Keywords: *Café Atmosphere, Customer Satisfaction, Food Quality, Service Quality,*

1. INTRODUCTION

Recently, the global coffee industry has undergone a transformation beyond merely serving beverages. Cafés today function as social spaces, creative environments, and even as urban sanctuary positions that heighten the importance of providing not just good food and service, but a memorable overall customer experience. The growing body of research has emphasized that customer satisfaction—a key driver of business sustainability—is no longer shaped solely by the taste of food or quality of service, but by a combination of sensory, emotional, and spatial factors that define the café atmosphere (S.-M. Lee & Kim, 2021; Shin et al., 2015; Taqwim et al., 2021).

Studies have consistently shown that service quality (reliability, responsiveness, empathy) and food quality (presentation, portion, flavor, and texture) have significant impacts on customer satisfaction. However, more recent investigations Benrit & Trakulmaykee, (2016); Duman, (2020); Zhong & Moon, (2020) highlight that these impacts are significantly amplified or diminished by the atmosphere in which they are experienced. A cozy, aesthetically pleasing café environment fosters positive emotional responses, deepens sensory appreciation, and enhances the psychological state of the customer—ultimately leading to stronger loyalty and intention to revisit.

This holistic view aligns with the principles of sustainability in the hospitality industry, which emphasizes not just environmental efforts but also the creation of emotionally sustainable experiences that retain customers and build brand resilience over time. The café atmosphere, encompassing elements such as interior and exterior design, lighting, music, seating layout, and ambiance, becomes A critical moderating factor in the impact between SQ and FQ to CS. As Putra, (2024) and Uslu, (2020) suggest, a well-structured physical environment improves

the customer's psychological and emotional engagement, which in turn boosts satisfaction and long-term patronage.

Moreover, sustainable café environments—through conscious design, natural lighting, calming aesthetics, and cultural relevance—not only support mental well-being but also contribute to social and economic sustainability by promoting repeat visits, word-of-mouth marketing, and customer attachment. This sentiment is echoed by Sayuti & Setiawan, (2019) and Hanaysha, (2016), who argue that the atmosphere acts as a bridge between the physical and non-physical elements of service. providing emotional fulfillment that taste and service alone cannot achieve.

Given these insights, this study explores The influence of CA in moderating the connection between SQ, FQ, and CS. Taking Brewing Space Café as a case, the study aims to deepen understanding of how cafés can create sustainable value through the interplay of taste, service, and ambiance—acknowledging that, in modern café culture, satisfaction is "more than taste."

2. LITERATURE REVIEW

In recent years, research on customer satisfaction in the food and beverage sectors, particularly in cafes and restaurants, has garnered considerable attention. This literature review will explore the key themes and findings that support The development of hypotheses for this study centers on the influence of SQ, FQ and CA in shaping CS.

2.1. Service Quality

The connection between SQ and CS has been widely researched in numerous industries. SQ is frequently viewed as a crucial factor influencing CS. Zeithaml et al., (2020) In the cafe context, service quality can include dimensions such as responsiveness, reliability, assurance, and empathy. Studies consistently show that when service quality is high, customers are more likely to be satisfied, fostering loyalty and positive word-of-mouth (Dam & Dam, 2021). Several studies in the last decade highlight that customers' expectations of service quality are highly correlated with their overall satisfaction in the cafe setting (S.-M. Lee & Kim, 2021). Therefore, the first hypothesis is: *H1: Service quality has a significant positive impact on customer satisfaction.*

2.2. Food Quality

Food quality (FQ) has consistently been acknowledged as a key factor that significantly impacts CS in cafés and restaurants. A significant body of literature has demonstrated that FQ, which includes taste, freshness, and presentation, directly affects how customers perceive their experience (Tuncer et al., 2021). A study by Arlanda & Suroso,(2018) found that FQ is essential to customer satisfaction, especially in the café industry, where the food offerings are central to the business model.

H2:Food quality has a significant positive Impact on customer satisfaction.

2.3. Cafe Atmosphere and Customer Satisfaction

The impact of café atmosphere (CA) on CS has been thoroughly examined in previous studies. Atmosphere, or "ambient factors," such as decor, music, lighting, and overall aesthetic, significantly impact how customers feel during their visit Choi & Kandampully, (2019). A positive atmosphere not only creates a pleasant experience but also affects customers' perceptions of other elements such as SQ and FQ. Studies have found that a well-designed cafe atmosphere increases customer satisfaction by Improving the overall dining experience Taqwim et al., (2021)

H3: Cafe atmosphere has a significant positive Impact on customer satisfaction.

2.4.   The Moderating Role of Cafe Atmosphere

The connection between independent variables (service quality, food quality) and the dependent variable (customer satisfaction) has been explored in various studies. In the café setting, some research suggests that the atmosphere could play a mediating role in the relationship between service quality and customer satisfaction. (Hosany et al.,2022). A pleasant atmosphere can enhance the effect of high service quality, as it reinforces the emotional and sensory experience of customers.

Similarly, the cafe atmosphere can also moderate the relationship between food quality and customer satisfaction. High-quality food alone may not guarantee customer satisfaction unless the environment enhances the dining experience. The atmosphere serves as a contextual backdrop that influences how food quality is perceived (Shamsudin et al., 2020). Studies indicate that an enjoyable atmosphere can amplify the impact of food quality, making it more likely for customers to report higher satisfaction levels (C. J. Lee et al., 2015; S.-M. Lee & Kim, 2021).

H4: Cafe atmosphere moderating the Impact among service quality and customer satisfaction.
H5: Cafe atmosphere moderating the Impact among food quality and customer satisfaction.

The literature from the past decade strongly supports the hypotheses proposed in this research. SQ, FQ and CA are all acknowledged as key factors that impact customer satisfaction within the café setting. Additionally, the role of cafe atmosphere as a moderate impact SQ and FQ with CS highlights the complex interplay of these variables. The studies referenced in this review provide a comprehensive foundation for the hypotheses and demonstrate the importance of a holistic approach to understanding CS in cafes.

3.   RESEARCH METHOD
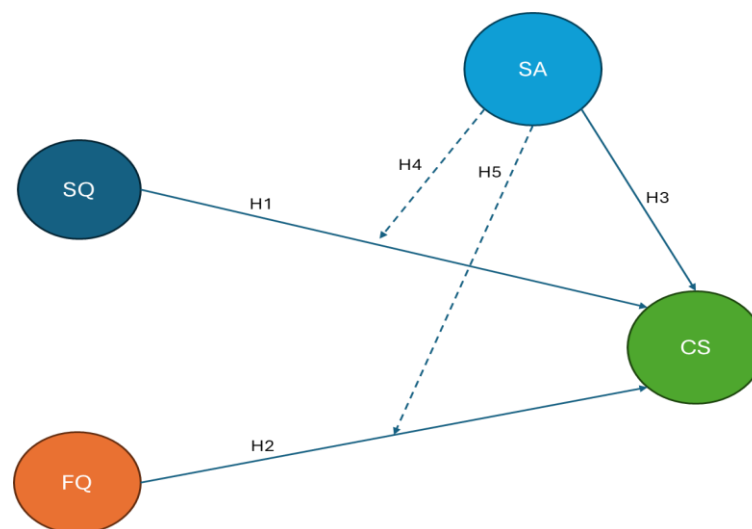
Research employs a quantitative methodology, using Partial Least Squares-Structural Equation Modeling (PLS-SEM) to examine impact between independent and moderating variables through dependent variables. The analysis was conducted using SmartPLS 4.0, a statistical software designed to handle complex models and suitable for studies with relatively small sample sizes, as recommended by Hair et al., (2019). The aims of the study is try to examine how SQ and FQ (independent variables) influence CS, and to assess whether the CA moderates these relationships.

The sample was drawn using purposive sampling, targeting customers who have dined at a selected café within the past six months. Respondents were required to meet specific criteria: they must be 18 years old and have visited the café at minimum in the past six months, and be willing to complete the survey in full. Based on the Lameshow formula, a minimum of 97 responses was needed; this was rounded up to 100 respondents in alignment with Hair et al., (2019) guideline of having at least ten times the number of indicators for the most complex latent variable in the model.

The main data collection tool was a structured questionnaire utilizing a 5-point Likert scale, with responses ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The questionnaire was designed to evaluate three key constructs: service quality, food quality, and customer satisfaction, as well as the moderating variable, café atmosphere. Service quality was measured using the SERVQUAL model, encompassing tangibles, reliability, responsiveness, assurance, and empathy. Food quality was evaluated based on freshness, presentation, taste, and temperature. Café atmosphere was assessed through ambient factors such as lighting, music, cleanliness, and overall design. Customer satisfaction was measured via indicators like repeat visit intention and willingness to recommend the café to others.

Data analysis was conducted using the PLS-SEM approach, consisting of two primary stages: Evaluate the outer model and then evaluate the inner or structural model. The evaluation of the external model is focused on confirming the reliability and validity of the construction. While Convergent validity is assessed by examining factor load (with a target value greater than 0.7), at discriminant validity is evaluated using Fornell-Larcker criteria and HTMT ratios. Construct reliability was validated through Cronbach's Alpha and Composite Reliability (CR), with acceptable thresholds set above 0.7.

In validating the measurement model, the structural model needs to be evaluated to test the proposed relationship. Bootstrapping procedures were employed to determine the significance of direct effects and the moderating role of the café atmosphere. The R^2 values were also examined to determine the explanatory power of the independent variables. This research method aims to offer an empirical perspective on how SQ and FQ have a contribution to CS and CA can strengthen or weaken this relationship.

4. RESULTS AND DISCUSSION

The aim of this study is to examine the direct and indirect effects of service quality, food quality, and café atmosphere as a moderating factor on customer satisfaction in Medan, with Brewing Space Café serving as the case study. This research is expected to impact the broader food and beverage industry. The research process begins with an outer model test, followed by an inner model test (structural model) to explore the relationships between endogenous and exogenous variables. One prerequisite for conducting these tests is to first evaluate the outer model, along with its results.

4.1. Outer Model Evaluation

The first phase of data analysis focuses on evaluating the measurement model (outer model) to verify the reliability and validity of the constructs used in the study. This includes testing indicator reliability, construct reliability, convergent validity, and discriminant validity. Indicator reliability is assessed through factor loadings, with a threshold of 0.7 for all observed indicators. In the model, all items measuring Service Quality (SQ), Food Quality (FQ), Café Atmosphere (CA), and Customer Satisfaction (CS) show loading values above 0.7, ranging from 0.669 to 0.915, indicating a strong association between the indicators and their respective

latent variables. According to Figure 2 of the outer model test results, the findings are as follows.
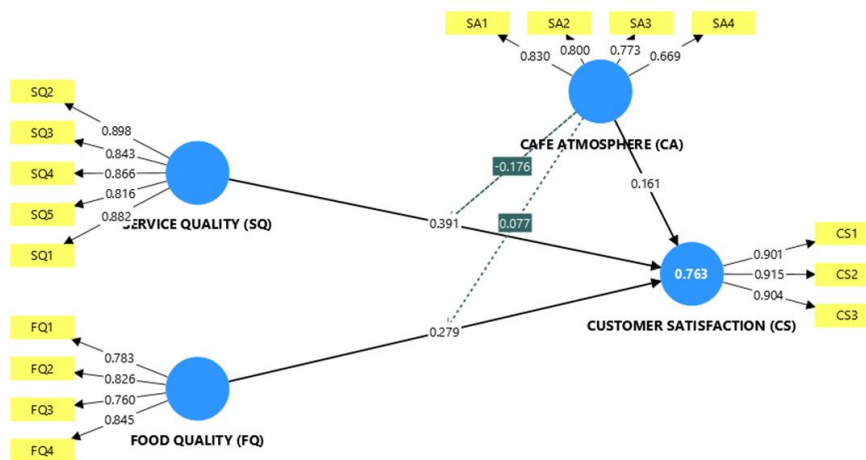

Figure 2: Outer Model Evaluation

Evaluation Aspect	Criterion	Result	Conclusion
Internal Reliability	Cronbach's Alpha	Ranges between 0.769 and 0.913	Satisfactory (> 0.70)
	Composite Reliability (ρC)	Ranges between 0.853 and 0.935	Satisfactory (> 0.70)
Convergent Validity	Average Variance Extracted (AVE)	Ranges between 0.594 and 0.822	Satisfactory (> 0.50)
Discriminant Validity	Fornell-Larcker Criterion	The square root of the Average Variance Extracted (AVE) for each construct is greater than its correlations with the other constructs.	Valid
	Heterotrait-Monotrait Ratio (HTMT)	All values are below the 0.90 threshold.	Valid
Indicator Reliability	Outer Loadings	Most indicators load above 0.70, with one item (CA4 = 0.669) slightly below	Acceptable based on theoretical relevance

Table 1 : Evaluation Outer Model Summarize

The measurement model was assessed to determine the reliability and validity of the constructs used in this study. Internal consistency reliability was verified using both Cronbach's alpha and composite reliability (ρ_c). Cronbach's alpha values ranged from 0.769 (Café Atmosphere) to 0.913 (Service Quality), all exceeding the minimum threshold of 0.70, indicating satisfactory internal consistency. Likewise, composite reliability values ranged from 0.853 to 0.935, further confirming that each construct was reliably measured by its associated items. (Hair et al., 2017).

Convergent validity is evaluated with Average Variance Extracted (AVE), for all constructions that exceed the recommended threshold of 0.50. The AVE values ranged from 0.594 (Café Atmosphere) to 0.822 (Customer Satisfaction), confirming that each construct explains more

than half of the variance in its indicators. Additionally, most individual item loadings were above the 0.70 threshold, with slightly lower values retained due to their theoretical contribution and the satisfactory AVE at the construct level.

Cara menguji Validitas diskriminan dengan menggunakan kriteria Fornell-Larcker dan juga rasio korelasi Heterotrait-Monotrait (HTMT). Akar kuadrat AVE untuk setiap konstruksi ditemukan lebih tinggi dari korelasi tertingginya dengan konstruksi lainnya, memenuhi persyaratan kriteria Fornell-Larcker. Additionally, all HTMT values were below the conservative threshold of 0.90, indicating no concerns regarding discriminant validity (Henseler et al., 2015). Together, these results confirm that the outer model exhibits acceptable reliability and validity, thus supporting the transition to the structural model analysis.

Overall, the results confirm that the measurement model is both reliable and valid, thereby supporting the robustness of the instruments used and enabling confidence in proceeding to structural model analysis. This solid measurement foundation ensures that any relationships observed in the inner model are not the result of measurement error, but reflect substantive associations among the constructs.

4.2. Inner Model Evaluation

The structural model evaluation was performed to examine the inner model relationships between latent constructs, focusing on path coefficients, significance levels (p-values), and the coefficient of determination (R^2). In the structural model, CS is the endogenous variable influenced by three exogenous constructs: SQ, FQ, and CA. The R^2 value for CS is 0.763, meaning that approximately 76.3% of the variance in CS is explained by the combined impact of the exogenous variables. This demonstrates a high level of explanatory power and is considered strong in the context of behavioral sciences.
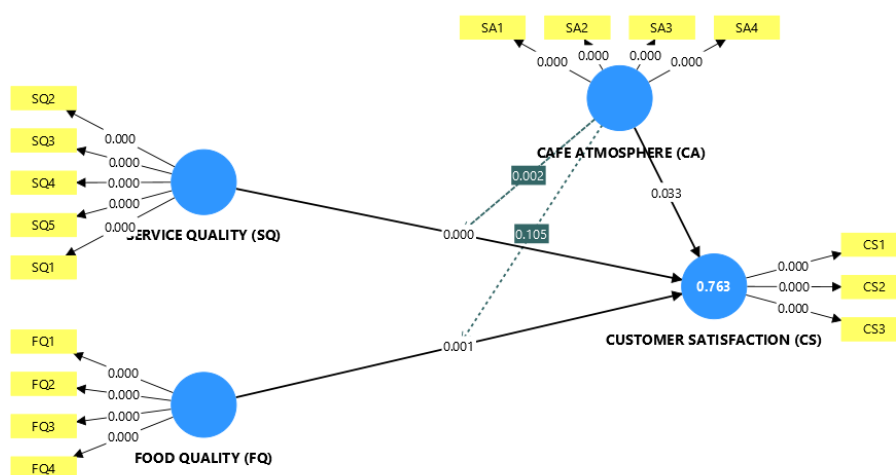

Figure 3: Inner Model Evaluation

	Original sample	Mean	STDEV	T-Statistics	P values	Result
FOOD QUALITY (FQ) -> CUSTOMER SATISFACTION (CS)	0.279	0.278	0.093	2.996	0.001	Significant Positive
SERVICE QUALITY (SQ) -> CUSTOMER SATISFACTION (CS)	0.391	0.377	0.097	4.025	0	Significant Positive
CAFE ATMOSPHERE (SA) -> CUSTOMER SATISFACTION (CS)	0.161	0.177	0.085	1.888	0.03	Significant Positive
CAFÉ ATMOSPHERE (SA) x FOOD QUALITY (FQ) -> CUSTOMER SATISFACTION (CS)	0.077	0.075	0.062	1.24	0.108	Insignificant
CAFE ATMOSPHERE (SA) x SERVICE QUALITY (SQ) -> CUSTOMER SATISFACTION (CS)	-0.176	-0.174	0.064	2.766	0.003	Significant Positive

Table 2: Evaluation Inner Model Summarize

From the path coefficients and significance levels, several key relationships emerge. The effect of SQ on CS is statistically significant (p = 0.000), suggesting a robust and direct influence. Similarly, FQ has a significant effect on CS (p = 0.001), reinforcing its importance in shaping customer perceptions. CA also exhibits a significant direct effect on CS (p = 0.033), albeit to a slightly lesser extent. Importantly, SQ also significantly affects CA (p = 0.002), and FQ does not contribute significantly to CA (p = 0.105).

The structural model testing, includes both direct and moderating effects, reveals several statistically significant relationships between exogenous and endogenous constructs. The direct relationship between FQ and CS yields a standardized path coefficient of 0.279 with a t-value of 2.996 and a p-value of 0.001, indicating a strong and statistically significant positive influence. Likewise, SQ demonstrates the strongest direct effect on CS, with a coefficient of 0.391 (t = 4.025, p < 0.001), suggesting that service-related attributes are critical in enhancing customer satisfaction levels. In addition, CA exerts a moderate yet statistically significant effect on customer satisfaction (β = 0.161, t = 1.888, p = 0.03), confirming that environmental and ambient factors meaningfully contribute to the overall consumer experience.

In terms of moderating effects, the interaction between CA and FQ does not exhibit a statistically significant impact on CS (β = 0.077, t = 1.240, p = 0.108), indicating that the perceived environment of the café does not significantly alter the strength of the relationship between food quality and satisfaction. Conversely, the interaction between CA and SQ demonstrates a significant negative moderating effect (β = -0.176, t = 2.766, p = 0.003). This finding suggests that a more pronounced cafe atmosphere may, in fact, diminish the positive influence of SQ on CS. Such a result may reflect a compensatory perception among customers, where an excellent atmosphere could shift their evaluative focus away from SQ, thus attenuating its effect.

Overall, these results underscore the complexity of customer satisfaction formation, highlighting that both direct and interactive effects must be accounted for. While core service

and product features (i.e., food and service quality) remain pivotal drivers of satisfaction, atmospheric factors play dual roles—enhancing customer satisfaction directly, yet potentially moderating other key relationships in non-linear ways. These insights offer theoretical contributions to the service-dominant logic and practical implications for hospitality and retail managers aiming to optimize multi-dimensional customer experiences.

These findings collectively support the hypothesized relationships in the structural model and provide empirical validation for the proposed conceptual framework. The model illustrates that both tangible (e.g., Food Quality) and intangible (e.g., Service Quality and Café Atmosphere) factors synergistically contribute to customer satisfaction. The significant moderating role of Café Atmosphere also suggests that environmental and experiential cues amplify the influence of core service elements. Overall, the structural model demonstrates strong internal consistency and predictive relevance, thus justifying its application in both theoretical and managerial contexts.

5. CONCLUSION

This article examined impact of FQ, SQ, CA through customer satisfaction at the context of Brewing Space Café at Medan, incorporating both direct and moderating relationships. The findings reveal that FQ, SQ and CA each exert a statistically significant and positive direct effect on customer satisfaction, with SQ emerging as the most influential predictor. These results underscore the primacy of service excellence in shaping consumer perceptions, followed closely by the sensory and ambient dimensions of the café environment and quality obtained through food offerings.

Furthermore, the moderating role of CA demonstrated nuanced effects. While the interaction between cafe atmosphere and food quality did not significantly moderate customer satisfaction, the interaction between cafe atmosphere and service quality revealed a significant positif moderation effect. This suggests that when cafe atmosphere is particularly salient, the marginal impact of service quality on satisfaction may be attenuated—potentially due to a perceptual shift in customer focus from interpersonal service aspects to the physical and ambient environment.

In conclusion, this research contributes to the literature by emphasizing the multifaceted nature of customer satisfaction formation in service contexts and providing empirical evidence for the direct and moderating impacts of key service dimensions. For practitioners, these insights highlight the importance of delivering high-quality service and maintaining an engaging store atmosphere, while being aware of how these elements may interact in complex ways that influence customer evaluations and loyalty behaviors.

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