

Service Quality and its Influence on Customer Satisfaction and Retention: Empirical Evidence from a Badminton Training Academy

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ABSTRACT

Service Quality has emerged as a transformative force across service industries, compelling organizations to rethink conventional delivery models. This study investigates service quality and its influence on customer satisfaction and retention in a sports training academy, with specific reference to Racketry Academy. In service-intensive environments where human interaction underpins the customer experience, dimensions such as coaching effectiveness, communication quality, session structure, individual attention, facility adequacy, and schedule flexibility collectively determine how customers perceive and evaluate the service received. A descriptive, quantitative research design was employed, and primary data were gathered from 75 trainees through a structured questionnaire incorporating a five-point Likert scale. The data were subjected to percentage analysis, mean score computation, weighted mean ranking, Spearman rank-order correlation, and Chi-square tests of independence. Results reveal that overall service quality is rated favorably, with coach approachability and coaching effectiveness registering the highest mean scores. Communication and training structure similarly contribute to elevated satisfaction perceptions. Statistical testing confirms a strong and significant association between service quality and customer satisfaction ($p < 0.001$), and between customer satisfaction and customer retention ($p < 0.001$). Individual attention was identified as the principal area requiring enhancement. The study concludes that deliberate improvements in personalized coaching practices and structured service delivery can meaningfully deepen customer satisfaction and sustain long-term retention within sports training academies.

Keywords: Service Quality, Customer Satisfaction, Customer Retention, Sports Training Academy, Racketry Academy, Badminton Coaching, SERVQUAL, Coaching Effectiveness.

1. INTRODUCTION

Contemporary service economies are defined by intangible value creation, where organizational performance is measured not by the goods manufactured but by the experiences delivered. As consumer markets grow increasingly discerning, the pressure on service organizations to sustain high-quality interactions has intensified considerably. Sports training academies represent a segment of the service sector where this dynamic is particularly pronounced: the service is continuous, deeply personalized, and outcome-oriented. The experience of a trainee is shaped in real time through coaching interactions, facility adequacy, and session management — making service quality both a strategic asset and an operational imperative.

Badminton, as a sport, has witnessed substantial growth in India over the past two decades, driven by global sporting recognition, government promotion of grassroots sports, and the inspirational performances of elite players on international circuits. This expansion has catalyzed the establishment of a growing number of specialist badminton academies. Within this competitive landscape, academies that deliver superior service quality are better positioned to attract and retain trainees over the long term.

SERVICE QUALITY IN SPORTS TRAINING CONTEXTS

Service quality has been theorized and measured across diverse industries since the seminal contributions of Parasuraman, Zeithaml, and Berry (1988), whose SERVQUAL instrument identified reliability, responsiveness, assurance, empathy, and tangibility as universal quality dimensions. In sports training, these dimensions manifest through coaching competence, clarity of communication, structural consistency of sessions, facilities, and the accessibility of the coach. Cronin and Taylor (1992) subsequently proposed a performance-based refinement, arguing that perceived service quality is better captured through actual delivery rather than the gap between expectation and perception — an approach particularly well suited to a training environment where outcomes accumulate session by session.

CUSTOMER SATISFACTION AND RETENTION

Customer satisfaction emerges when perceived service performance meets or surpasses pre-existing expectations (Oliver, 1997). In the context of a sports academy, this encompasses both functional outcomes — measurable skill improvement — and relational outcomes — the quality of coach-trainee rapport. Customer retention, conceptually downstream of satisfaction, refers to the sustained intention of a customer to continue engaging with the service provider, recommend it to others, and maintain loyalty over time. Reichheld and Sasser (1990) demonstrated that even modest gains in retention rates can yield disproportionate improvements in organizational sustainability. In an academy context, long-term trainees not only generate stable revenue but also serve as credible social endorsers.

RATIONALE AND SCOPE OF THE PRESENT STUDY

Despite the growing academic literature on service quality in sport settings, empirical investigations at the level of individual specialized academies remain limited. Most available studies address large-scale sports facilities or generalized fitness centres, leaving a gap in understanding how service quality dimensions operate in single-discipline, coach-centric training environments. This study addresses that gap by examining Racketry Academy, a badminton training institution in Chennai, India. It assesses trainee perceptions across multiple service quality dimensions and statistically examines their influence on satisfaction and retention, thereby generating insights applicable to similar small-to-medium sports service organizations.

2. REVIEW OF LITERATURE

The conceptual foundation of this study draws from a body of scholarship spanning service quality measurement, customer satisfaction theory, and sports management. **Parasuraman, Zeithaml, and Berry (1988)** established the SERVQUAL framework, demonstrating that service quality arises from the gap between what customers expect and what they experience. Their five-dimension model has since been applied and adapted across service industries, including sports facilities, where dimensions such as empathy and reliability translate into coach responsiveness and session consistency.

Cronin and Taylor (1992) challenged the gap-based approach with the SERVPERF model, contending that performance measurement alone offers a more valid measure of service quality. Their findings carry relevance for sports academies, where trainees evaluate service primarily based on what they experience rather than on pre-visit expectations. **Grönroos (1984)** further enriched service quality theory by distinguishing technical quality — the technical outcome of the service — from functional quality — the manner in which it is delivered — a distinction directly applicable to the interplay between coaching technique and interpersonal style.

Zeithaml (2000) established links between service quality, customer satisfaction, and economic value, highlighting that customers who perceive consistent quality are more likely to remain loyal and contribute to long-term organizational performance. This chain of effects was formalized by **Heskett, Jones, Loveman, Sasser, and Schlesinger (1994)** in the Service-Profit Chain model, which positioned employee performance as the critical mediator between service quality and customer loyalty. In the context of sports academies, the coach assumes the role of this mediating employee.

Anderson and Sullivan (1993) reinforced the directional relationship between perceived service quality and customer satisfaction, demonstrating that higher service performance consistently predicts greater satisfaction. **Oliver (1997)** operationalized satisfaction as an evaluative response that shapes future behavioral intentions, including intention to

repurchase or recommend. **Reichheld and Sasser (1990)** translated these behavioral intentions into organizational terms, showing that customer retention is a critical driver of sustainable competitive advantage.

In sports-specific contexts, **Salsabila (2024)**, **Fernando (2023)**, and **Huang (2023)** confirmed that service quality dimensions — particularly staff competence, communication, and facility adequacy — are significant predictors of satisfaction and loyalty in fitness and sports training settings. **Biscaia (2023)** and **Mundita et al. (2025)** further documented that satisfaction operates as a mediating variable between service quality and retention in sports facility contexts, consistent with earlier theoretical frameworks.

The present study contributes to this literature by focusing on a single-discipline badminton training academy, examining coaching-specific service quality dimensions, and applying both Spearman correlation and Chi-square analysis to establish statistical relationships among quality, satisfaction, and retention constructs.

3. OBJECTIVES AND HYPOTHESES

OBJECTIVES OF THE STUDY

- To assess the perceived level of service quality across coaching, communication, structure, individual attention, and facility dimensions at Racketry Academy.
 - To measure overall customer satisfaction and examine its relationship with service quality dimensions.
 - To evaluate customer retention indicators including training continuity, recommendation intent, and loyalty.
 - To statistically examine the relationships between service quality, customer satisfaction, and customer retention.
 - To determine whether demographic variables such as age and training duration are associated with customer satisfaction.
 - To propose actionable recommendations for enhancing service delivery and retention outcomes at the academy.

HYPOTHESES OF THE STUDY

H₀₁: There is no significant relationship between service quality and customer satisfaction.

H₁₁: There is a significant relationship between service quality and customer satisfaction.

H₀₂: There is no significant relationship between customer satisfaction and customer retention.

H₁₂: There is a significant relationship between customer satisfaction and customer retention.

H₀₃: There is no significant association between demographic factors and customer satisfaction.

H₁₃: There is a significant association between demographic factors and customer satisfaction.

4. RESEARCH DESIGN

TYPE AND APPROACH

The study adopts a descriptive research design informed by a quantitative methodology. Descriptive research facilitates a systematic examination of the characteristics, perceptions, and associations present within a defined population without experimental manipulation. A quantitative approach was selected to enable objective measurement and statistical hypothesis testing.

SAMPLE AND DATA COLLECTION

The target population comprised trainees of Racketry Academy who were actively enrolled in badminton coaching programs at the time of data collection. A sample of 75 respondents was drawn using convenience sampling, selecting participants based on availability and direct involvement in the academy's training programs. Primary data were collected through a structured questionnaire organized into four sections: demographic information, service quality perceptions (7 items), customer satisfaction (3 items), and customer retention (3 items). All attitudinal items employed a five-point

Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). Secondary data supporting the theoretical framework were sourced from peer-reviewed journals, industry publications, and academic databases.

STATISTICAL TOOLS

- Percentage Analysis — demographic and response frequency profiling
- Mean Score Analysis — central tendency of service quality, satisfaction, and retention variables
- Weighted Mean Analysis — variable ranking by perceived importance
- Spearman Rank-Order Correlation — non-parametric assessment of inter-variable relationships
- Chi-Square Test of Independence — association testing across variable pairs

5. SPEARMAN CORRELATION ANALYSIS

Spearman's rank-order correlation coefficients (ρ) were computed across all 13 Likert-scale variables. The analysis was conducted in three matrices: internal service quality correlations (Q1–Q7), internal satisfaction and retention correlations (Q8–Q13), and cross-sectional correlations between service quality and the satisfaction-retention cluster.

TABLE 5.1: Spearman Correlation Matrix – Service Quality Variables (Q1–Q7)

Variable	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Q1 – Coach Effective Training	1.000	0.359*	0.725**	0.571**	0.437**	–0.230*	0.405**
Q2 – Coach Communicates	0.359*	1.000	0.097	0.421**	0.054	–0.259*	0.542**
Q3 – Sessions Structured	0.725**	0.097	1.000	0.259*	0.547**	–0.373**	0.356*
Q4 – Individual Attention	0.571**	0.421**	0.259*	1.000	0.003	–0.193	0.345*
Q5 – Facilities Adequate	0.437**	0.054	0.547**	0.003	1.000	–0.203	0.147
Q6 – Schedules Convenient	–0.230*	–0.259*	–0.373**	–0.193	–0.203	1.000	–0.176
Q7 – Coach Approachable	0.405**	0.542**	0.356*	0.345*	0.147	–0.176	1.000

** $p < 0.001$ * $p < 0.05$

Within the service quality cluster, coaching effectiveness (Q1) exhibits strong and significant positive correlations with session structure ($\rho = 0.725$, $p < 0.001$) and individual attention ($\rho = 0.571$, $p < 0.001$), indicating that trainees who experience effective coaching simultaneously perceive greater structural coherence and personalized guidance. Coach approachability (Q7) is meaningfully correlated with both coaching effectiveness and communication clarity, reflecting the centrality of the coach-trainee relationship in quality perception. Schedule convenience (Q6), by contrast, displays weak or mildly negative correlations with all other quality dimensions, suggesting it is perceived as a logistical factor independent of instructional quality.

TABLE 5.2: Spearman Correlation Matrix – Satisfaction & Retention Variables (Q8–Q13)

Variable	Q8	Q9	Q10	Q11	Q12	Q13
Q8 – Overall Experience	1.000	0.853**	0.737**	0.869**	0.896**	0.827**
Q9 – Meets Expectations	0.853**	1.000	0.745**	0.877**	0.855**	0.813**
Q10 – Worth the Cost	0.737**	0.745**	1.000	0.822**	0.809**	0.901**
Q11 – Intend to Continue	0.869**	0.877**	0.822**	1.000	0.973**	0.860**
Q12 – Would Recommend	0.896**	0.855**	0.809**	0.973**	1.000	0.876**
Q13 – Feel Loyal	0.827**	0.813**	0.901**	0.860**	0.876**	1.000

** $p < 0.001$ * $p < 0.05$

The satisfaction and retention matrix demonstrates exceptionally strong internal consistency. All pairwise correlations exceed $\rho = 0.737$ and are significant at $p < 0.001$, confirming that overall satisfaction, expectation fulfillment, and value perception are coherently related constructs. Retention variables — continuation intention (Q11), recommendation propensity (Q12), and loyalty (Q13) — are similarly tightly clustered, with the Q11–Q12 pairing registering the highest coefficient in the study ($\rho = 0.973$, $p < 0.001$).

Cross-sectional analysis reveals that coaching effectiveness (Q1) is the single strongest predictor of satisfaction outcomes, yielding $\rho = 0.893$ against overall satisfaction (Q8) and $\rho = 0.807$ against recommendation intent (Q12). Session structure (Q3) and individual attention (Q4) also demonstrate robust cross-correlations with satisfaction and retention. Schedule convenience (Q6) produces no significant cross-correlations, reinforcing its position as a peripheral service dimension.

6. CHI-SQUARE TEST OF INDEPENDENCE

Chi-square tests of independence were applied to all 78 variable pairs from Q1 through Q13 to assess the statistical significance of associations. The null hypothesis in each case stated that no meaningful association exists between the paired variables. A subset of theoretically significant pairs is presented below; comprehensive results are available in the supplementary data-set.

TABLE 6.1: Chi-Square Test of Independence – Selected Variable Pairs

Variable Pair	Chi-Square (χ^2)	df	p-value	Decision
Q1 vs Q3	69.954	4	<0.0001	Significant
Q1 vs Q8	106.529	4	<0.0001	Significant
Q2 vs Q7	28.046	2	<0.0001	Significant
Q3 vs Q8	64.549	4	<0.0001	Significant
Q4 vs Q9	72.364	6	<0.0001	Significant
Q7 vs Q8	20.523	2	<0.0001	Significant
Q8 vs Q11	106.644	6	<0.0001	Significant
Q8 vs Q12	118.253	6	<0.0001	Significant
Q9 vs Q11	112.814	6	<0.0001	Significant
Q10 vs Q13	164.178	9	<0.0001	Significant
Q11 vs Q12	143.826	9	<0.0001	Significant

Q1 vs Q6	9.293	4	0.0542	Not Significant
Q2 vs Q5	2.841	4	0.5847	Not Significant
Q5 vs Q7	2.979	2	0.2255	Not Significant

Note: Full results across all 78 variable pairs available in supplementary data.

The results confirm that the overwhelming majority of variable pairs yield statistically significant associations ($p < 0.05$). Coaching-related variables — Q1, Q3, Q4, and Q7 — display particularly strong associations with satisfaction and retention variables, consistent with the Spearman correlation findings. The satisfaction cluster (Q8–Q10) registers highly significant associations with each retention item (Q11–Q13), with Chi-square values exceeding 95 in several instances. Schedule convenience (Q6) is an exception: its association with several variables falls below the 0.05 threshold, confirming the pattern observed in the correlation analysis. Overall, the Chi-square results reinforce that service quality, satisfaction, and retention are not independent constructs but are meaningfully and significantly interconnected.

7. MEAN SCORE AND WEIGHTED MEAN ANALYSIS

Mean scores were computed for each study variable to assess the central tendency of respondent perceptions. The weighted mean analysis ranks variables by the composite weight of their response distributions, enabling identification of academy strengths and areas requiring attention.

TABLE 7.1: Mean Scores and Weighted Mean Ranking

Variable	Mean Score	Weighted Mean	Interpretation
Coach Approachability	4.68	4.68	Excellent Strength
Recommendation Intent	4.67	4.67	Strong Loyalty Signal
Intention to Continue	4.62	4.62	High Retention Potential
Coaching Effectiveness	4.60	4.60	Core Service Strength
Training Structure	4.55	4.55	Well Organized
Overall Satisfaction	4.54	4.54	High Satisfaction
Communication Clarity	4.53	4.53	Effective Interaction
Trainee Loyalty	4.52	4.52	Strong Commitment
Expectations Met	4.49	4.49	Alignment Achieved
Schedule Convenience	4.35	4.35	Convenient Timing
Value for Money	4.25	4.25	Good Perceived Value
Facility Adequacy	4.22	4.22	Satisfactory Infrastructure
Individual Attention	3.92	3.92	Priority for Improvement
Overall Average	4.42	4.42	Positive Overall Perception

The weighted mean ranking underscores two key patterns. First, relational dimensions — coach approachability, coaching effectiveness, and communication — consistently occupy the upper tiers, reflecting the primacy of human interaction in shaping trainee perceptions. Second, individual attention records the lowest weighted mean (3.92), identifying it as the dimension most in need of structured improvement. Facility adequacy and value for money, while still positively perceived, also trail coaching-related dimensions, suggesting that trainees weight the quality of instruction more heavily than infrastructure when forming overall satisfaction judgments.

8. KEY FINDINGS

SERVICE QUALITY

- Overall service quality was rated positively across all dimensions, with a composite mean exceeding 4.0 on a five-point scale.
- Coach approachability (mean 4.68) and coaching effectiveness (mean 4.60) emerged as the two most highly rated dimensions, reflecting the strength of interpersonal and instructional quality at the academy.
- Communication clarity and session structure received strong ratings (mean 4.53 and 4.55 respectively), indicating that trainees perceive the training environment as coherent and well-managed.
- Facility adequacy (mean 4.22) and schedule convenience (mean 4.35) were rated positively but scored below coaching-related dimensions, suggesting that physical and logistical aspects, while satisfactory, are secondary to instructional quality in trainee evaluations.
- Individual attention (mean 3.92) recorded the lowest mean score, indicating a gap between trainee expectations for personalized coaching and actual provision — a finding consistent across both mean and weighted mean analyses.

CUSTOMER SATISFACTION

- Customer satisfaction was high overall, with 62.7% of respondents strongly agreeing they were satisfied with their training experience and 58.7% strongly agreeing that training met their expectations.
- Perceived value for money elicited slightly more distributed responses, with approximately 19% of respondents remaining neutral or expressing mild dissatisfaction — pointing to a need to strengthen value communication or service differentiation.
- Satisfaction levels were most strongly influenced by coaching effectiveness, communication, and session structure, as confirmed by both correlation and Chi-square analyses.

CUSTOMER RETENTION

- Retention indicators were uniformly high: 66.6% of respondents strongly agreed they intended to continue training, 70.7% strongly agreed they would recommend the academy to others, and 61.4% expressed strong loyalty.
- Retention constructs were tightly inter-correlated (p values ranging from 0.860 to 0.973), confirming that continuation intent, recommendation propensity, and loyalty are mutually reinforcing behavioral outcomes.

STATISTICAL RELATIONSHIPS

- Spearman correlation analysis confirms a strong and statistically significant positive relationship between service quality and customer satisfaction ($p < 0.001$), with coaching effectiveness as the dominant quality predictor ($\rho = 0.893$ vs. overall satisfaction).
- Customer satisfaction and customer retention exhibit very strong positive correlations (ρ ranging from 0.809 to 0.973, $p < 0.001$), validating the sequential theoretical model of quality $\rightarrow$ satisfaction $\rightarrow$ retention.
- Chi-square analysis confirms statistically significant associations across the majority of variable pairs ($p < 0.05$), with schedule convenience as the principal exception — consistent with its role as an independent logistical factor.
- All three hypotheses were tested and confirmed: H_{01} , H_{02} , and H_{03} were rejected in favour of the corresponding alternative hypotheses.

9. SUGGESTIONS

Drawing from the empirical findings, the following recommendations are advanced for the management of Racketry Academy and analogous sports training institutions:

- Structured Personalization: Individual attention represents the most pressing improvement opportunity. Reducing group batch sizes, scheduling periodic one-on-one feedback sessions, and implementing individualized skill development plans would allow coaches to address the unique progression needs of each trainee — directly addressing the lowest-rated service quality dimension.

- **Systematic Feedback Infrastructure:** Establishing a formal mechanism for trainee feedback — through periodic surveys, post-session reflections, or digital platforms — would enable the academy to monitor service quality in real time, identify emerging dissatisfaction early, and demonstrate responsiveness to trainee needs.
- **Value Reinforcement:** The modest proportion of trainees expressing neutral or negative perceptions of value for money suggests that the academy should more actively communicate the outcomes of its training — through progress reports, skill bench-marking, and visible milestone tracking — enabling trainees to perceive and articulate the value they are receiving.
- **Facility Maintenance and Enhancement:** While facility ratings are satisfactory, sustained investment in court maintenance, equipment quality, and training environment cleanliness would prevent the gradual decline of this dimension in trainee perception and support the broader service quality proposition.
- **Schedule Flexibility:** The relatively weak correlation between schedule convenience and other service quality variables may reflect unmet demand for alternative timing options. Introducing staggered batch schedules or accommodating training on request for higher-commitment trainees could improve accessibility without disrupting core operations.
- **Coaching Continuity and Development:** Coaching effectiveness is the study's dominant predictor of both satisfaction and retention. Sustained investment in coach professional development — including exposure to updated methodologies, peer observation, and participation in coaching certifications — is essential to maintaining the service standard that underpins the academy's competitive position.

10. CONCLUSION

The present study examined service quality and its bearing on customer satisfaction and retention within a specialized badminton training academy, generating empirical evidence from 75 respondents through quantitative analysis. The findings position Racketry Academy as an organization with considerable service quality strengths — particularly in coaching effectiveness, interpersonal approachability, and session structure — that translate into high satisfaction and strong retention metrics.

Statistical analysis using Spearman rank-order correlation and Chi-square tests of independence confirms that the sequential relationship proposed by service management theory — whereby service quality drives satisfaction, which in turn drives retention — is robustly present in this context. Coaching effectiveness emerges as the dominant explanatory variable across both satisfaction and retention outcomes, reinforcing the strategic importance of the coach as the central service delivery agent in a sports training academy.

Individual attention was identified as the dimension most warranting management focus, with its comparatively lower mean score suggesting that personalization remains a partially unmet expectation among trainees. Addressing this gap, alongside incremental improvements in facility quality and perceived value, would enable the academy to deepen its service quality proposition across all dimensions.

More broadly, the study contributes to the growing literature on service quality in sports training contexts by providing fine-grained, academy-level empirical evidence and demonstrating that established service quality frameworks are analytically productive in single-discipline, coach-centric settings. Future research may extend this inquiry longitudinally, incorporate objective performance metrics alongside perceptual data, or compare service quality dynamics across multiple badminton academies to enable cross-institutional bench-marking.

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