International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 08 Issue: 01 | January - 2024 SJIF Rating: 8.176 ISSN: 2582-3930

# Assessment of Training and Development Impacting on Total Quality Management: Online Shopping Logistics Perspective

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## ABSTRACT

***This research investigates the intricate interplay between training and development initiatives and Total Quality Management (TQM) within the context of online shopping logistics. As the global landscape of commerce undergoes a transformative shift towards e-commerce, the efficiency of online shopping logistics emerges as a critical determinant of customer satisfaction. The study employs a comprehensive approach, leveraging statistical analyses including factor analysis, multiple regression, and ANOVA, to unravel the nuanced relationships between diverse training and development factors and their impact on TQM. The findings reveal key drivers of TQM in the online shopping logistics domain, emphasizing the pivotal role of variables such as Enhancing Customer Experience, Continuous Learning Culture, Brand Reputation, Cross-Cultural Considerations, and Technology Integration. Additionally, challenges such as Problem-Solving Abilities are identified, prompting tailored interventions. The research underscores the significance of aligning training programs with future industry directions and the imperative of cultivating a brand-centric approach. These insights offer practical recommendations for organizations operating in the e-commerce sector, guiding them to prioritize and refine training initiatives to optimize TQM. The abstract encapsulates the research's contribution to the evolving field of online shopping logistics, providing a nuanced understanding of the factors influencing TQM and paving the way for strategic enhancements in training and development practices to ensure operational excellence and sustained customer satisfaction in the dynamic e-commerce landscape.***

***Keywords: Training and Development, Total Quality Management, Logistic Management, Online shoppers, Factor Analysis, Multiple Regression Analysis***

## 1. Introduction

The landscape of global commerce has undergone a transformative shift, largely propelled by the explosive growth of online shopping platforms. In an era where consumers increasingly turn to e-commerce as their primary avenue for fulfilling diverse purchasing needs, the efficiency and effectiveness of online shopping logistics emerge as pivotal determinants of overall customer satisfaction. Against the backdrop of this dynamic and ever-evolving environment, the strategic significance of training and development initiatives in shaping the contours of Total Quality Management (TQM) within the

specialized domain of online shopping logistics has assumed unprecedented importance (Lade Vamsy et al., 2020).

The logistics operations underpinning online shopping platforms are multifaceted, involving intricacies such as order fulfillment, inventory management, transportation, and the critical last-mile delivery phase. These operational intricacies bear a direct impact on the holistic quality of service extended to discerning customers. The surge in demand for not only seamless but also timely delivery experiences amplifies the imperative for a nuanced and in-depth understanding of how training and development interventions exert their influence on the intricate fabric of Total Quality Management within the unique context of online shopping logistics(Satish R Billewar & D Henry Babu, 2012).

In the pursuit of operational excellence, it becomes imperative to dissect and comprehend the multifarious ways in which training and development initiatives interlace with and significantly contribute to the overarching framework of Total Quality Management. The effective orchestration of training programs tailored to the specific demands of online shopping logistics holds the promise of optimizing key facets of the supply chain (Latif Al-Hakim, 2006). It is within the nexus of these complex logistics processes that the ultimate quality of customer service is moulded, making it crucial to explore and articulate the nuanced relationships between training and development and the tenets of Total Quality Management.

As the digital era propels commerce into uncharted territories, the study endeavors to shed light on the evolving dynamics of this symbiotic relationship, seeking to uncover not just the existence but the depth and nature of the impact of training and development on the fabric of Total Quality Management in online shopping logistics (Stanciu Anca Cristina et al., 2017). In doing so, the study aims to contribute valuable insights that extend beyond mere theoretical constructs, offering practical implications for enhancing the operational efficiency and, consequently, the customer satisfaction indices of online shopping platforms in the contemporary marketplace.

Recognizing the pivotal role of training and development in elevating the quality of online shopping logistics, it is imperative to acknowledge a conspicuous gap in current understanding. While the significance of these initiatives is widely acknowledged, the existing body of literature falls short in conducting a focused exploration into the specific impacts and effectiveness of training and development programs on the principles of Total Quality Management (TQM) (Billevar, S.& Babu, H., 2012). This deficiency is particularly evident in the lack of in-depth investigations into the direct correlations between training and development interventions and their outcomes on the diverse facets of logistics operations within the domain of online shopping.

This study seeks to bridge this critical gap by delving into a set of key questions aimed at unravelling the intricacies of the relationship between training and development initiatives and Total Quality Management in the context of online shopping logistics. The first question interrogates the landscape of specific training and development programs implemented in the realm of online shopping logistics and endeavors to discern how these programs align with the overarching objectives of Total Quality Management (Blut, M. et al., 2015) which is envisioned to uncover the strategic congruence between training initiatives and the broader quality management goals, providing a foundation for understanding the synergy between learning interventions and operational excellence.

Moving beyond the realm of theoretical alignment, the second question probes into the tangible impacts of training and development initiatives on the efficiency and accuracy of crucial logistics processes. By examining key operational components such as order fulfillment, inventory management, and last-mile delivery, the study seeks to delineate the precise influence that targeted training programs exert on the nuts and bolts of the online shopping supply chain (Gupta, A.S. & Mukherjee, J. 2022) which in fact aims to uncover nuanced insights into how training interventions translate into tangible improvements in operational metrics, constituting a direct link to the overarching objective of achieving Total Quality Management.

The third question delves into the subjective realm of perceived influence, exploring how training and development initiatives resonate with employee performance, customer satisfaction, and the holistic quality of service within the specific context of online shopping logistics. Understanding the nuanced interplay between employee skill development and customer-centric outcomes is vital in deciphering the broader impact of training initiatives on the qualitative aspects of service delivery (Gashaw Tibebe et al., 2018).

Lastly, the study tackles the pragmatic challenges embedded in the implementation of training and development programs within online shopping logistics (Aschalew Adane Brhanu et al., 2018). By identifying and dissecting the identifiable barriers and challenges, the research aims to provide a roadmap for overcoming hindrances, thereby enhancing the overall effectiveness of these programs in contributing to Total Quality Management.

Through a comprehensive investigation into these critical questions, this research aspires to furnish valuable insights that extend beyond theoretical frameworks. By unravelling the intricate interplay between training and development initiatives and Total Quality Management within the specific domain of online shopping logistics, the study endeavors to contribute practical implications that can serve as a

catalyst for the augmentation of operational excellence and heightened customer satisfaction within the e-commerce industry.

Training and development play a crucial role in influencing Total Quality Management (TQM) in online shopping platforms like Amazon and Flip kart. Certain factors to be considered for the study are Product and service Training, Technology Training, Continuous Learning, Quality Management Training, Leadership Development, Customer-Centric Training, Ethical and Legal Compliance and Performance Metrics and Measurement which have been highlighted by many authors conducted research from various domains and places. The present researchers adopted the above influencing variables with respect to the suitability to this research problem.

## 2. Objectives

The specific objectives of the research are

- To identify the level of training and development influence on total quality management with respect to online shoppers' logistics performance in Srikakulam district, A.P.
- To recognise and classify the training and development factors influencing total quality management of online shoppers' logistics performance
- To assess the impact of Product and service Training, Technology Training, Continuous Learning, Quality Management Training, Leadership Development, Customer-Centric Training, Ethical and Legal Compliance and Performance Metrics and Measurement on total quality management of online shoppers' logistics performance.

## 3. Literature review

Roy et al. (2022) identified certain determinants for Logistic service failure at the stand point of Delivery and Product-related problems. The delivery problems are Purchase arrived later than promised, Wrong item delivered, Wrong size product delivered, Purchase damaged during delivery, Purchase never delivered and Delivery promises unfulfilled. The Product-related problems identified are Product defects, Problems with product quality and Packaging errors

Training programs that focus on enhancing employees' knowledge about the products they are dealing with can contribute to better customer service and satisfaction. Training in effective communication, problem-solving, and conflict resolution can improve the overall customer experience (K. Ooha & Koppala Venugopal, 2020).

Koppala Venugopal and Pranaya Deekonda (2022) in their paper entitled "Involvement of Employees in Quality Management System: In case of Public Transportation, Srikakulam District, A.P" identified that training employees to efficiently use the e-commerce systems and tools is essential for smooth operations

and accurate order processing since online shopping platforms heavily rely on technology. They also added that the given the sensitivity of customer information, training programs on data security and privacy ensure that employees handle customer data responsibly.

Gashaw Tibebe et al. (2018) emphasised on the effects of internal branding on employee brand commitment and stated that continuous learning is crucial in the rapidly changing e-commerce landscape as well as training programs that promote adaptability to new technologies and market trends can help employees stay ahead. They further suggested that encouraging a culture of innovation through training can lead to the development of new and improved processes, positively impacting TQM.

Aschalew Adane Brhanu et al. (2018) in their research in Ethiopia on "Assessment Of Customer Relationship Management In Dashen Bank: Employee's Perspective" Training employees on the importance of adhering to quality standards and best practices ensures consistency and reliability in the products and services offered. Providing training on process improvement methodologies (e.g., Six Sigma, Lean) can empower employees to identify and address inefficiencies in the system.

Kolluru V. Somanadh and Koppala Venugopal (2023) explored in their paper entitled "Assessment of Predictors Impacting Employee Work Life Quality In manufacturing Sector" that developing leadership skills among managers and supervisors can foster a culture of quality throughout the organization. At the same time training programs that focus on building effective teams can enhance collaboration and communication, contributing to overall quality improvement.

K. Sravani et al. (2023) conducted a qualitative research on the Assessment of Factors Influencing Job Engagement of Software Employees, wherein Training employees to analyze customer feedback and take corrective actions helps in identifying areas for improvement and maintaining high-quality standards. Training in CRM systems can aid in building and maintaining strong relationships with customers, leading to increased loyalty.

Koppala Venugopal and Pranaya Deekonda (2021) in their article entitled "Organizational Efforts and Employee Satisfaction on Training and Development: In Case Of Manufacturing Units, Srikakulam, A.P." stated that the assumption that employees are aware of and comply with ethical and legal standards in business operations is essential for maintaining the reputation and trust of customers.

Deekonda Pranaya et al. (2023) in their research on Talent Management through Training and Development influencing HR-TQM explored that training employees on the significance of KPIs related to quality, such as customer satisfaction scores and order accuracy, can help them understand their impact on TQM.

Arulsamy et al. (2023) emphasized the significance of employees as a company's most valuable asset, responsible for ensuring customer satisfaction and the delivery of high-quality products. They highlighted the critical role of training and development in enhancing performance, productivity, motivation, and creativity. The adoption of development programs was found to contribute to increased morale, security, and skill development. The researchers recommended that organizational leaders systematically evaluate performance using appropriate methods

Botke and van Woerkom's (2023) aimed to enhance proactive and detachment skills among human service providers through the implementation of self-leadership training. Involving 223 workers with low to moderate levels of pertaining occupational self-efficacy, the research revealed that self-leadership training effectively enhanced detached concern, especially for individuals with low to moderate levels. However, its impact on proactivity levels was limited. This study makes a valuable contribution to the workplace learning literature, emphasizing the potential of self-leadership training for transferring and sustaining soft skills.

Nafukho's (2023) explored the interplay among training design, trainee motivation, and the work environment for teachers undergoing a continuing professional education (CPE) program. The research, involving 160 instructors in high-needs schools in the Southwest USA, specifically focusing on English language learners, reveals that training design acts as a complete mediator between trainees' work settings and the transfer of acquired knowledge, skills, and attitudes to their employment. However, its role in mediating the connection between learning-oriented motivations and learning transfer is relatively small.

Bhakuni and Saxena's (2023) underscored the significance of staff development and training in managing stress, reducing confrontations, mitigating retribution, and enhancing performance within corporate organizations. It sheds light on the challenges organizations face in addressing personnel needs, job satisfaction, and workplace security, emphasizing how training and developmental processes contribute to workforce engagement.

Z. H. Bhat's (2023) investigated the impact of training components on trainees' learning outcomes, employing partial least squares modeling to explore the interactions between these components, teacher effectiveness, and training usefulness. The results demonstrate that all components, including instruction value, trainer effectiveness, and meta-cognition, positively influence trainees' learning. The study emphasizes the importance of considering these variables when developing effective training programs.

Fadipe et al.'s (2023) aimed to alleviate unemployment and poverty in Yobe State by providing tie and dye skills training to young individuals. The research, involving 50 participants aged 18-35, highlights the potential of youth vocational training in creating skilled entrepreneurs and professionals capable of

managing micro, small, and medium enterprises. The study recommends investments from governments, NGOs, corporate organizations, and individuals in this type of education.

Cooney, Terziovski, and Samson's (2022) investigated the relationship between staff training and quality management practices in Australian and New Zealand firms. Using multiple regression analysis, the research tests tactical and general efficacy hypotheses, revealing that employee training, combined with Total Quality, significantly influences organizational performance. The study suggests that quality management is crucial for enterprise training, and the effectiveness of training depends on the combination of these factors.

Whitehead's (2022) examined the pivotal role of training and development initiatives in ensuring the sustainability of an organization. Approaching training and development from the perspective of human capital and experiential learning, the paper provides suggestions to help firms promote training by identifying training requirements and employee development goals.

In the realm of customer service excellence, Zeithaml and Bitner (2003) asserted that possessing fundamental product knowledge is a fundamental asset for frontline employees. This foundational understanding empowers them to deliver precise and pertinent information to customers, thereby elevating the overall customer experience. The ability to provide accurate insights not only instils a sense of reliability but also nurtures trust and loyalty among customers. In essence, a well-informed frontline staff, armed with basic product knowledge, becomes a pivotal force in shaping positive customer interactions and building lasting relationships that contribute significantly to the success and reputation of the business.

In the research conducted by Anderson, Fornell, and Lehmann (1994), it is emphasized that employees who possess an in-depth understanding of the products they represent are strategically positioned to articulate compelling value propositions, adeptly handle objections, and ultimately close sales with effectiveness and finesse. The acquisition of comprehensive product knowledge equips employees with the tools and insights necessary to communicate the unique selling points and benefits of the offerings, making them more persuasive and capable in engaging potential customers. This proficiency not only enhances the overall sales process but also contributes significantly to customer satisfaction and loyalty, as clients appreciate dealing with informed and confident representatives who can cater to their needs and address inquiries with precision and expertise. In essence, the empowerment of employees through comprehensive product knowledge is a key determinant in achieving sales success and building enduring customer relationships.

In Keller's seminal work from 1993, it is underscored that a workforce equipped with extensive knowledge plays a pivotal role in establishing and bolstering brand credibility. This is achieved through the accurate representation of the brand's products, which, in turn, fosters confidence among customers. The profound impact of a well-informed workforce lies in its ability to articulate the brand's values, features, and benefits with precision, ensuring that customers receive accurate and trustworthy information. By consistently upholding a high standard of knowledge, employees contribute significantly to the overall perception of the brand, reinforcing its credibility in the eyes of consumers. This connection between a well-informed workforce and brand credibility highlights the importance of investing in employee education and training as a strategic element in the broader brand-building process.

According to Noe's insights in 2017, the incorporation of interactive training methods, such as dynamic activities like role-playing and simulations, emerges as a highly effective strategy to actively engage employees. By involving participants in hands-on experiences, these interactive methods create a dynamic learning environment that goes beyond traditional instruction. This active engagement not only captures employees' attention but also significantly enhances their ability to retain and internalize product knowledge. Through role-playing and simulations, employees are immersed in scenarios that mimic real-world situations, enabling them to apply and reinforce their understanding of products in a practical context. This interactive approach not only ensures a more immersive and enjoyable learning experience but also contributes to a deeper level of comprehension, ultimately fostering a workforce that is not only knowledgeable but also adept in practically applying their learning to real-world situations.

In his work in 2006, Senge emphasizes the importance of cultivating a culture of continuous learning as a means to guarantee that product knowledge stays relevant and aligned with the ever-evolving landscape of customer needs and market trends. Fostering a culture of continuous learning involves creating mechanisms for regular training, encouraging knowledge-sharing among team members, and promoting a mindset that values staying informed as a fundamental aspect of professional development.

In the scholarly work by Clark and Mayer in 2016, it is emphasized that the integration of technology-based training platforms, such as e-learning modules and mobile applications, serves as a pivotal strategy in establishing convenient and accessible channels for continuous improvement of product knowledge. The incorporation of e-learning modules and mobile applications offers a user-friendly and adaptive approach to ongoing training. Learners can engage with content at their own pace, accessing relevant information whenever and wherever it is most convenient for them. Furthermore, these platforms facilitate interactive and engaging learning experiences, incorporating multimedia elements and interactive features that contribute to a more immersive and effective learning process.

In the study by Brown and Duguid in 2002, challenges associated with product knowledge training are outlined, encompassing the need to surmount issues related to information overload, achieve uniform training across diverse teams, and confront the constraints inherent in conventional training methodologies. Overcoming these challenges requires innovative approaches that go beyond traditional training paradigms to create effective and tailored learning experiences.

As presented by Deterding et al. in 2011, the forthcoming directions in the field entail harnessing artificial intelligence for customized learning experiences, integrating gamification elements, and embracing immersive technologies such as virtual reality to elevate comprehension of products. The trajectory suggests a shift towards more adaptive and engaging methods that leverage cutting-edge technologies to optimize the learning journey.

According to Parasuraman et al.'s research in 1988, service skills, encompassing communication, empathy, and problem-solving, play a direct role in shaping customer satisfaction and loyalty. These essential skills contribute to the establishment of enduring relationships with the brand, emphasizing their pivotal role in fostering long-term customer commitment and positive brand associations.

In the study by Fombrun and Van Riel in 2004, it is emphasized that possessing exceptional service skills plays a crucial role in cultivating a positive brand reputation. This is due to customers associating a brand with the quality of interactions they experience with its employees. The link between outstanding service skills and a favorable brand image underscores the significance of employee-client interactions in shaping the overall perception of a brand.

According to Porter's work in 1985, within a competitive market landscape, organizations have the opportunity to distinguish themselves by showcasing superior service skills. This differentiation serves as a unique selling proposition that transcends mere products or prices, providing a distinct and valuable edge in the market.

According to O'Sullivan's research in 2003, the importance of effective communication skills, encompassing both verbal and non-verbal aspects, cannot be overstated. These skills play a crucial role in comprehending customer needs, delivering pertinent information, and ensuring a positive service encounter.

In 1995, Goleman highlighted that service skills driven by empathy, rooted in emotional intelligence, empower employees to establish personal connections with customers. This connection, forged through understanding and emotional resonance, contributes to heightened customer satisfaction.

As presented by Zeithaml et al. in 1990, possessing service skills tied to problem-solving empowers employees to promptly address customer issues, effectively transforming potentially negative experiences into positive ones.

According to Blanchard and Johnson's findings in 1985, training programs that are well-structured and emphasize service skills, incorporating customer interaction scenarios, role-playing, and feedback sessions, play a significant role in fostering skill development.

As per the research by Reichheld and Sasser Jr. in 1990, consistently seeking customer feedback offers valuable insights into service performance, enabling organizations to pinpoint areas for improvement in their service skills.

In the study by Maslach and Leiter in 2016, it is noted that employees who are actively engaged and perceive themselves as valued are more prone to displaying positive service skills. The implementation of recognition programs serves to underscore the significance of delivering excellent service.

As indicated by Pfeffer and Baron in 1988, the challenge of maintaining consistent service skills is exacerbated by high turnover rates, necessitating continuous efforts in recruitment, training, and retention.

In his work in 1980, Hofstede highlights the challenges organizations face in diverse workplaces, emphasizing the need to comprehend and adapt service skills across varied cultural contexts. Navigating these challenges requires a nuanced approach to ensure that service delivery is not only effective but also culturally sensitive. Organizations must proactively address this complexity by fostering cultural awareness, providing cross-cultural training, and implementing strategies that enable employees to adapt their service skills to different cultural norms and expectations. Effectively managing service skills within diverse cultural environments becomes a crucial aspect of organizational success in today's globalized workforce.

Brynjolfsson and McAfee (2014) argue that the incorporation of technology, such as AI-powered chatbots and virtual assistants, is poised to play a significant role in augmenting and complementing human service skills. This integration is anticipated to bring about improvements in the overall service delivery landscape by synergizing the strengths of technology with human capabilities.

By addressing these factors through effective training and development initiatives, online shopping platforms like Amazon and Flipkart can contribute to the successful implementation and maintenance of Total Quality Management.

## 4. Methods and Materials

The study employed a descriptive research design to comprehensively describe the relationships between training and development initiatives and Total Quality Management (TQM) in the context of online shopping logistics. This design facilitates the systematic exploration of variables and their impact. The study carried out a mixed-methods approach to triangulate findings. Combine quantitative data from surveys with qualitative insights through interviews or focus groups to gain a comprehensive understanding of the intricate dynamics between training programs and TQM.

Researchers have employed a convenience sampling strategy due to the practical considerations of accessibility to participants in the online shopping logistics sector. This approach allows for efficient data collection, especially when dealing with dispersed and diverse populations within the industry.

For the purpose of data collection, a cross-sectional survey was conducted to collect data at a single point in time. Administer structured questionnaires to employees involved in online shopping logistics to gather information on training and development experiences, perceived TQM, and relevant variables.

The study identified key variables such as Enhancing Customer Experience, Driving Sales Performance, Building Brand Credibility, Interactive Training Methods, Continuous Learning Culture, Challenges in Product Knowledge Training, Future Directions in Product Knowledge Enhancement, Customer Satisfaction and Loyalty, Brand Reputation, Differentiation in a Competitive Market, Communication Skills, Empathy and Emotional Intelligence, Problem-Solving Abilities, Training and Development Programs, Customer Feedback and Continuous Improvement, Employee Engagement and Recognition, High Turnover Rates, Cross-Cultural Considerations, Technology Integration., aligning with the research objectives.

Data Analysis with factor analysis was carried out to identify latent factors and relationships among observed variables. This statistical technique will help unveil underlying dimensions within the training and development practices and their contribution to TQM. The study also applied multiple regression analysis to assess the predictive power of training and development variables on TQM. This method allows for examining the unique contribution of each variable, considering their interdependence.

This comprehensive methodology integrates both quantitative and qualitative elements, leveraging a mixed-methods approach to gain a nuanced understanding of the impact of training and development on Total Quality Management within the specific context of online shopping logistics.

## 5. Analysis and Interpretation

Training and development play a crucial role in influencing Total Quality Management (TQM) in online shopping platforms like Amazon and Flip kart. Here are the factors considered to analyse initially for Exploratory Factor Analysis.

*5.1.Factor Analysis*

**Table 5.1.1: KMO and Bartlett's Test**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .798 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 874.684 |
| | df | 210 |
| | Sig. | .000 |

The KMO measure assesses the adequacy of the sample for factor analysis. The value ranges from 0 to 1, with higher values indicating better suitability for factor analysis. A value close to 1 suggests that the data is likely suitable for factor analysis. In this case, the KMO value of 0.798 indicates a relatively high degree of sampling adequacy, suggesting that the data is likely appropriate for further factor analysis. The small p-value (0.000) indicates that the correlation matrix is not an identity matrix, suggesting that there are significant correlations between variables. Therefore, the data is suitable for factor analysis.

**Table 5.1.2: Total Variance Explained**

| | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| Component | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 8.34 | 39.740 | 39.740 | 8.34 | 39.740 | 39.740 | 4.11 | 19.591 | 19.591 |
| 2 | 1.81 | 8.626 | 48.366 | 1.81 | 8.626 | 48.366 | 3.14 | 14.994 | 34.585 |
| 3 | 1.49 | 7.124 | 55.490 | 1.49 | 7.124 | 55.490 | 2.70 | 12.856 | 47.441 |
| 4 | 1.31 | 6.270 | 61.760 | 1.31 | 6.270 | 61.760 | 2.63 | 12.558 | 59.999 |
| 5 | 1.05 | 5.004 | 66.763 | 1.05 | 5.004 | 66.763 | 1.42 | 6.764 | 66.763 |
| 6 | .925 | 4.404 | 71.167 | | | | | | |
| 7 | .878 | 4.179 | 75.346 | | | | | | |
| 8 | .762 | 3.628 | 78.974 | | | | | | |
| 9 | .613 | 2.918 | 81.893 | | | | | | |
| 10 | .573 | 2.728 | 84.621 | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11 | .488 | 2.326 | 86.947 | | | | | | |
| 12 | .438 | 2.087 | 89.033 | | | | | | |
| 13 | .428 | 2.036 | 91.069 | | | | | | |
| 14 | .362 | 1.722 | 92.791 | | | | | | |
| 15 | .337 | 1.603 | 94.394 | | | | | | |
| 16 | .318 | 1.513 | 95.907 | | | | | | |
| 17 | .239 | 1.139 | 97.046 | | | | | | |
| 18 | .217 | 1.035 | 98.081 | | | | | | |
| 19 | .182 | .869 | 98.949 | | | | | | |
| 20 | .131 | .625 | 99.574 | | | | | | |
| 21 | .089 | .426 | 100.000 | | | | | | |

Extraction Method: Principal Component Analysis.

The table provides information on the Total Variance Explained through Principal Component Analysis (PCA) in the context of the research of assessing of training and development impacting on total quality management in online shopping logistics perspective.

The first principal component explains 39.740% of the total variance, with a cumulative percentage of 39.740%. This component captures a significant portion of the overall variance in the data. As additional components are considered, each contributes to the cumulative percentage of explained variance. The decision on how many components to retain depends on the desired level of explained variance. In your case, it's important to consider how many components are necessary to adequately capture the variability in the training and development impacting Total Quality Management in online shopping logistics.

**Table 5.1.3: Rotated Component Matrix[a]**

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Enhancing Customer Experience | | .835 | | | |
| Driving Sales Performance | | | | .812 | |
| Building Brand Credibility | | | | .733 | |
| Interactive Training Methods | .548 | | | | |
| Continuous Learning Culture | | | .790 | | |
| Technology-Based Training Platforms | | .414 | | | |
| Challenges in Product Knowledge Training | .521 | | | | |
| Future Directions in Product Knowledge Enhancement | | | | .577 | |
| Customer Satisfaction and Loyalty | | .668 | | | |
| Brand Reputation | | | .603 | | |
| Differentiation in a Competitive Market | | | | .525 | |

| | | | | | |
|---|---|---|---|---|---|
| Communication Skills | | | | | .710 |
| Empathy and Emotional Intelligence | | .612 | | | |
| Problem-Solving Abilities | | | .739 | | |
| Training and Development Programs | | .516 | | | |
| Customer Feedback and Continuous Improvement | .683 | | | | |
| Employee Engagement and Recognition | .611 | | | | |
| High Turnover Rates | .716 | | | | |
| Cross-Cultural Considerations | .809 | | | | |
| Technology Integration | .591 | | | | |
| Enhancing Customer Experience | .648 | | | | |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 8 iterations.

The table presents the Rotated Component Matrix resulting from Principal Component Analysis (PCA) with a Varimax rotation.

Component 1 is associated with factors related to enhancing customer experience, including training methods, challenges, future directions, customer satisfaction, brand reputation, differentiation, and communication skills.

Component 2 is focused on driving sales performance and is primarily associated with this specific variable.

Component 3 is related to building brand credibility and encompasses a range of factors such as organizational culture, employee development, customer feedback, and cross-cultural considerations.

Component 4 is specifically associated with technology-based training platforms.

The rotated component matrix provides a more interpretable structure of the relationships between variables and components. Each component represents a coherent set of variables, and the loadings indicate the strength and direction of the relationship. In the context of your research, these components suggest that training and development initiatives are associated with enhancing customer experience, driving sales performance, building brand credibility, and incorporating technology-based training platforms.

### 5.2.Multiple Regression Analysis

**Table 5.2.1: Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .862[a] | .744 | .652 | .66728 |

a. Predictors: (Constant), Enhancing Customer Experience, Driving Sales Performance, Building Brand Credibility, Interactive Training Methods, Continuous Learning Culture, Challenges in Product Knowledge Training, Future Directions in Product Knowledge Enhancement, Customer Satisfaction and Loyalty, Brand Reputation, Differentiation in a Competitive Market, Communication Skills, Empathy and Emotional Intelligence, Problem-Solving Abilities, Training and Development Programs, Customer Feedback and Continuous Improvement, Employee Engagement and Recognition, High Turnover Rates, Cross-Cultural Considerations, Technology Integration.

The strong correlation (R) and a substantial amount of explained variance (R Square) suggest that the selected training and development variables collectively contribute significantly to explaining variations in Total Quality Management within the online shopping logistics perspective. The Adjusted R Square accounts for the complexity of the model by considering the number of predictors.

**Table 5.2.2: ANOVA[b]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 72.312 | 20 | 3.616 | 8.120 | .000[a] |
| | Residual | 24.934 | 56 | .445 | | |
| | Total | 97.247 | 76 | | | |

a. Predictors: (Constant), Enhancing Customer Experience, Driving Sales Performance, Building Brand Credibility, Interactive Training Methods, Continuous Learning Culture, Challenges in Product Knowledge Training, Future Directions in Product Knowledge Enhancement, Customer Satisfaction and Loyalty, Brand Reputation, Differentiation in a Competitive Market, Communication Skills, Empathy and Emotional Intelligence, Problem-Solving Abilities, Training and Development Programs, Customer Feedback and Continuous Improvement, Employee Engagement and Recognition, High Turnover Rates, Cross-Cultural Considerations, Technology Integration
b. Dependent Variable: Increased performance of Total Quality Management

The Regression Sum of Squares (72.312) is considerably larger than the Residual Sum of Squares (24.934), indicating that the model explains a significant amount of variance in the dependent variable. The F-statistic is calculated by dividing the Regression Mean Square by the Residual Mean Square. A significant F-statistic (associated with a low p-value) would suggest that the overall model is statistically

significant. To fully interpret the significance of the model, it would be essential to compare the p-value associated with the F-statistic to a predetermined significance level (e.g., 0.05).

**Table 5.2.3: Coefficients[a]**

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| 1 (Constant) | -.387 | .481 | | -.806 | .424 |
| Enhancing Customer Experience | .220 | .094 | .234 | 2.349 | .022 |
| Driving Sales Performance | -.168 | .137 | -.152 | -1.225 | .226 |
| Building Brand Credibility | .095 | .114 | .085 | .828 | .411 |
| Interactive Training Methods | -.079 | .110 | -.075 | -.719 | .475 |
| Continuous Learning Culture | .424 | .124 | .380 | 3.426 | .001 |
| Challenges in Product Training | -.136 | .110 | -.112 | -1.239 | .221 |
| Directions in Knowledge Enhancement | .458 | .118 | .397 | 3.879 | .000 |
| Customer Satisfaction and Loyalty | .157 | .129 | .138 | 1.219 | .228 |
| Brand Reputation | .250 | .100 | .223 | 2.493 | .016 |
| Differentiation in a Competitive Market | -.241 | .106 | -.238 | -2.263 | .028 |
| Communication Skills | .161 | .129 | .138 | 1.253 | .216 |
| Empathy and Emotional Intelligence | -.089 | .124 | -.068 | -.721 | .474 |
| Problem-Solving Abilities | -.498 | .137 | -.388 | -3.643 | .001 |
| Training and Development Programs | -.048 | .120 | -.040 | -.400 | .691 |
| Feedback and Continuous Improvement | -.005 | .124 | -.004 | -.039 | .969 |
| Employee Engagement and Recognition | .167 | .128 | .154 | 1.304 | .198 |
| High Turnover Rates | -.075 | .128 | -.063 | -.588 | .559 |
| Cross-Cultural Considerations | .398 | .129 | .371 | 3.091 | .003 |
| Technology Integration | .403 | .148 | .329 | 2.717 | .009 |
| Enhancing Customer Experience | -.282 | .115 | -.271 | -2.458 | .017 |

a. Dependent Variable: Increased performance of Total Quality Management

The intercept of the regression equation. In this case, it is -0.387. The coefficient (B = 0.220) indicates that a one-unit increase in enhancing customer experience is associated with a 0.220 unit increase in the

dependent variable, holding other variables constant. The coefficient (B = -0.168) suggests a negative association, but it is not statistically significant (Sig. = 0.226). Building Brand Credibility, Interactive Training Methods, Challenges in Product Training, etc. Each predictor variable has its own coefficient representing its impact on the dependent variable.

The t-statistic measures how many standard errors the coefficient is away from zero. The associated p-value (Sig.) indicates the statistical significance of the coefficient. For example, the Continuous Learning Culture has a t-value of 3.426, and the p-value is 0.001, indicating that it is statistically significant.

Variables such as Enhancing Customer Experience, Continuous Learning Culture, Directions in Knowledge Enhancement, Brand Reputation, Cross-Cultural Considerations, and Technology Integration have positive and statistically significant impacts on the increased performance of Total Quality Management. Variables like Problem-Solving Abilities have a negative impact on the dependent variable, and this effect is statistically significant. Variables such as Driving Sales Performance, Challenges in Product Training, Communication Skills, Training and Development Programs, Feedback and Continuous Improvement, Employee Engagement and Recognition, High Turnover Rates, and Enhancing Customer Experience (second occurrence) are not statistically significant predictors.

## 6. Recommendations

- Given the positive and statistically significant impact of variables such as Enhancing Customer Experience, Continuous Learning Culture, Directions in Knowledge Enhancement, Brand Reputation, Cross-Cultural Considerations, and Technology Integration, consider prioritizing training initiatives that focus on these aspects. Allocate resources and efforts to enhance these key areas as they have demonstrated relevance to increased Total Quality Management performance.
- Acknowledge the negative impact of variables like Problem-Solving Abilities. Develop targeted training programs or interventions to address these challenges. Consider incorporating problem-solving skills development into existing training modules to improve the overall problem-solving abilities of the workforce.
- Recognize that certain factors, such as Driving Sales Performance, Challenges in Product Training, Communication Skills, Training and Development Programs, Feedback and Continuous Improvement, Employee Engagement and Recognition, High Turnover Rates, and the second occurrence of Enhancing Customer Experience, did not show statistical significance. Evaluate the relevance of these factors in the context of your organization and consider adjustments or enhancements to make them more impactful.

- Highlight the importance of Continuous Learning Culture and Technology Integration. These factors have shown significant positive impacts on Total Quality Management. Encourage a culture of continuous learning among employees and leverage technology platforms for effective training and development programs.
- Given the positive impact of Cross-Cultural Considerations on Total Quality Management, particularly in the context of online shopping logistics, consider enhancing cross-cultural training programs. This can foster better understanding and collaboration among a diverse workforce, ultimately contributing to improved Total Quality Management.
- Regularly monitor the effectiveness of training and development programs based on the identified factors. Collect feedback from employees and assess the impact on Total Quality Management performance. Use this information to make informed adjustments to training strategies and content.
- While Empathy and Emotional Intelligence did not show statistical significance, consider their importance in customer interactions and employee relations. Include elements of empathy and emotional intelligence in training programs to enhance the overall quality of customer service and team dynamics.

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