

Exploring Journey Experiences of Disabled Passengers in Using Public Transport

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Abstract

This study aims to enhance the understanding of disabled passengers' experiences with public transport by addressing the challenges in measuring their satisfaction and service quality. The central problem is the difficulty in accurately assessing and improving the service quality for disabled passengers, given the diverse needs and barriers they face. Utilizing the SERVQUAL model, which focuses on Tangibility, Reliability, Responsiveness, Assurance, and Empathy, the study identifies and evaluates these key dimensions in the context of public transport services. Findings reveal both unique needs and commonalities among different disability groups: hearing-impaired passengers require visual signals and nonverbal communication, visually impaired passengers need clear auditory announcements and staff assistance, and physically disabled passengers require accessible infrastructure and supportive services. Commonalities include the appreciation for reliable train schedules, cleanliness, and the need for empathetic and responsive staff. Based on these insights, recommendations are provided to enhance service quality by improving physical accessibility features, enhancing communication methods, and providing targeted staff training. Implementing these recommendations will address specific needs and improve the overall satisfaction of disabled passengers, contributing to a more inclusive and effective public transport system. Future work should focus on integrating additional models and exploring other key variables to uncover further insights into service quality and passenger satisfaction. This approach will offer a more comprehensive understanding of how various factors interact and contribute to a more inclusive and effective public transport system.

Keywords: Disabled, Experience, Passenger, Public Transport, SERVQUAL

INTRODUCTION

Conducting customer satisfaction assessments for disabled passengers using public transport presents a unique set of challenges that stem from both systemic barriers and individual needs. Research indicates that disabled passengers frequently report dissatisfaction with the level of service, including aspects such as reliability, comfort, and the availability of assistance (Lubin & Deka, 2012). This dissatisfaction can lead to a reluctance to use public transport, further isolating disabled individuals from essential services and opportunities (Vanderschuren & Nnene, 2021). Moreover, the assessment of customer satisfaction itself poses challenges. Traditional survey methods may not adequately capture the unique experiences of disabled passengers, as these surveys often do not account for the specific barriers they face (Echániz et al., 2019). The lengthy nature of satisfaction surveys can also deter participation, particularly among disabled individuals who may require additional time or assistance to complete them (Echániz et al., 2019). Consequently, there is a pressing need for tailored methodologies that better reflect the experiences and expectations of disabled passengers (Duri & Luke, 2022). The challenges in conducting customer satisfaction assessments for disabled passengers in public transport are rooted in physical accessibility issues, inadequate service quality, methodological shortcomings in satisfaction surveys, and insufficient policy frameworks. Addressing these challenges requires a concerted effort to enhance the inclusivity of public transport systems, ensuring that they meet the diverse needs of all passengers. To address this issue, it is necessary to develop a comprehensive framework that considers the diverse needs and experiences of disabled passengers. The research questions for this study are:

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RQ1: How do tangibility factors, such as the physical facilities, equipment, and appearance of personnel, influence the satisfaction of disabled passengers using public transport?

RQ2: What is the impact of reliability, responsiveness, and assurance of public transport services on the trust and confidence of disabled passengers?

RQ3: How does the level of empathy and individualized attention provided by public transport personnel affect the overall experience and satisfaction of disabled passengers?

Thus, this paper aims to investigate the challenges faced by disabled passengers in using public transportation, and to adapt a suitable framework for designing and implementing accessible public transport systems.

REVIEW OF LITERATURE

Providing accessible and inclusive public transportation is a critical component of enabling individuals with disabilities to fully participate in society. However, current public transportation systems often fall short in meeting the needs of passengers with various disabilities, including visual, hearing, and physical impairments (Aryotejo et al., 2020). Firstly, it is because the physical environment of public transport systems often fails to accommodate the specific needs of various disabled passengers. For instance, individuals with visual impairments may rely heavily on tactile indicators and auditory signals, while those with hearing impairments depend on visual cues and clear signage (Bezyak et al., 2017).

This disparity indicates that a generic framework must incorporate specific accessibility features tailored to different disabilities to ensure that all passengers can navigate the transport system effectively. Furthermore, the lack of uniformity in service quality across different transport modes can lead to varied satisfaction levels among disabled passengers, making it difficult to generalize findings (Fellsson & Friman, 2012). Moreover, the subjective nature of satisfaction itself poses a challenge. Research indicates that satisfaction is influenced by personal experiences and expectations, which can vary widely among disabled individuals (Sumaedi et al., 2016). For example, while some passengers may prioritize comfort and cleanliness, others may place greater importance on the availability of assistance or the responsiveness of staff (Chuenyindee et al., 2022). This variability necessitates a more nuanced approach to measuring satisfaction that considers the specific priorities and experiences of different disability groups (Gandhewar, 2023). Additionally, the methodologies used to gather data on customer satisfaction can be problematic. Traditional survey methods may not adequately capture the experiences of disabled passengers, particularly if they are not designed with inclusivity in mind (Morfoulaki et al., 2010). For instance, surveys that are too lengthy or complex may discourage participation from individuals with cognitive disabilities or those who require assistance. Therefore, developing a framework that is both comprehensive and accessible is essential for accurately assessing satisfaction levels across diverse disability groups (Adenigbo, 2023).

The challenges in creating a generic research framework for assessing customer satisfaction among disabled passengers in public transport are rooted in the diverse needs of different disability groups, the subjective nature of satisfaction, methodological limitations in data collection, and inconsistencies in policy implementation. Addressing these challenges requires a tailored approach that considers the unique experiences and needs of each group, ensuring that public transport systems are genuinely inclusive and accessible.

DEFINING KEY VARIABLES IN SERVICE QUALITY

In the realm of service quality, particularly within the context of the service industry, several key variables have been identified that significantly influence customer satisfaction and overall service experience. These variables, tangibility, reliability, responsiveness, assurance, and empathy are integral components of the SERVQUAL model, a widely recognized framework for assessing service quality and Table 1 presents the key variables definitions.

Table 1: Definitions of Key Variables

No	Key Variables	Definitions	Importance
1	<i>Tangibility</i>	Tangibility refers to the physical aspects of a service that can be observed and evaluated by customers. This includes the physical facilities, equipment, and the appearance of personnel.	Tangibility serves as a critical first impression for customers. The physical environment in which a service is delivered can significantly affect customer perceptions of quality. For instance, well-maintained facilities and modern equipment can enhance the perceived quality of service, while unkempt surroundings may lead to negative evaluations. The appearance of personnel, including uniforms and grooming, also plays a vital role in shaping customer expectations and trust (Parasuraman et al., 1985; Tamanna, 2020; Sureshchandar et al., 2002).
2	<i>Reliability</i>	Reliability refers to the ability of a service provider to perform promised services dependably and accurately.	Reliability is often considered the most critical dimension of service quality. Customers expect services to be delivered as promised, without errors or delays. A reliable service provider builds trust and fosters long-term relationships with customers. For example, in the airline industry, a reliable airline is one that consistently adheres to its flight schedules and delivers on its commitments regarding baggage handling and customer service (B.S et al., 2018 & Chayomchai, 2021; Chaniotakis & Lymperopoulos, 2009).
3	<i>Responsiveness</i>	Responsiveness refers to the willingness of service providers to help customers and provide prompt service.	Responsiveness is crucial in-service contexts where customer needs may arise unexpectedly. A responsive service provider is one that not only acknowledges customer inquiries and requests but also acts swiftly to address them. This dimension is particularly important in high-stakes environments, such as healthcare or emergency services, where timely responses can significantly impact outcomes (Hidayat et al., 2020; Javed & Ilyas, 2018).
4	<i>Assurance</i>	Assurance involves the knowledge and courtesy of employees and their ability to inspire trust and confidence in customers.	Assurance is particularly relevant in-service industries where customers may feel vulnerable or uncertain, such as financial services or healthcare. Employees who demonstrate expertise and professionalism can instill confidence in customers, thereby enhancing their overall service experience. The ability to communicate effectively and courteously is also a key aspect of assurance (Parasuraman et al., 1985; Tamanna, 2020; Chaniotakis & Lymperopoulos, 2009).
5	<i>Empathy</i>	Empathy is the capacity to vicariously experience and comprehend the emotions, thoughts, and perspectives of another individual. It entails an imaginative projection of oneself into the situation of another, fostering a profound understanding and compassionate response to their emotional state and experience	Empathy is essential for building strong customer relationships. When service providers demonstrate genuine care and understanding of customer needs, it fosters loyalty and positive word-of-mouth. Empathetic service can differentiate a provider in a competitive market, as customers often seek personalized experiences (Tamanna, 2020; Suhartini, 2023; Salbiah, 2024).

RELATED RESEARCH

Seminal work introduces the SERVQUAL model, which outlines the five dimensions of service quality: Tangibility, Reliability, Responsiveness, Assurance, and Empathy. The authors provide a comprehensive framework for understanding service quality, emphasizing the importance of these dimensions in shaping customer perceptions and satisfaction. This foundational research is critical for any further exploration of service quality in various industries (Parasuraman et al., 1985). Study by Gopi and Samat (2020) examines the relationship between service quality dimensions, including Tangibility and Reliability, and their effects on customer satisfaction and loyalty within the context of food trucks. The findings highlight how the physical aspects of service (tangibles) and the dependability of service delivery (reliability) significantly influence customer satisfaction, reinforcing the relevance of these dimensions in the service quality framework. Research by Sobaih (2023) investigates the role of Reliability as a critical dimension of service quality in the context of parcel delivery services. The study finds that reliability significantly impacts overall customer satisfaction, aligning with previous research that emphasizes the importance of this dimension across various service sectors. The insights gained from this study contribute to understanding how reliability affects customer perceptions in logistics and delivery services. These studies collectively underscore the importance of the identified service quality dimensions and their impact on customer satisfaction across different service contexts.

MATERIALS AND METHODS

Following the literature review, SERVQUAL model have been implemented. Nine disabled passengers where 3 are hearing impaired, 3 visual impaired and 3 are with physical disability who are volunteers were engaged through interviews to gain insights into their experiences and perceptions, which helped validate and refine these identified variables. Identify and recruit volunteers been carried out through disability organizations, social media, and community networks to reach potential participants. The interview data were thoroughly analyzed to establish connections between these variables and understand their collective impact on passenger satisfaction. This analysis provided a nuanced understanding of how each variable contributed to the overall service experience for disabled passengers. The study scope is on rail services. Figure 1 illustrates the flow of study.

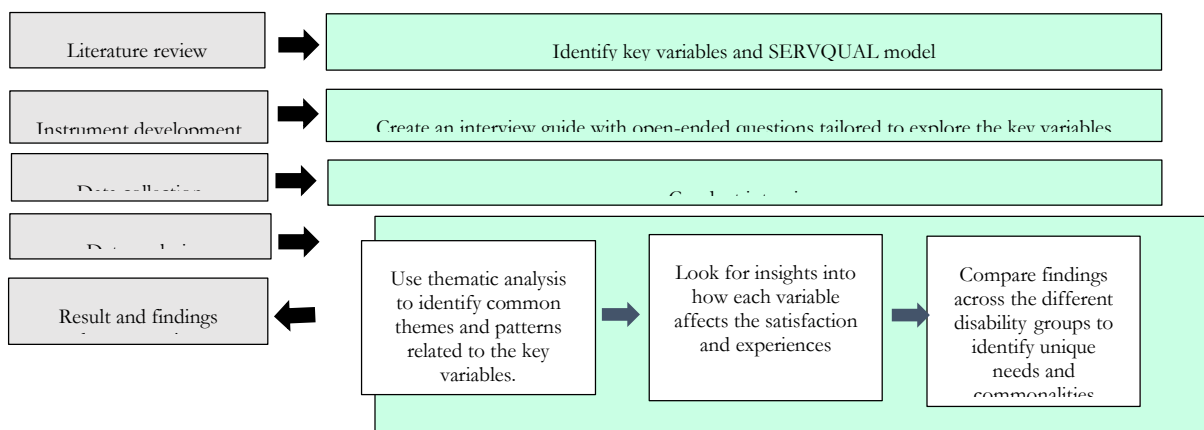


Figure 1. Study flow

RESULT

The interview findings highlight key areas where public transport services are meeting the needs of disabled passengers and where improvements are still needed across the five key variables: tangibility, reliability, responsiveness, assurance, and empathy.

Tangibility emerged as a significant factor influencing the overall satisfaction of disabled passengers. Positive feedback was received regarding the cleanliness and comfort of the environment, the effectiveness of signage, and the functionality of the ticketing systems, as noted by passengers with physical and hearing disabilities. However, there were clear calls for enhanced facilities, such as wheelchair-friendly shuttles and designated assistance services at stations, as well as better maintenance of ramps, lifts, and disabled seating. This underscores the need for a more holistic approach to accessibility that goes beyond the station environment, extending support to the broader travel experience of disabled passengers. Significant responses are highlighted in the following answers.

Physical disability1: *“..the environment is clean and comfortable...”*

Hearing impaired1: *“The signages are sufficient and useful to find my way...”*

Hearing impaired2: *“The ticketing system at the station functioning well”*

Hearing impaired 3: *“.. It is convenient for me to buy passes at the service counter..”*

Physical disability 2: *“The parking facility at and around the station is sufficient, convenient and affordable for train passengers”*

Physical disability 2: *“ Provide facilities such as wheelchair-friendly shuttles and designated assistance services to other destinations upon exiting each station, ensuring comprehensive accessibility for all passengers”*

Physical disability 3: *“Ensure the provision and maintenance of facilities, including ramps, lifts, and reachable hand-holding facilities, to accommodate disabled customers effectively”*

Visual impaired 2: *“Ensure the provision and consistent monitoring of disabled seats, ensuring that they are allocated to disabled customers”*

In terms of **reliability**, respondents from all disability groups expressed satisfaction with the frequency and punctuality of train schedules, which they found to be sufficient and consistent. The clarity and usefulness of the PA system announcements were particularly appreciated by visually impaired passengers, underscoring the importance of reliable communication for those who rely on auditory information. Moreover, the maintenance of facilities, including air conditioning, hand grips, and doors, was recognized as a key contributor to a reliable and comfortable travel experience. These highlighted in the answers.

Hearing impaired1: *“The map display is sufficient and useful to find my way.”*

Hearing impaired3: *“..the environment and facilities is clean and comfortable”*

Physical disability 2: *“..the announcements from the PA system are clear and useful”*

Visual Impaired 2: *“The announcements from the PA system are clear and well understood...”*

In terms of **responsiveness**, the feedback emphasized that hearing-impaired passengers face unique challenges, such as difficulties detecting approaching trains due to reliance on visual cues rather than auditory announcements. Recommendations included the use of electronic flashing lights to signal train arrivals, demonstrating a need for adaptable communication solutions that address the specific needs of hearing-impaired passengers.

Hearing Disability 1: *“...we face challenges in detecting approaching trains, as they cannot rely on auditory announcements or engine sounds. Additionally, they rely on visual cues, such as sign language, for communication. Signage alone may be ineffective in alerting them to train arrivals. Therefore, the implementation of electronic flashing lights, accompanied by an indicator signalling the arrival of trains, is recommended...”*

The findings on **assurance** underscored the importance of frontline staff interactions. Hearing-impaired passengers highlighted the necessity of staff training in nonverbal communication, as their body language and helpfulness significantly impact the passenger experience. This points to a broader need for service staff to be equipped with skills that foster trust and confidence, especially in their interactions with disabled passengers. This respond emphasize on that:

Hearing Disability 3: *“Frontline staff should assist and offer necessary information to disabled customers promptly. Their body language and interactions serve as the primary indicators of friendliness and helpfulness. Therefore, training in nonverbal communication is essential for frontline personnel.”*

Finally, **empathy** was a critical area of concern. Visually impaired respondents emphasized the need for dedicated staff on trains to assist disabled passengers in locating seats and ensuring that designated disabled seating is respected by other passengers. The following feedback suggests a strong demand for proactive measures, such as regular announcements and strict enforcement of accessibility standards, to ensure an empathetic and respectful travel environment for all disabled passengers.

Visual impaired 2: *“Assign dedicated frontline staff on trains to assist disabled customers in locating seats and prevent other passengers from occupying designated disabled seats..”*

Visual impaired 3: *“Implement regular announcements and enforce policies with frequent checks to uphold accessibility standards effectively..”*

DISCUSSION

Interconnections among key variables

By recognizing and addressing the interconnected nature of these factors, service providers can deliver a more integrated and effective approach to improving public transport for disabled passengers. Tangibility, reliability, responsiveness, assurance, and empathy are interconnected dimensions that collectively influence the overall service quality and satisfaction of passengers, especially disabled passengers in public transport.

Tangibility, which includes the physical aspects of service such as clean facilities and clear signage, directly supports reliability. When tangible elements are well-maintained, it enhances passengers' perception of the service being dependable and consistent. For example, well-maintained facilities like ramps and elevators not only represent tangibility but also ensure reliable accessibility for disabled passengers, reinforcing their trust in the service. Reliability, or the ability to provide consistent and dependable services, sets the foundation for responsiveness. Reliable services (e.g., punctual trains and clear communication) enable transport staff to respond promptly to passenger needs. Reliability reinforces the tangibility of service. When physical facilities are well-maintained and accessible, it enhances the perception of reliability. Furthermore, a reliable service fosters trust, which is essential for assurance and empathy (Sureshchandar et al., 2002; Suhartini, 2023).

Conversely, responsive actions, such as quickly assisting a passenger or updating on delays, enhance the perception of reliability, as passengers feel the service provider can handle situations effectively. Responsiveness enhances assurance by demonstrating the service provider's commitment to addressing passenger needs efficiently. Responsiveness is directly influenced by the reliability of the service. A reliable service provider is better equipped to respond to customer needs promptly. Additionally, responsiveness can enhance the perception of empathy, as it demonstrates a genuine concern for the passenger's experience (B.S et al., 2018; Chayomchai, 2021).

Assurance is built when staff are knowledgeable, courteous, and helpful. When frontline employees promptly assist and provide clear information, it reassures passengers, particularly those with disabilities, that they are in capable hands. Assurance and empathy are closely linked, as both involve the human aspect of service delivery. Assurance comes from the confidence inspired by knowledgeable and courteous staff, while empathy involves understanding and addressing individual needs with care. Assurance is strengthened by both reliability and responsiveness. When service providers consistently deliver reliable services and respond promptly to customer

needs, it builds trust and confidence. Furthermore, a tangible and professional environment enhances the perception of assurance (Chaniotakis & Lymperopoulos, 2009; Nur & Fritantus, 2021).

Empathetic actions, like offering personalized assistance, directly enhance assurance by showing that the staff not only have the skills but also genuinely care about the passenger's well-being. Empathy can drive improvements in tangibility by highlighting the specific needs of passengers that require tangible solutions. For instance, understanding the challenges faced by passengers with disabilities can lead to better-designed physical spaces and facilities, such as dedicated disabled seating or tactile guides for the visually impaired. Empathy is influenced by all other dimensions. A reliable service that is responsive to immediate needs and backed by knowledgeable staff fosters a sense of empathy. Additionally, tangible aspects such as accessible facilities contribute to a more personalized experience (Li & Teh, 2021; Zakaria et al, 2011).

Overall interconnection indicated that all key variables create a comprehensive service experience is illustrated in Figure 2. Tangibility provides the foundational infrastructure, reliability ensures consistency, responsiveness addresses immediate needs, assurance builds trust, and empathy personalizes the service. Each dimension reinforces the others, creating a cohesive and positive experience that enhances overall satisfaction and loyalty among disabled passengers.

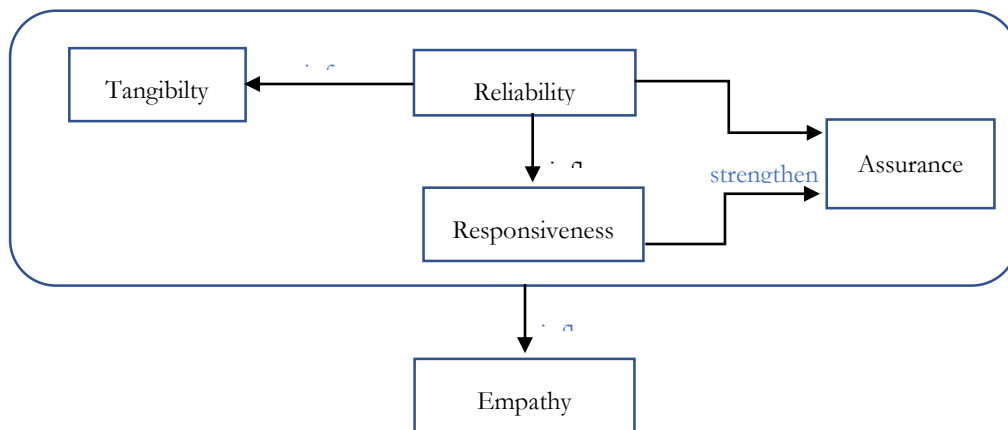


Figure 2. Interconnection of key variables

Comparison across the different disability groups

Based on the findings, an analysis of the unique needs and commonalities among respondents with different disabilities is presented as described in Table 2.

Table 2: Unique Needs Versus Commonalities

Unique Needs	
1. <i>Hearing-Impaired Respondents</i>	<ul style="list-style-type: none"> • Visual Cues for Train Arrivals: Hearing-impaired passengers need visual signals, such as electronic flashing lights, to alert them about approaching trains or service announcements. This need arises because they cannot rely on auditory cues. • Effective Signage and Ticketing: Clear and accessible signage, as well as functional ticketing systems, are crucial for navigating the transport system without relying on auditory information. • Training in Nonverbal Communication: Staff training in nonverbal communication is essential to assist hearing-impaired passengers effectively.

2. <i>Visually Impaired Respondents</i>	<ul style="list-style-type: none"> • Audible Announcements: Clear and frequent announcements from the PA system are necessary to provide essential travel information. • Assistance with Seating: Dedicated staff to help locate seats and ensure that designated disabled seating is not occupied by non-disabled passengers. • Regular Checks for Accessibility Compliance: Enforcement of policies to maintain accessibility standards and prevent issues such as blocked accessible seats.
3. <i>Physically Disabled Respondents</i>	<ul style="list-style-type: none"> • Accessible Infrastructure: Facilities like ramps, lifts, and wheelchair-friendly shuttles are essential for mobility. This includes ensuring the availability and maintenance of these facilities. • Convenient Parking and Assistance Services: Accessible parking and the availability of assistance services for travel beyond the station are needed to facilitate a seamless travel experience. • Maintenance of Disabled Seats: Ensuring that designated disabled seats are available and properly allocated is crucial for comfort during travel.
Commonalities	
1. <i>Sufficient Train Schedules and Punctuality</i>	<ul style="list-style-type: none"> • All respondent groups, regardless of their specific disabilities, agreed that the frequency and punctuality of train services were adequate. This highlights that reliable service scheduling is a universally appreciated aspect of public transport.
2. <i>Cleanliness and Maintenance</i>	<ul style="list-style-type: none"> • Cleanliness and well-maintained facilities, including air conditioning, handgrips, and doors, were valued by respondents across all disability groups. This reflects a common expectation for a clean and comfortable travel environment.
3. <i>Importance of Clear Communication</i>	<ul style="list-style-type: none"> • While the method of communication may differ, all respondents emphasized the need for clear and effective communication. Hearing-impaired passengers need visual cues, visually impaired passengers need audible announcements, and physically disabled passengers benefit from clear signage and information.
4. <i>Need for Empathetic and Responsive Staff</i>	<ul style="list-style-type: none"> • Across all groups, there is a shared need for staff to be responsive, empathetic, and trained to handle the specific needs of disabled passengers. This includes being attentive to individual requirements and providing personalized assistance.

The unique needs of respondents highlight specific accommodations required to address the challenges faced by each disability group. Hearing-impaired passengers need visual signals and nonverbal communication, visually impaired passengers require audible announcements and dedicated staff assistance, and physically disabled passengers need accessible infrastructure and support services. Despite these unique needs, commonalities include the appreciation for reliable train services, cleanliness, clear communication, and empathetic staff interactions. Addressing these aspects collectively can lead to a more inclusive and effective public transport system.

The recommendations made based on the findings are detailed in Table 1. They include enhancing visual and auditory communication aids for hearing-impaired and visually impaired passengers, respectively, and improving physical accessibility features such as ramps and designated seating for those with physical disabilities. The recommendations made based on the findings is described in Table 3.

Table 3: Recommendations

Key Variables	Recommendations
<i>Tangibility</i>	Service providers must invest in the physical aspects of their service delivery to ensure that they meet customer expectations. This may involve regular maintenance of facilities, upgrading equipment, and training staff on professional appearance (Tamanna, 2020; Sureshchandar et al., 2002; Suhartini, 2023).
<i>Reliability</i>	To enhance reliability, service organizations must establish robust systems and processes that ensure consistency in service delivery. This may include staff training, quality control measures, and effective communication strategies (Nur & Fritantus, 2021; Li & Teh, 2021; Zakaria et al, 2011).
<i>Responsiveness</i>	Organizations should cultivate a culture of responsiveness by empowering employees to make decisions and act quickly in the interest of customer satisfaction. This may involve training staff to prioritize customer needs and streamline processes to reduce response times (Chayomchai, 2021; Hidayat et al., 2020; Singh et al., 2007).
<i>Assurance</i>	Service organizations should focus on employee training and development to enhance their knowledge and interpersonal skills. Creating an environment where employees feel valued and knowledgeable can translate into better customer interactions (Nur & Fritantus, 2021; Nejati & Nejati, 2008; Alrubaiee & Alkaa'ida, 2011).
<i>Empathy</i>	To enhance empathy, organizations should encourage staff to engage with customers on a personal level. This may involve training programs that emphasize active listening, understanding customer emotions, and tailoring services to meet individual needs (Li & Teh, 2021; Zakaria et al, 2011; Javed & Ilyas, 2018).

CONCLUSION

The key variables of Tangibility, Reliability, Responsiveness, Assurance, and Empathy are fundamental to understanding and improving service quality. Each variable plays a distinct role in shaping customer perceptions

and experiences. The findings highlight both strengths and areas for improvement within public transport services, emphasizing the need for continued efforts to enhance accessibility, reliability, responsiveness, assurance, and empathy. Addressing these aspects will not only improve the satisfaction of disabled passengers but also contribute to a more inclusive public transport system. Service providers must recognize the importance of these dimensions and implement strategies to enhance them, ultimately leading to increased customer satisfaction and loyalty. Future research could explore the interrelationships among these variables and their collective impact on service quality across different industries. Future research should consider integrating additional models and exploring other key variables to uncover further insights into service quality. This approach will provide a more comprehensive understanding of how various factors interact and influence overall satisfaction, leading to more effective strategies for creating a more inclusive and efficient public transport system.

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