Deconstructing Barriers To Access Rapid Public Transportation For Commuters With Visual Impairment: A Study Of Embodied Experiences In Delhi Metro-Train

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Abstract

An inclusive city seeks innovative ways to accommodate diverse interests and practices of people with different needs. It requires that the basic rights of freedom, equality, and condition of justice and dignity of all its citizens (including persons with disabilities) are ensured. Delhi is undoubtedly one of the most diverse urban city centers in India. The Delhi metro train with its many accessibility features seems an archetype of an ideal inclusive and open city for all. Nonetheless, such moves towards disabled-friendliness fail to neutralise all the imperfections in absolute terms. The initiatives oriented to hassle-free travelling could not adequately meet the diverse transport needs of regular commuters with sight disability and do not fully address gaps embedded in metro rail infrastructure. Not with standing these measures to foster seamless journey for the disabled passengers, visually impaired users still come across those barriers which may not be directly apparent in public but are certainly the product of their personally embodied experiences.

In the wake of Delhi metro assertion for better mobility and accessible transit environment, the present paper pursues deconstructive approach and attempts to figure out the pragmatic challenges encountered by visually impaired commuters that are often left unnoticed. These covert experiential hindrances are normally manifested in the day to day journey of Delhi Metro train. This is an empirical study based on survey findings stemming from Delhi field survey conducted during PhD course (2016-18). It primarily thrives

upon qualitative data pertaining to personal narratives of 40 visually impaired respondents belonging to metropolis of Delhi about their everyday perceptions of transit accessibility, while travelling in metro train.

Key Words: Delhi Metro; Visual Impairment; Rapid Transit System; Accessibility; Mobility; Barriers; Embodied Experience.

1. Introduction

As a state, metropolitan city and national capital territory, Delhi renders distinctiveness in terms of its cultural heritage, geographical, demographic & historical position. The reminiscence of city's planning and designing finds expression in “old forts, royal palaces created by the Pandavas of Mahabharat, Maurya Empire, Lodhi Dynasty, Mughal rulers among others. It is also evident in the form of darbars, havelis and conventional kind of architect in the lanes of old Delhi in comparison to modernity and new architect reflected by the Lutyen’s Delhi constructed during the British rule” (Nigam, visited weblink Feb. 2015). This smart/mega city represents diversity and provides home to citizens coming from all corners of the nation, speaking various languages, along with their unique cultural backgrounds & values for the sake of either higher education or better avenues of employment.

Going by its diversified composition, Delhi is expected to be an inclusive society where all people with varying social identities, different needs, aspirations & interests could be adequately accommodated and brought into the mainstream of life. Disability being a phenomenon and persons with disabilities as a social segment also plays a vital part in adding on to such demographic diversity. As per the Indian Census, 2011, total population of Delhi is 1, 67, 53,000 of which ‘it is recorded a total of 237,882 persons with disability officially residing in the national capital of India’ (Census Organization of India, 2011). The disabled persons constitute 1.4 % of the total population of the National Capital Territory (NCT) of Delhi.

Out of total disabled population, there are 30,124 persons with visual impairment, 67,383 people with locomotor disability, 34,499 people with hearing impairment, 15,094 with speech impairment, 10,046 with mental illness, 16,338 with intellectual disability, 24,385 with multiple disabilities and 37,013 with any other disability (State UT Wise Persons with Disability, Census

of India, 2011). It is to be noted that the two categories of visually challenged people and those with locomotion disabled taken together alone, constitute about 41.66 % of total disabled population in the concerned state. In a city like Delhi that validates its claim to be inclusive, the disabled persons can only lead a better quality of life provided they have equal and unhindered access to places of work, education, medical services, . For developing easy or timely reach and better connectivity with such public or professional spaces (educational institutions, work-places, or other public spaces), the role of more disabled-friendly rapid transit services becomes an indispensable reality. The work is a critical analysis of accessibility infrastructure introduced by rapid transit system and uncovers challenges vis-a-vis visually impaired transport users, putting in place Delhi metro rail as a prototype of the service-provider.

This article is dedicated to accomplish following research objectives:

I. To fathom the significance of rapid transit accessibility as a means to improve the life quality index from the prism of visually impaired persons.
II. To assess the travelling needs of visually impaired users in rapid transport system and present it as accessibility agenda.
III. Make a comprehensive sense of the inherent barriers faced by visually impaired commuters with the help of the reflection on their day to day embodied experiences of journey in Delhi Metro rail.
IV. Provide with requisite alternatives to overcome such challenges.

2. Legislative Inputs by Delhi Government: A Sorry State of Affairs

The late 1980s and 1990s marked a turning point in the history of policy legislation targeting specifically the rights, equal opportunities and full participation of disabled in all domains of society. During this phase, many policy legislations like Mental Health Act (1987), Rehabilitation Council of India Act (1992), and most importantly Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) (PWD) Act, 1995 were enforced. The PWD act requires that non-discrimination in built environment and transportation is secured from section 44-46. Section 73 (1) of the landmark PWD Act, 1995 empowered the appropriate governments i.e. central, state and local authorities, to implement its provisions by issuing Persons with Disabilities (PWD) rules. To this end, the centre had very soon notified the PWD rules in 1996. But, it took several years for the states even to reflect the obligation of this national law in their respective rules and regulations. In exercise of the powers bestowed to carry out provisions of the act, the state government drafted and notified Delhi PWD (equal opportunity, protection of rights and full participation) rules, six years later in 2001.

Additionally, section 18 (2, B) of the said act stipulates that the state coordination committee should develop a state policy to address issues and concerns confronting persons with disabilities (PwDs).

More than 20 years have gone by since its enactment, yet even today, barring Delhi PWD rules, there is hardly any comprehensive state policy on disability in the national capital territory. The Comptroller and Auditor General (CAG) audit report (2014) of the Delhi Department of Social Welfare in paragraphs 2.3.2.1 & 2.3.2.2, has highlighted that “department did not conduct any independent door-to-door survey to create a comprehensive database of disabled residing in Delhi. It did not develop the state disability policy to address the issues of PwD”. Ironically, rather, the “department was completely dependent on census statistics, which was expected only once in every 10 years” (CAG, Performance Audit Report, 2015, p. 39 & 41).

The Rights of Persons with Disabilities (RPWD) Act, 2016 proved to be a legislation which surely changed the contour of disability rights in India. As declared under section 102 (1) of the RPWD Act, the foregoing PWD act, 1995 stands repealed with the new legislation entering into force. Section 101 (1) of the concerned

act has conferred the responsibility upon state governments to make respective rules and regulations as a means of enforcing provisions laid down under the said law within six months. Despite notification of the rules by the centre, the same could not be introduced in Delhi with given timeframe. Actually, Delhi does not fall under the "category of state as mentioned in the rules and the government has to approach the ministry of home affairs which will then authorise the Lieutenant Governor to discharge the functions of state government" (The Times of India, 16th September 2017). In fact, the term 'state government' has not been defined in the RPWD Act 2016 either. The implementation of 'Delhi RPWD rules' had been delayed for about two years and finally notified on 28th December 2018 by the social welfare department, government of NCT of Delhi.

The central theme in chapter VII of Delhi Rights of Persons with Disability Rules, 2018 (Section 20) is accessibility and enumerates provisions for ensuring disabled-friendly environment. According to section 20 (1), every establishment shall abide by the accessibility standards relating to physical environment, transport and Information and Communication Technology (ICT), as a point of reference which includes: (I) Standard for public buildings as specified in the Harmonised Guidelines and Space Standards for Barrier Free Built Environment for Persons with Disabilities and Elderly Persons as issued by the Ministry of Urban Development, Government of India, in March, 2016. (II) Standard for Bus Body Code for transportation system as notified by the Government of India, Ministry of Road Transport and Highways, dated the 20th September, 2016. (III) Agreed norms and set protocols on Information and Communication Technology. Provisions of the minimum standards of accessibility for the Delhi Metro are based on pwd, 1995 and rpwd act 2016 and its standard requirements or guidelines.

The Delhi Government has also presented a set of building regulations that aim to put an end to the construction of inaccessible built environments and transportation systems. The Indian Roads Congress has published codes and guidelines, as has the Delhi Development Authority through its Unified Traffic and Transportation Infrastructure Planning and Engineering Centre (UTTIPEC). The UTTIPEC Street Design Guidelines (Unified Traffic and Transportation Infrastructure

Planning and Engineering Centre, 2010) are applicable to Delhi and the National Capital Region. These mandate that all civic agencies comply with street design standards to make mobility safe, dignified and comfortable for all pedestrians and public transport users.

3. Delhi, Rapid Transportation Services and Accessibility

Mobility constraints are a major issue to disability-inclusive progress, as they aggravate the social and personal isolation of persons with disabilities. A disabled-friendly public transport (bus or metro train), has the potential to improve the extent of mobility of disabled commuters, be it students or employees, by bridging distance from their point of residence to the destination venue. It could either be lecture-room of a college/ institute or working-place in an office. Free mobility in travelling is often restricted because of heavy traffic congestion and barrier-ridden transport. To put it precisely, "Transportation plays a pivotal role in providing access to opportunities supportive of independent living and full participation in society" (Jansuwan, Christensen & chen, May 2013, p. 104). An accessible means of public transport can go long way in changing the life progressively by building up better connectivity of disabled employees with their work places and educational institutions. The vice versa situation may result in a regressive change that would divorce differently abled from the realm of higher academic learning and avenues of employment. This might push them into further state of poverty.

The Mass Transit System (MTS) tends to lay foundation for easy journey and timely approaching of students and employees at the institutions and offices. Looking from a different perspective, troublesome and unsatisfactory transport experience might make them alienated and they are likely to be more irregular and least interested in attending classes or discharging work responsibilities.

The public transport services in Delhi are currently provided by state "Government's Special Purpose Vehicles called Delhi Integrated Multimodal Public Transit System (DIMPTS), Delhi Transport Corporation (DTC) and the Delhi Metro Rail Corporation (DMRC)" (Ratna, 2011, p. 3). Delhi metro train is one of the most disabled friendly public transport systems in India and almost all stations have ramps from the entrance to enable wheelchair users directly roll up to the lifts. The DMRC is concerned agency to provide connectivity of rail services throughout the city and Delhi National Capital Region (NCR). The Delhi Metro system consists of about 389 Km, spread across 285 stations (DMRC Weblink, Accessed December 12, 2019).

This train network has a good connectivity with several interchanges, primarily at Kashmiri Gate, Rajeev Chowk, Inderlok, and Yamuna Bank. In addition, "Metro feeder buses are operational in Delhi in order to increase ridership of Delhi Metro and facilitate the commuters living in remote areas" (Ratna, 2011, pp 4-5). The daily ridership of Delhi metro reached 2.2 million people in August, 2012 and by 2021, it has set the aim to comprehensively serve the entire Delhi and NCR region. Majority of this segment of public transit users belong to lower and middle group. It is beyond their economic capacity to use private transport; three wheeler auto rickshaws taxi or purchase their own vehicle (Agarwal, Madan & Malhotra, 2012). The research illustrates that 82 % of commuters have shifted from public modes of other transport; charter bus , RTVs, minibus etc to metro. The remaining 18 % shifted from private vehicle owners, which includes two-wheelers (scooters, motorcycles) and cars, rickshaw (Bhandari, Et. Al., 2009).

Despite being the role model and trend-setter for accessible city environment benefiting disabled users in general, the infrastructure of metro rail is embedded with several gaps that are to be filled for seamless journey, free and safe mobility and timely approachability of particularly, the visually impaired travellers to point of destination. The sight disabled commuters still confront many covert challenges that remain unnoticed by authorities. During field survey, many of the interviewees openly admitted about some issues which constitute their embodied experience, while travelling daily through metro rail. These barriers shall be thoroughly examined in due course.

Almost all the visually challenged passengers in metro train are discontent with the use of metro-card, since the entry/exit

machine is sometimes difficult to operate or it's tough even to trace its position. Moreover, the balance checking device of card displays the data only in visualised format. The visually impaired interviewees openly admitted that knowing the current balance of smart card is still an accessibility barrier and they have to rely on metro staff or other co-passengers to check its balance. This is because of the lack of audio signals installed within balance checking machine. In this way, they are denied of the equal opportunity to use metro card independently at par with sighted fellows and 'put in place a form of what is called the Infrastructural Apartheid' (Prof. Sati, 2018, p. 321).

Most of the respondents with visual disability failed to figure out as to where is placed the handicapped seat on their own in over-crowded coaches? Interestingly, the handicapped (Divyangjan) seat coincides with senior citizen seat and therefore, in many cases, even if they find one, it is very difficult to get accommodated. They remain standing throughout journey at times, since an old aged person might be already sitting there. That is why, during survey, majority of disabled respondents in general are in favour of providing separate seats for them like it does for women users (separate seat/ coach) rather than sharing with senior citizens in metro.

Delhi metro-train also makes provision for an escort who could support visually impaired passenger to reach platform quickly and board on desired train route without any hurdle. But this facility occasionally happens to be a time constraint as the passenger has to wait for assistance causing unnecessary delay. Escort is not always available with immediate effect for metro users with blindness or low-vision and at times staff asks for filling up route detail of passenger before allotting the attendant which is very time-consuming exercise. The narrative of one of the respondent will substantiate this trend. One of the respondents working in employment State Insurance Corporation, further added that "it is indeed a very time-consuming phenomena to wait for even half an hour for seeking an escort as there is lack of any special team available for this requirement at once" (Nitin Kumar Naiyar, Delhi Survey, interviewed 12.06.2018).

Despite the availability of ramps, escalators, lifts and services of wheelchairs, it is still observed that the infrastructure does not benefit passengers with locomotor disability owing to the non-functionality of such facilities. The qualitative narratives of respondents will illustrate this above finding. During interaction, one of the employees with locomotor disability has pointed to some infrastructural barriers in Delhi metro and stated that "at times, lifts, escalators etc. at Seelampur station, east Delhi become dysfunctional without any maintenance work" (Rajat Joshi, Delhi Field Survey, interviewed 16.05.2017).
There is facility of audio output regarding the current station as well as arrival of next station to benefit sightless travellers. Nevertheless, this accessibility feature turns into an impediment and gets overshadowed by too much of public noise during peak-hours of the journey. Barring this, the audio announcement system in some instances is found to be either low in volume or even defunct due to technical glitch. But this is a rare phenomenon and takes place very seldom.

It goes without saying that the visually challenged commuters are short of one sensory attribute of seeing and as a result, often make use of the rest of senses like listening to audio signals while travelling. Although, visually impaired persons are good enough to make use of prevailing station infrastructure, but due to sensory defect, it becomes an inevitable challenge for them to trace the location of existing infrastructure such as stares/ escalators, entry/ exit-points, spotting the place of lift and ramps/ tactile path. To say the least, for a visually impaired traveller, lack of information about the presence of a built structure at metro-station is more of an issue rather than using the infrastructural facilities. The sightless users run the risk of falling down from stares/ escalators when moving alone at station.

Such incidents generate a sense of inhibition at the back of their mind which further constrains prospects of free and safe mobility. Highlighting the safety issue, one of the sightless respondents has shared with me about an incidence in these words: "I met with an accident and fell down at the platform while deboarding from metro due to the gap created between platform and train coach over rail track (Sweety Bhalla, personal conversation, dated 10.07.2017). Notably, in

overcrowded stations, managing the flow of passengers becomes a serious issue which causes inconvenience to Persons with disabilities (PWDs) at the time of entry and exit due to pushing and poking during peak-hours.

It was reported that the tactile path built up for free and easy mobility of sight disabled travellers frequently gets obstructed because of accessibility-inappropriate behaviour of the other nondisabled passengers. They tend to either walk on the tactile path or keep and drag their luggage on it, which leads to unnecessary trouble while walking. This could also cause injury to sightless persons after colliding in event of ignorance about existence of such

publically-imposed obstacles. The facilities of ramps, tactile path, etc are perceived as nothing more than an elevated architectural construction which does not hold any utility for common masses. However, sighted people do pose impediments unintentionally out of unawareness in most cases, but do it deliberately only in exceptional cases.

Generally speaking, a large chunk of Delhi population travelling by metro train belongs to middle/lower income group which also includes persons with disabilities. The report of the World Bank (2011) establishes a correlation of disability with poverty and puts forth the finding that disability is both the result and cause of poverty. On one hand, disabled is more likely to be poor on account of limited educational and job opportunities and social stereotypes'. On the other hand, a person becomes disabled owing to mal-nourishment and scarce resources. This elucidates the fact that most of metro commuters with disability are supposed to be economically disadvantaged and financial barriers prevent them from travelling due to high degree of fare. In this context, many of the respondents expressed their demand for charging the fare of metro for differently abled

persons at concessional rate so that more and more commuters could take its ride.

4. Conclusion and the Way Forward

Inspite of pro-accessibility standards, the sight disabled do not get benefited completely from rapid transport system and certain gaps inherent in the existing metro rail infrastructure still remain unfilled. This paper maps out the barriers which are not very apparent on surface, but rooted deeply into the metro-train network. These constitutes an integral part of daily routine travelling experiences that a sight disabled person undergo. The constraints may be those which are perceptible at the station/platform during the time of checkin or checkout and others are witnessed inside the running train. While some of them are embedded in metro infrastructure, others are enforced by public behaviour.

The study of Delhi metro as a model of hassle-free transit system for visually disabled passengers explores the paradigm of relative accessibility which articulates the grave concerns of endangering safety, inconvenient travelling, the role of access-inappropriate behaviour and independent mobility. As the time progresses, some access points become ineffective and gradually turn into barriers due to lack of maintenance mechanism and public indifference in metro ride. Primarily, the constraints are often caused by infrastructural inaccessibility and dysfunctionality, insensitivity in public behaviour and other discrepancies. Public insensitivity is usually reflected on noisy behaviour within train and the acts of blocking the tactile path outside from platform down to the exit point. However, this is not to deny the special instances of public assistance meant for persons with disabilities on empathetic ground.

It is baffling to remain trapped in the state of paradox. While on one hand metro authorities are designing accessibility standards and to give shape to disabled-hospitable infrastructure for independent mobility of sightless. Whereas, at the same time, it augments their dependency on an escort and keep them awaited for its services, on the other. This also unveils Delhi metro authority's fragile claims of making fully accessible metro stations (disabled friendly), especially for the sight disabled ones. Barriers faced in daily commuting by the sightless seem to be more subjective, varying from person to person rather than being a fixed/permanent reality. Yet, from

the standpoint of a person using white cane (sight disabled), the inaccessible traits entrenched within the infrastructural network and landscape of metro-train at large, occasionally produce 'bariered and bounded spaces' (Imrie, 2001).

In view of these challenges encountered by rapid transit users and from the vantage point of gaps intrinsic in infrastructure developed by service-provider, many reforms are to be proposed for making metro journey more blind –friendly.

- There should be separate comprehensive state disability policy in place in order to give special attention to local mobility problems of disabled Delhiites.
- Separate seats other than senior citizen seats ought to be allotted and clearly identified for better accommodation of differently abled passengers inclusive of the visually impaired.
- Audio description technology is to be introduced in balance checking devices in order to empower sightless persons detect the card's current balance independently.
- Since common people hardly have any understanding of special access needs of disabled transport users, awareness raising programmes should be promoted to sensitized people about the know-how of accessibility infrastructure introduced by metro authorities (DMRC). It is an

urgent need of the hour to develop 'access-appropriate behaviour' among nondisabled crowd.

- Special team of escort staff is supposed to be appointed exclusively to discharge the duty of attendant and help passengers with blindness or low vision reach the platform and board on a train of specific route with convenience.
- Beeping devices could be arranged at entry/exit points or important locations to make sure that sightless people are able to move towards right direction and access lifts, escalators or other infrastructures with ease.
- Repair-work of architectural along with mechanical infrastructure should be done at regular interval so that malfunctionalities could be averted. There should be an exigency realised to have long-term sustainable accessibility by providing impetus to maintenance mechanism of metro infrastructure.
- Some more safety measures must be adopted for persons with disabilities, particularly for visually impaired travellers who have difficulty in sensing the risky spots.

- Metro fare should be charged at concessional rate so that more and more disabled commuters could exercise their equal right to travel.

In a nutshell, Delhi metro train representing urban rapid transit system has set the tone for an inclusive city without a doubt. It is economical in terms of saving time, provides comfortable journey with less fatigue and passengers reach the destination without delay. Here, it is of at most significance that everyone has free and open access/reach to educational, places of employment, health services and other public spaces. This implies that even the under-privileged sections like persons with disabilities should have hassle-free travel time. But Within disabled persons the transport needs of persons with blindness and low vision are under-met. Thus, the vision and mission of making Delhi metro train more disabled-friendly could only be realized provided all travelling barriers, encompassing the embodiment of even everyday experiential obstacles vis-a-vis the sightless are fairly addressed and a seamless journey is ensured. In such a state of affairs, sight-disabled could commute in a dignified manner, with safety, convenience, independence, and would have free/ equitable mobility at par with the rest.

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