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Editorial correspondence
Laboratory of Land Use Mobility and Environment
DICEA - Department of Civil, Architectural and Environmental Engineering
University of Naples "Federico II"
Piazzale Tecchio, 80
80125 Naples
web: www.tema.unina.it
e-mail: redazione.tema@unina.it

The cover image shows the Irpinia hills at sunset, highlighting the enhancement of two renewable energy sources: sun and wind.
The photo was taken by Giuseppe Mazzeo in August 2022, in S. Andrea di Conza, Avellino, Italy.

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Travel mode choice and its responsiveness to the needs of commuters with disability in the Accra Metropolitan Assembly

Odame Prince Kwame

Department of Geography Education
University of Education, Winneba, Ghana
pkwameodame@uew.edu.gh
https://orcid.org/0000-0002-4118-1042

Abstract

The need for out-of-door trips is informed by the fact that many life-enhancing opportunities are found outside one's home. Here, access to public transport becomes critical in enjoying facilities like schools and hospitals due to the low ownership of private cars among the low and middle-income bracket. Unfortunately, the conditions of the physical environment (including transport services) do not reflect the needs of minority travellers, making way to ascertain the responsiveness of public transport services to Ghana's disability population. This study engaged 50 PWDs' from the Accra Metropolitan Assembly (AMA) and adopted a semi-structured interview guide in eliciting PWDs' experience in using public transport in Accra. Beyond this, an auditing instrument was also engaged to ascertain the current conditions of public transport buses using the Ghana Disability Act as the basis for measurement. The study found that none of the buses examined met the conditions of Ghana's Disability Act, leaving PWDs to rely on transport operators for basic services. This situation did not only project transport operators' poor knowledge of the needs of the disability population but also reduced PWDs' travel options. The study recommends rigorous enforcement of Ghana's Disability Act, beginning with an educational outreach program for transport operators.

Keywords

Public transport; Disability; Qualitative; Accra; Trotro.

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1. Introduction

The need for out-of-door trips is informed by the fact that many life-enhancing opportunities like schools, nightclubs and hospitals are found outside one's home (Brussel et al., 2019). This situation highlights the importance of transport services in connecting people to opportunities and demonstrates how the absence or poor delivery of transport services may hinder life's progress (Delatte et al., 2018; Kett et al., 2020). Regardless of the purposes that inform one's decision to undertake an out-of-door trip, not everyone in the general population enjoys the same ease when engaging transport services. A common phrase for people who encounter such challenges is transport disadvantaged (Hernandez & Titheridge, 2016).

In a cross-country study to identify the composition of the transport disadvantaged group while using an online Delphi survey, 33 transport expects unanimously identified persons with disability (PWD) as the most represented (Yigitcanlar et al., 2019). This is because PWDs' challenges in using transport services were considered permanent when compared to other groups like pregnant women, children and the aged. Also, PWDs constitute about 15% of the globe's population making them the world's largest minority group (Ipingbemi, 2015; World Health Organization, 2011). By this proportion, attention to the travel needs of PWDs' may go a long way to address the needs of other transport disadvantaged given observed similarities between the disability community and other minority groups.

Having established the need for transport services, the road transport sector dominates the movement of the transport disadvantaged group, particularly in developing countries given their lower fares, extensive coverage and flexibility in schedules (Agyemang et al., 2020; Yobo, 2013). Precisely, the road transport sector is estimated to be responsible for the movements of about 96% of passengers and freights in Ghana (Atubiga, 2016). Aside from the state that exclusively provides the road infrastructure, the provision of vehicular services is heavily dominated by the Ghana Private Road Transport Union (GPRTU) which controls about 80% of all human and freight movement in Ghana (Ojo et al., 2014). For PWDs, the potential of public transport services to create an inclusive and participatory environment accounts for various calls to address issues relating to the use of boarding facilities in Stockholm (Stjernborg, 2019), modification of the physical environment in Turkey (Meshur, 2016) and use of assistive aids in Chile (Peña Cepeda et al., 2018).

While the above examples depict activities in the Global South, Frye (2013) indicates that developing countries fall behind in providing barrier-free transport services for commuters with disability. Key reasons include society's poor appreciation of the travel needs of persons with disabilities, which results in the pursuit of transport development schemes that reflect the general population's needs (Ferreira et al., 2012). This situation raises concerns about the need to appreciate the heterogeneous characteristics of the travel population, understand each travel population's experiences, and develop responsive approaches to address all gaps. Doing this will project the disability community as valuable members of society and also attain Goal 11 of the Sustainable Development Goals (SDG), which seeks to provide access to safe, accessible and sustainable transport systems while prioritising the needs of vulnerable commuters like those with disability (Niglio & Comitale, 2015)

Unfortunately, academic attention to PWDs' use of the physical environment (including public transport services) in Ghana has primarily centred on PWDs' use of other facets of the built environment. These include the focus on the PWD's use of educational facilities (Tudzi et al., 2017), shopping centres (Danso & Tudzi, 2016), hotels (Adam, 2019) and other monumental buildings in Ghana (Danso et al., 2011). Despite the relevance of these studies in exploring the living conditions of Ghana's disability community, the paucity of literature on the extent of ease in using transport services does not offer a holistic picture of PWDs' daily living situation, given the role of public transport services in connecting PWDs' to the facilities mentioned above. Against this backdrop, this study was undertaken to explore the responsiveness of public transport services to the needs of persons with disability in the Accra Metropolitan Assembly.

2. Literature review

2.1. Disability in Ghana

Disability in Ghana is a complex socio-cultural phenomenon that differs in various settings and contexts (Baffoe 2013). With varied definitions and perspectives, the Ghana Statistical Service (2014) defines disability using three main approaches namely; impairment, activity limitation and restriction in one's ability to participate in any activity. By this definition, Ghana is said to align with the tenets of the Social Model of disability which considers disability as the outcome of one's interaction with their society and not necessarily as an attribute of oneself (Ghana Statistical Service, 2014; Meshur, 2016).

At present, Ghana's disability population ranges from all persons who have lost body parts to those who have lost functional ability of any part of their body due to health complications like mental disorders, old age, multiple sclerosis, and congenital disabilities. By this, 3% of Ghana's population is estimated to be in the disability bracket but Slikker (2009) and Voice of People with Disability Ghana (2014) have estimated this number to be higher given some observed challenges in the enumeration efforts by the Ghana Statistical services. Gregorius (2014) also noted that poor training given to census enumerators and the stigma attached to having a disability also accounted for the low output in the disability population during the 2010 population and housing census. To this effect, Ghana's disability population is estimated to be between 7 and 10 percent (Voice of People with Disability Ghana 2014).

With no universally accepted approach to measure the prevalence of disability, the commonest approach adopted by most statistical organisations across the globe is the use of impairment types. In the case of Ghana, popular impairment types include visual, emotional, physical, hearing, speech, and intellectual (Ghana Statistical Service 2014). Comprising about 40% of Ghana's disability population, the visually impaired are known to be the largest disability group in Ghana (Ghana Statistical Service, 2014). Visual impairment, in this case, relates to people whose vision is 20/200 or worse. Specifically, this refers to people who fall within the category of low vision to those who cannot see. 20/200 means that a person should at least see an object at 20 feet just as a 'normally' sighted person would see the same object at 200 feet. By this standard, if an individual fails to see a said object at 20 feet, that person is technically regarded as visually impaired.

Having taken the lead, persons with physical impairment constitute the most visible form of disability and represent about 25.4% of Ghana's disability population, making them the second-largest disability group (Ghana Statistical Service, 2014). This group includes persons who have lost an arm or limb or even endured a poor functioning of these organs even if such organs are present. This group primarily comprises amputees, wheelchair/skate/crutches users, and persons using various assistive technology. Finally, persons considered to have a hearing impairment are those who require about five to ten times the loudness of sound to hear what a 'normal' person would need. Specifically, the hearing impaired requires at least 90 decibels of sound to interact with others and constitute about 15% of Ghana's disability population (Ghana Statistical Service, 2014).

Following the United Nations Convention on the Rights of Person with Disability (CRPD), various national disability groups and civil service organisations in Ghana pushed for the enactment of Ghana's Disability Act since this was crucial in removing all barriers to PWDs' life in Ghana (Adam, 2019). Principal among such groups was the Ghana Federation of Disability Organisations (GFD) which acts as the umbrella unit for all disability groups and also serves as a reference point to other individuals who wish to engage any disability community. The various units of the GFD include the Ghana Society of the Physically Disabled (GSPD), the Ghana National Association of the Deaf (GNAD), the Ghana Association of Persons with Albinism (GAPA) and the Ghana Blind Union (GBU). It must be noted that membership in these groups is voluntary and does not come with any special privileges.

2.2. Public Transport Services in Ghana

Regardless of the ownership, public transport is primarily defined as a shared passenger travel mode available to the public under specific terms (Buehler & Pucher, 2012). This travel mode could be a taxi, commuter bus, train or ferry and may be available to the public at a fee as determined by transport operators or the state. From the definition, two fundamental concepts that differentiate public transport from privately-owned transport modes are 'access' and 'sharing' which portray public transport as a "public good" rather than a "private good".

While the ownership of public transport differs across societies, arguments in support of a state-sponsored public transport service range from the need to prevent market failures to consideration of mobility as a fundamental right that ought to be protected at all cost. It is in this light that numerous state-sponsored public transport services in Ghana like the Omini Bus Authority (OSA), City Express Services (CES) and State Transport Company (STC) have existed from 1909 to date (Agyemang, 2015). To Hotor (2016), a significant reduction in the market share of these state-sponsored public transport services can be attributed to rising financial loss, mismanagement, political unrest/overthrow of governments, and the growing popularity of privately owned transport services loosely referenced as 'trotro'.

The word 'Trotro is a local Ghanaian word that translates to "three pence" and this was the fee charged for trips undertaken in mummy trucks in the late 1950s to 60s (Abane, 2011). At present, the word 'trotro' generally refers to vehicles engaged in commercial transport, including but not limited to Toyota Hiace minibuses, Nissan Urvans, and the Mercedes-Benz 207 series buses (Agyemang, 2015). By association, trotro operators have metamorphosed into a popular union that lies under the banner of the Ghana Private Road Transport Union (GPRTU). This supposed popularity of the GPRTU is witnessed in the ready availability of its services, wide scope of coverage and cheaper fares charged (Agyemang, 2015). Unlike the Metro Mass Transit (MMT) and State Transport Company Limited (STC), the use of vehicles with low carrying capacity (12 to 15 passengers) by trotro operators usually eliminates long queues at various terminals making it easier for commuters to reduce travel time. Indeed, the cumulative effect of these factors has resulted in making GPRTU a dominant market player as they control about 80% of all trips executed in Ghana (Abane, 2011).

Despite this remarkable accomplishment of the GPRTU in filling the gap in service delivery, non-availability of services at peak times, mechanical breakdowns and delays of services ranks among the factors that have witnessed a growing dissatisfaction with trotro services among them low and middle-income earners (Hotor, 2016). Additionally, low entry requirements into the trotro space have also been credited with the use vehicles in poor conditions that have subsequently increased the need for more reliable and adaptive travel options (Agyemang, 2013).

With the hope of offering responsive public transport services, the Metro Mass Transit (MMT) services was established in 2003 by the government of Ghana. As a welfare incentive to vulnerable populations (persons with disability, aged, etc), the MMT charges 20% below the market rate and excludes uniformed school children from paying fares (Birago et al., 2017). For the disability community, the MMT is the first urban transport service to offer disability-friendly buses as seen in the acquisition of buses with priority seats, ramps, assistive communication technology and contrasting colours (Yobo, 2013). Unfortunately, the MMTs' decision to charge below the current market rate has also heightened its challenges in maintaining their vehicular fleets and other overhead costs of operation (Yobo, 2013). This situation has shifted its focus from delivering intra-city services (that benefited vulnerable populations) to inter-city services since it was easier to stay in business with this business direction.

3. Method and Setting

The Accra Metropolitan Assembly (AMA) was selected for the study. Aside from harbouring Ghana's national capital city of Accra, the AMA also has the highest urban disability population and vehicular fleets both in terms

of public and privately operated vehicles (Ghana Statistical Service, 2014). Participants for the study comprised the physically and visually impaired since both groups constitute about 65% of Ghana's disability space, are the most visible or clearly observable form of disability, and also reflect the mobility needs of other disability groups (Odame, 2022; Reynolds, 2010; Yigitcanlar et al., 2019). Drawing on the findings of the National Household Survey (Ghana Statistical Service, 2013), trips to school or work constitutes frequent trips that require public transport. By this, selection criteria also included PWDs who work or go to school and have used public transport (trotro) at least once a month in 2020. In all, 50 PWDs comprising 22 physically and 28 visually impaired were engaged through the Ghana Federation of Disability Association (umbrella union of all disability Associations in Ghana) as well as the Ghana Society for the Socially Disadvantage (NGO). Overall, participant's age ranged from 18 to 64 years with males and females comprising 67 and 33 percent respectively.

With an emphasis on participants' lived experience in trotro, the study adopted a qualitative research design since it affords the researchers to to understand complex behaviors, needs and cultures (Rabino, 2014). Here, a semi-structured interview was employed to offer flexibility in the data collection process that extended to probing unsatisfied responses. The instrument used was categorised into three sections; the first focused on basic demographics, intended to facilitate a smooth transition to other sections. The second and third sections covered PWDs' account of physical and intangible support services enjoyed at various terminals in Accra. To validate PWDs' claim of some physical support services, an auditing scheme was adopted to examine the physical conditions of buses at the selected transport terminals. Sections 23 to 30 of Ghana's Disability were adopted to contextualise this instrument since it clearly outlines key disability-friendly facilities required by transport operators. Variables of interest at this level included the presence, conditions and dimensions of selected facilities like a ramp, dedicated seats or space and audio or visual gadgets. Pre-testing of the interview guide was executed between 11th to 13th February 2020 where visually and physically impaired students at the University of Cape Coast were engaged as research participants. The outcome of the interview sessions gave grounds for the researcher to appreciate the duration of the interviews and help develop strategies to promote shorter but effective interview sessions. The auditing scheme was also tested using the campus shuttle as the test subjects within the same period.

The Institutional Review Board of the University of Cape Coast approved the study's final research instruments prior to data collection. Further approval was obtained from the Ghana Blind Union (GBU) and Ghana Association for the Physically Challenged (GAPC) in reaching prospective members who met the selection criteria for this study. Upon confirmation of their willingness to join the study, participants were given different schedules to meet at the Accra Rehabilitation Centre for interviews and interactions. The interview sessions (face-to-face interactions) was expected to last from February to April of 2020 but the outbreak of COVID-19 and the designation of Accra as a hotspot only restricted such face-to-face interaction to 12th March. The rest of the interview sessions were held via phone calls. Interviews were conducted by the author and lasted between 35 to 80 minutes. At all times, the researcher sought permission before recording each interview session. The auditing scheme on the other hand was executed at four popular and busy transport terminals within the Accra Metropolitan Assembly. These include the Kaneshie lorry station, Kwame Nkrumah Circle, Tema Station and 37 Military Station. At each of these stations, 15 buses were audited to ascertain their compliance with the dictates of sections 23 to 30 of Ghana's disability Act.

Audiotapes from interviews were transcribed using Otranscribe, a free online transcription tool. The transcripts were later exported and edited with MaxQDA for coding. The qualitative data analysis entailed thematic analysis that primarily focused on identifying and reporting common ideas like boarding platform, priority seat and access to information. This was done after a thorough reading of transcripts and subsequent development of a coding framework. The analysis was iterative as the study sought to illustrate a wide range of key views and concerns relating to PWD's travel issues. At all times, anonymous quotations were employed to highlight the perspectives of PWDs and also support the interpretation of themes. Regarding the auditing scheme,

pictures and annotations from the field augmented the outcome of the interviews, which offered a detailed description of the facilities found in vehicles and transport terminals.

4. Results and discussions

4.1 Mode Choice

Among various public transport options, participants were vocal about the use of mini-vans which are loosely referred to as trotro. As seen in the narratives, the relatively cheaper cost of engaging trotro services was found to be the prime reason that attracted them to use this service and this revelation does not come as a surprise since Ghana's disability population has been identified to be well represented in the poverty bracket (Ghana Statistical Service, 2014).

> *"…If I am going by trotro, economical reason will be the factor..."* [26-year-old male *visually* impaired National Service Person].

> *'It is really fun to be in a trotro. You get to hear things that can make you laugh since there may be arguments, misunderstandings and other interesting events. In such a case, being in a trotro really makes your day"* [32-year-old visually impaired female administrator]

> *'Trotro comes with all sort of characters and it is also a bit safer because you are many. But in a taxi, the driver can decide to team up with others to rob you."*[43-year-old male visually impaired Public Servant]

In perusing the data, the choice for trotro was seen to be popular among the unemployed participants and those with little or no formal education. When asked to rate their weekly frequency of engaging trotro services, participants cited 80% to 90% of all trips except in cases where they travelled in groups for religious/other functions or when PWD's were offered lifts. On the other hand, the economically active participants rated their weekly frequency of using trotro services between 70% to 80%. This usually excludes weekends and some occasions when trotro services were either unavailable or when access became a challenge. In such situations, participants resort to other transport options like taxis, Uber or walking (if possible).

Another variable that informed participants' choice for trotro service was the sense of community and social engagement that comes with this travel mode. To participants, the trotro environment offered an opportunity to witness the daily living situations of the low and middle-income class which would otherwise be eluded in other travel modes like taxi or e-hailing services like Uber. Just as Amoako-Sakyi (2017) cited in her study on school children's walkability in Cape Coast, the communal atmosphere in group trip fuels interactions since trip makers are free to pick on issues that meet their interests. For participants, topics discussed in trotro include complaints about a driver or conductor's attitude, sermons from on-board preachers as well as arguments on politics, sports and other social issues.

The final variable that informed participants' mode choice was the perceived sense of personal safety or security that comes with trotro services. Participants' safety concerns emanated from reported cases of robbery and/or ritual killings of some factions of the disability community namely persons with albinism and mentally

retarded. As exclaimed by Bayat (2015), these killings are usually motivated by the belief in the potency of PWDs' body parts in the preparation of potions believed to bring good fortunes and wealth to people. Indeed, fewer incidences of kidnapping and ritual murder have been reported in the media space but participants still expressed their fear of being victims of such crimes despite no history of such cases.

4.2 Support Services Received at The Transport Terminal

Access to Information and Identifying the Right Bus

For most participants, the use of transport terminals as the first reference point for trips appeared to be an ideal thought since they perceived transport terminals to offer some level of security especially when it comes to tracing missing items or seeking redress from transport operators who misconduct themselves in their line of duty. While at a terminal, the location of the right vehicle to join, time of movement and changes in the fare system are critical to the visually impaired group though the physically challenged also benefit from such provision. When asked how participants identify the right vehicles to join, the following are some participants' responses:

> *"At Madina station, the arrangement of trotro's is based on their destination but you will hear the mate (conductors) calling out such places. Because the cars are not properly arranged, I always and ask for help to locate such cars especially when I travel alone…."* [35-year-old male visually impaired radio presenter]

> *"In most cases, you hear shouts from the conductors, which are usually an indication of the moving vehicle at the station. Sometimes, when I get to the station, I am quizzed by drivers and others. I think only 2 out of 5 drivers do such things."* [48-year-old male Unemployed Male Wheelchair user]

The remarks above highlight PWDs' dependence on transport operators as a way to find the right vehicles to join. Though Frye (2013) identifies knowledge from previous trips as a key tool in identifying a bus, this approach was deemed inadequate for visually impaired participants since the haphazard arrangement of vehicles makes it difficult to assign a dedicated loading bay (as seen in Fig.1) that would have offered an indication of the right bus to join. In the face of an absence of any information portal or assistive technology, the primary indicator in locating the right vehicle was the reliance on callouts from various conductors. Unfortunately, the study identified this approach as confusing for the visually impaired who travelled alone. This is because, the proximity of different conductors made it difficult for participants to hear and follow in the direction of the right vehicle.

The outcome of wheelchair users' attempts to seek directions was different since their quest to find the right vehicle was sometimes interpreted as an attempt to ask for alms or beg for money. The study found participants' remarks to confirm Munyi (2012) and Nyame & Hague (2013) revelation on how society's position in equating disability to burden culminates in poor services and treatment meted out to PWDs. It must be noted that most participants with higher education did not cite such ill-treatment and attributed this to their conscious effort to look and dress smartly at all times. This need to dress to look apart further confirmed

Sawadsri (2010) position on how biased social standard induces 'misfits' like PWDs to assume different personalities if they wish to be accepted.

Fig.1 Kaneshie Lorry Station (A) and Kwame Nkrumah Lorry Station (B)

On getting to the right vehicle, the vehicle's conditions also play a critical role in limiting PWDs' ability to join public transport. While Mitchell & Rickert (2010) recommends a minimum floor height of about 250 millimetres for PWDs', observed height among vehicles ranged from 320 to 520 Millimetres since Toyota Haice, Nissan Urvan, Hyundai Grace and the Mercedes Benz Sprinter 207 were the most commonly used buses among trotro drivers in Accra (see Fig.2).

Fig.2 Toyota Hiace (A) and Mercedes Benz 207 Sprinter (B)

In the face of high-floor vehicles, visually impaired participants did not consider this situation a challenge given their years of experience using such high-floor buses. This remark also confirms Odame et al.'s (2020) study on how visually impaired students in the University of Cape Coast relied on muscle memory and experience in using campus shuttles with high floor height. Though the visually impaired participants seemed to have no challenge with the height of the vehicles, the wheelchair users had a different story. When asked how they find their way into the vehicles, the following responses were made:

> "*I have one problem with the Benz buses. Yes, if I'm in a wheelchair and I want to join the bus, I have to get down and crawl on it. The height of the step leading into the car is too high for my wheelchair'* [42-year-old male wheelchair user, Teacher]

> "*Sometimes the height is too much. So, while climbing, you have to put in too much energy to join a bus especially the Mercedes Benz 207 buses."* [32-year-old physically impaired unemployed male].

For wheelchair users in particular, the absence of a ramp in joining public transport buses induced participants to resort to crude techniques like propelling or crawling from the ground into the buses. Though crawling was found to be a primary tool for users of the Mercedes Benz 207 Sprinter buses, concerns raised by participants centred on the tendency of soiling their dress with dirt since the first level of entry and the floor of most trotro buses were always dirty. In some cases, participants even revealed how they resorted to commonly shared taxis when they wore their best dresses or attended important occasions. Amid the high-floor buses and the absence of ramps, calls on transport owners to resort to simple tools like wooden ramps or pallets did not yield any positive feedback. Here, casual conversation with transport operators revealed their objection to this recommendation since they consider it an extra cost to their operations.

To reduce their stress in joining trotro services, participants cited some strategies adopted by trotro operators in facilitating their entry into these buses. Unfortunately, these strategies take the form of physically lifting participants into buses and though transport operators' intentions seem to be good, participants branded such efforts as embarrassing and dehumanising. To participants, the public display and unnecessary attention that accompanies such assistance creates a feeling of shyness and even perpetuates the negative stereotype of PWDs as incapable of undertaking simple activities like boarding buses. Such embarrassing moments have been identified by Nyaupane & Andereck, (2008) to demoralise self-confidence and even make it difficult for PWDs to enjoy public services.

During the interview, an elderly female wheelchair user who seemed to have gained considerable weight shared her frustrations on how the absence of ramps made her unattractive to transport operators due to her constant request for assistance in getting into or disembarking from trotro buses. In this regard, this participant had no option but to reduce her dependency on trotro since she was spared the embarrassment of being lifted while joining or disembarking from the trotro.

Priority Seats and Designated Space

In ensuring easy access, offering dedicated services like priority seats for the visually impaired or dedicated spots for wheelchair users is crucial. To ascertain the presence and utilisation of such facilities, participants were asked to identify where they sit when they join trotro buses and the following are some of the responses gathered:

> *"Anywhere! Where there is an available seat, I sit there. But it's good you don't sit at a place where they will ask you to adjust yourself anytime other passengers join or alight."* [52-year-old-visually impaired male craftsman].

> *"I sit in front, just by the driver but when the front seats are occupied, I just move to other seats. This could be at the back or any other seats in the car."* [38-year-old-female wheelchair user, Tailor]

The responses from participants indicate the clear absence of a prescribed seating area for both wheelchair users and the visually impaired though participants identified their preferred seating area. Preferred seating positions include the seat directly behind the driver and the ones adjacent the driver's seat, as seen in Fig.3. The choice of these seats was informed by the fact that, these preferred seats spared participants the trouble of intermittently alighting anytime other passengers decided to descend or join the bus.

Fig.3 Front seat (A) and the seat behind the driver (B)

In as much as participants expressed their desire to avoid the discomfort associated with other seats, the '*first come - first served'* approach (a situation where passengers who arrive first at the bus terminal occupy comfortable seats) at various terminals made it difficult to escape this reality. The only time participants were assured of getting their preferred seats was when they arrived early at the bus terminal. At one time, a participant narrated how this desire to get the front seat induced him to get to the terminal as early as 4:00 AM since such preferred seats may not be available during 6:00 AM peak time. While not in a hurry, other participants also indicated their decision to skip vehicles until they found a preferred seat of their choice. Other identified method of getting participants preferred seats was the reliance on the discretion or goodwill of transport operators but these were seldomly experienced except for participants who had long-standing relationships with specific transport operators.

In cases where transport operators allowed PWDs to utilise their preferred seats, competition from other passengers hindered PWDs from occupying such seats though this does not happen at all times. To participants, the relatively comfortable and ideal position of these seats also made it a target for other passengers who wished to escape the trouble of alighting intermittently for other passengers to join or alight. In fact, this absence of priority seats was found to contradict the dictates of Ghana's Disability Act which categorically enjoins transport operators to reserve two seats for PWDs at all times (Government of Ghana, 2006). These two seats were only permitted to be given to the general population if no PWD boarded the bus before leaving the terminal.

4.3 Wayfinding Aids on Public Transport

Ensuring independence in using transport facilities does not only lie with identifying the right vehicle but also extends to making travel decisions while a vehicle is en route. For PWDs, such independence may be exhibited by utilising wayfinding platforms or assistive technology that allow PWDs' to relay their travel decisions to transport operators. Though these issues were pertinent to all participants, wayfinding aids were more crucial to the visually impaired since other disability groups could easily identify their location. As a measure of the presence of wayfinding aids, the study enquired about how participants ascertain their location while journeying from one point to the other. The following are some of the responses:

> *"I just know where I have gotten to base on the call out from the conductors..."* [24-year-old visually impaired male, National Service Person]

> *"I've been on this road since 1992 and I am quite observant. So, if I sit in the car, I always make sure I observe the curves, the roughness of the road, the slope. Sometimes I count the speed rumps."* [39-year-old-male visually impaired local craftsman]

While focusing on the assertion of only the visually impaired, the leading tool employed in ascertaining participants' location was their reliance on callouts from conductors. This approach was not only new to Accra since Frye (2013) identified such a method in other African countries like Uganda, Tanzania and Papua New Guinea. To participants, the frequency of callouts was higher if the moving bus had many vacant seats since this was also a strategy to get prospective passengers to fill such vacant seats. On the other hand, callouts from conductors were seldomly heard if the moving vehicle was full though doing this would have aided strangers and other passengers who were not familiar with the route.

In as much the dependency on callouts appeared to be a regular routine in the operations of trotro, participants identified some potential risks associated with this approach. To some participants, forgetfulness on the part of conductors resulted in missing one's destinations even though advanced notices had been given to this effect. This finding is in tandem with Odame (2017) who attributed the forgetfulness of campus shuttles operators to missing one's destination at the University of Cape Coast. To ensure compliance with their travel needs, participants resort to issuing constant reminders since this reduces the tendency of forgetfulness on the part of the conductors.

Aside from participants' reliance on conductors, reliance on their lived experiences or local knowledge of the route also emerged as a valuable source of expertise in ascertaining one's location. Here, visually impaired participants cited known landmarks and personal intuition as key in ascertaining their location on familiar routes. Some of these landmarks include the presence or number of roundabouts, speed rumps, slope or roughness of road, as well as twists and turns along a route. Beyond the reference to physical structures, participants also revealed how they rely on the voices of vendors, unique stench and busy setting of places like the Kwame Nkrumah Circle as a measure to determine their location. In the face of its usefulness, Murty et al. (2020) and Kowialiewski & Majerus (2020) reveal how a disruption to one's attention may impair a person's ability to make on the spot decision, hence the need for assistive support services that complement human capabilities.

5. Conclusion

Public transport like 'trotro' increases the mobility options of vulnerable populations as it is cheaper and readily available than other transport services. Unfortunately, this transport service does not promote the creation of

an inclusive space since many of its features do not conform to the dictates of Ghana's Disability Act. This was evident in the absence of key features like priority seats, assistive devices and ramps on all buses audited for this study. To both the visually and physically impaired, this situation did not only amplify society's poor recognition of the needs of the disability community but also heightened their dependency on the general population when it comes to simple activities like locating or joining bus.

6. Policy Implication

The study calls for urgent measures to overhaul the entire public transport space (trotro), beginning with a rigours educational outreach program for transport operators. This will enlighten transport operators on the need to create an inclusive environment and given the contributory role of road accidents in causing disability. While this education program is underway, the Ministry of Transport, Ghana Private Road Transport Union and other agencies should put in measures to ensure total compliance with the dictates of the Ghana disability Act, which has existed for nearly 15 years. This could range from the issuance of an ultimatum for the moderation or acquisition of new buses as well as the prosecution of all operators who flout this directive.

Beyond this, establishing a dedicated operational guideline that outlines basic entry requirements for transport operators will be needed. This will empower the Drivers and Vehicles Licence Authority (DVLA) to include disability-specific parameters as key requirements for attaining a roadworthy certificate. Finally, the Government of Ghana can also support trotro operators to acquire modern and disability-friendly through soft loans and other concessions. Doing this will reduce the economic burden of acquiring new buses or modifying existing ones.

7. Limitations and areas for further research

The findings presented in this study should be interpreted with caution, given a few limitations. Being qualitative inclined, the study cannot be used to represent the views of all visually and physically impaired in the Accra Metropolitan Assembly and those who use trotro. Secondly, there is the probability of sampling bias due to how participants were engaged. The study heavily relied on the recommendations and references from leaders of the various disability groups which may indicate some biasness on their part. However, data collection and compliance with research ethics were upheld to the latter. This ensured that the results and discussion presented in this manuscript reflected participants' views and opinions. Finally, the outbreak of COVID-19 and the designation of Accra as a hotspot reduced in-person interaction with participants, which may have denied the study of valuable data relating to non-verbal responses and gestures.

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Image Sources

Fig.1: Author (2021);

Fig.2: Author (2021);

Fig.3: Author (2021).

Author's profile

Odame Kwame Prince

He is a transport geographer and lecturer at the Department of Geography Education at the University of Education, Winneba. His research interest focuses on transport and exclusion, non-motorised transportation modes, urban transport issues and disability research.