

UNIVERSITY OF GHANA

COLLEGE OF HUMANITIES



**ACCESSIBILITY AND USE OF PUBLIC TRANSPORT SERVICES BY PERSONS
WITH DISABILITIES (PWDS) IN GHANA**

BY

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DECLARATION

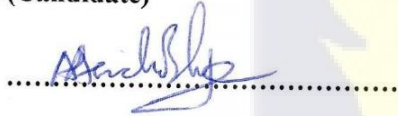
I, Dominic HOTOR, hereby declare that except for references to published works and materials related to the topic, which have been duly acknowledged and referenced, this dissertation is an original work written by me, under the supervision of Professors Alex Boakye Asiedu, Charlotte Wrigley-Asante and Ernest Agyemang. I wish to declare that this work has not been presented in part or in whole to any other degree awarding institution or University. All sources are referenced and cited in the Bibliography.



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ABSTRACT

Public transport is essential for providing affordable mobility options, particularly for persons with disabilities (PWDs). However, commitment and research into inclusive transport have not been prioritised in developing countries. In Ghana, PWDs experience various forms of discrimination and social exclusion in accessing public transportation, which limits the realisation of their education, health, and socio-economic potential. This study explored the accessibility and use of public transport services by PWDs in Ghana's Greater Accra and Ashanti regions, selected due to the significant concentration of PWDs and the representation of both urban and rural settings, respectively. It aimed to identify the transport options and motivations of PWDs, their coping strategies in using these services, the knowledge of mobility needs among public transport operators and users, and the role of stakeholders in providing accessible transport for PWDs. The Life Course Theory and the Critical Disability Theory were adopted to provide a theoretical framework and guide the study. The philosophical underpinning of the study was Critical Realism, under which a sequential exploratory mixed methods design was adopted. A total of 54 in-depth interviews were conducted, with 42 PWDs from both regions and 12 selected transport and disability stakeholders. Additionally, 400 questionnaire-based surveys were administered evenly to public transport operators and public transport users in the study regions. Observations were also made to capture contextual and behavioural data, supplemented by photographs to support the findings of the study. The study found various public transport services available to PWDs, including Okada, Pragma, traditional taxis, Trotro, high-occupancy buses, and ride-hailing taxis, with their availability and accessibility unevenly distributed across rural and urban areas, significantly influencing PWDs' mobility experiences. Factors influencing transport mode choice include disability type, trip purpose and cost, occupancy status of transport mode, and ergonomics. PWDs employ various coping strategies when using public transport services, including trip planning,

techniques for onboarding and disembarking, seeking assistance and support, utilising personal mobility aids, and choosing alternative transport modes based on their specific needs. Women with disabilities were found to receive greater support in coping strategies compared to men, reinforcing the gender-specific differences in their mobility experiences. The majority of public transport users, compared to operators, are relatively knowledgeable regarding the mobility needs of PWDs using public transport services, which influences their perception and behaviour towards PWDs. Socio-demographic factors such as age, education level, and marital status, rather than the sex and employment status of transport operators and users, influence the knowledge level of mobility needs for PWDs. Stakeholders from transport governance, disability governance, and transport service provision play pivotal roles in policy and regulation, although they face implementation challenges. Stakeholders also did not collaborate effectively and coordinate with relevant entities, hampering the provision of inclusive infrastructure and facilities to enhance the mobility needs of PWDs in Ghana. The study recommends heightened sensitisation, advocacy, infrastructure financing, and inclusive policy formulation with its requisite implementation strategies to bridge accessibility gaps and promote equity. Overall, this study underscores the need for improved public transport accessibility for PWDs in Ghana, advocating for targeted efforts in awareness, empowerment, and infrastructure investments to position Ghana as a global leader in inclusive transportation practices in line with SDG 11.2.



DEDICATION

This work is dedicated to my parents, Mr. Johannes Hotor and Mrs. Vinolia Hotor, as well as all parents and guardians who tirelessly strive to create a better life for their children and dependents, especially, those living with disabilities.



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LIST OF ABBREVIATIONS

AA-LRT	Addis Ababa's Light Rail Transit
ADP	African Disability Protocol
AMA	Accra Metropolitan Assembly
CDT	Critical Disability Theory
CES	City Express Services
CSO	Civil Society Organisations
DVLA	Driver Vehicle and Licensing Authority
ECH	Ethics Committee for Humanities
GBU	Ghana Blind Union
GES	Ghana Education Service
GFD	Ghana Federation of Disability Organisations
GNAD	Ghana National Association of the Deaf
GOA	Ghana Optometry Association
GPRTU	Ghana Private Road Transport Union
GRTCC	Ghana Road Transport Coordinating Council
GSMA	Ga South Municipal Assembly
GSPD	Ghana Society for the Physically Disabled
GSS	Ghana Statistical Service
ICF	International Classification of Functioning, Disability and Health

ID	Intellectual Disability
ISTC	Intercity State Transport Corporation
LCT	Life Course Theory
MMDA	Metropolitan Municipal and District Assemblies
MMTL	Metro Mass Transit Limited
MOT	Ministry of Transport
MTTD	Motor Traffic and Transport Department.
NCPD	National Council for Persons with Disability
NDA	Non-Disclosure Agreement
NRSA	National Road Safety Authority
NTP	National Transport Policy
OSA	Omnibus Service Authority
PoP	Publish or Perish
PPME	Policy Planning and Monitoring and Evaluation
PWD	Person With Disability
ROSAG	Road Safety Advocates Ghana
SDG	Sustainable Development Goal
STC	State Transport Corporation
STS	Special Transport Services
TMA	Tema Metropolitan Assembly

UN	United Nations
UNCRPD	United Nations Convention on the Rights of Persons with Disabilities
UPIAS	Union of Physically Impaired Against Segregation
WHO	World Health Organisation
WWD	Women With Disability



CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.0 Introduction

Transportation is an essential aspect of the human life cycle (Fountas et al., 2020; Rodrigue et al., 2020; Shaaban et al., 2021) as it enables people to commute while facilitating various engagements, most of which are highly dependent on the conveyance of people and goods (Cheng et al., 2023; Mead, 2021). The movement of multiple actors will then be an essential aspect of transportation as it can convey more significant numbers over the same physical space at a relatively lower cost (Al Otary et al., 2022; Lewis & Williams, 2019; Severen, 2023). In this regard, public transport is described as a mode of transport available and accessible to the general public, usually against some established payments (Ubbels et al., 2001). Public transport, thus, plays a significant role in providing affordable and basic mobility options for the poor, non-drivers, and persons with disabilities (Bezyak et al., 2020; Litman, 2015; Rodrigue et al., 2020).

Disability refers to any physical, cognitive, mental, sensory, emotional, or developmental impairment that restricts an individual's ability to participate normally in day-to-day activities (World Health Organization, 2011). Out of the world's population of 7.8 billion, 15% or a little over 1 billion people live with a disability (Ginis et al., 2021). Regarding the vulnerable groups, 46% of persons aged 60 years and above are also living with a disability, 1 in 10 children are living with a form of disability, and 1 in 5 women is likely to experience disability in their life cycle (United Nations, 2019). Also, one-fifth of the estimated global total, or between 110 million and 190 million people, experience significant disabilities (Kumar & Sinha, 2021).

These statistics concerning the nature of disability depict a delicate imagery of a world where much more attention must be accorded to issues of disability.

On the 13th day of December 2006, the United Nations adopted a Convention on the Rights of Persons with Disability (UNCRPD) and its Optional Protocol (A/RES/61/106) at its headquarters in New York, United States of America. This convention provides guidelines to address the needs of all persons with disabilities (PWDs) regardless of their economic, social, or geographical status (United Nations, 2007). The United Nation's 2030 Agenda for Sustainable Development and its 17 Goals aim to provide a robust framework to guide all countries toward achieving a disability-inclusive development, thus pledging to "Leave No One Behind." (United Nations, 2019). Consequently, as a build-up to the Sustainable Development Goals (SDGs), the New Urban Agenda was adopted at the United Nations Habitat III conference in Quito, Ecuador, in October 2016, which offered opportunities for countries to work towards universal access to city spaces and infrastructure for PWDs and older persons. The SDGs, similarly, target accessible transport systems and universal access to green and public spaces in its target 11.2 (Brussel et al., 2019; Fried et al., 2020; Pineda et al., 2017).

In this regard, there is a need to promote equal access to opportunities. This has become the social objective of many transport corporations and agencies, but they continue to provide residents and commuters with levels of service that include physical barriers in the public transport network, hindering the full participation of individuals with disabilities from accessing these opportunities (Park & Chowdhury, 2022; Sajib, 2022; Saif et al., 2019). Furthermore, over 30% of PWDs do not find transportation and public spaces accessible (Park & Chowdhury, 2018; United Nations, 2019).

In advanced countries and some emerging upper-middle-income economies of Europe and the Americas, the provision of public transport has strived to incorporate the requisite disabled

user-friendly infrastructure, quality of service, and skilled/trained employees to aid PWD's accessibility and use (Pineda, 2022; Prestes et al., 2022; Yang et al., 2022). This feat has not been without challenges, as crowdsourced data from developed countries in 2017 indicate that 32% of public transport facilities were not wheelchair accessible (United Nations, 2019). However, worthy of mention is the “Rede Integrada de Transporte” Bus Rapid Transport (BRT) system in the eastern Brazilian city of Curitiba, the TransMilenio BRT system in Bogota, Colombia, and the Guangzhou Bus Rapid Transit in the city of Guangzhou in the People's Republic of China. These systems have their fleet universally designed, i.e., designed to be accessible to all persons regardless of sight, hearing, mobility or other physical impairments.

In developing countries, public transport system is characterized by high demand, low capacity, and a variety of operational modes (Bashingi & Mostafa, 2020; Motta et al., 2013). However, significant challenges related to poor road conditions and vehicle infrastructure, congested traffic, political and institutional factors, and social issues, particularly concerning accessibility for PWDs, hinder the system's ability to effectively cater to the needs of all users (Bashingi & Mostafa, 2020; Mbara et al., 2019). In Africa, where an estimated 80 million people are living with disabilities, these infrastructures and tailor-made services are either inadequate or non-existent in some jurisdictions to provide complete inclusion for PWDs and aid their mobility activities (Chakwizira et al., 2021; Mbada et al., 2021; Kett et al., 2020). The case of Addis Ababa's Light Rail Transit (AA-LRT) and Cape Town's MyCity Bus Rapid Transit System has made efforts to improve accessibility by including low-floor trams and ramps for boarding, low-floor buses, designated seating areas for passengers with disabilities, and announcements in multiple languages to aid passengers, including those with visual or hearing impairments (Hussey et al., 2017; Sekasi & Martens, 2021). The situation in Ghana resonates with that of the sub-region. Whereas some policies have been enacted, they have been ineffective, narrow,

and patchy in their implementation with limited requisite infrastructural resources, thus, not yielding the intended results (Ashigbi et al., 2017; Naami, 2022). This has left PWDs to wallow in poor health, lower education achievements and fewer economic opportunities, which ultimately plunges them into a cycle of poverty (Gomda et al., 2022; Wiredu et al., 2021; Asuman et al., 2021; Ganle et al., 2016).

As a matter of concern, considering mobility as a fundamental human right is crucial to attaining health, education, employment, and social goals and needs (Logan et al., 2018). As a result, there is a need to focus on inclusive transport infrastructure and services for the public while considering national policies that have been enacted to address the travel needs of vulnerable populations like PWDs in their everyday journeys.

1.1 Statement of the Research Problem

In Ghana, persons with disability continue to experience various forms of discrimination and social exclusion, although the country's Persons with Disability Act 2006 (Act 715) was passed together with the ratification of the UNCRPD in 2012 to provide unrestricted access to public spaces and buildings, free healthcare, employment, education, and transportation (Ocran, 2019; Odame et al., 2020). Local assessments by the UN and WHO highlight the potential of transport services in attaining the Sustainable Development Goals, particularly, Goals 4 (Quality Education), 8 (Decent Work and Economic Growth), 10 (Reduced Inequality) and 11 (Sustainable Cities and Communities) through its ability to provide access and connect people to various opportunities (Lagrelus & Bravo, 2022; UN-Habitat et al., 2015). Regarding commuting activities, the PWDs Act 715 in sub-section 23-30 calls for the importation of disability-friendly vehicles, the right to reserve seats on such vehicles for PWDs, and the right to suitable parking spaces for PWDs, all of which enforcement has failed to realise such statutes (Persons With Disability Act 715, 2006).

The 2021 Population and Housing Census recorded that about 2,098,138 persons are living with disabilities, representing 8% of the country's total population (Ghana Statistical Service, 2021). Within this category, females living with disabilities (57.9%) outnumber their male counterparts (42.1%). Also, visual impairments accounted for 49.2% of disabilities, followed by physical disabilities (45.5%), while speech impairments accounted for the lowest percentage (13.3%). Out of these numbers, the Greater Accra Region is home to about 282,719 PWDs, with 254,276 (89.9%) of them representing the highest number of such persons living in urban areas. On the other hand, the Ashanti Region hosts about 363,321 PWDs, with 163,011 (44.8%) of them representing the highest number of persons with disabilities living within rural areas of the country (Ghana Statistical Service, 2021).

Moreover, the Ghana Living Standards Survey 7 estimates that about 10.3% of persons who are within the labour force bracket (15 years and older) but were not in active employment (unemployed) were either disabled or too old to work (Ghana Statistical Service, 2019). The most current National Household Transport Survey was done in 2012 and indicated challenges for people with disabilities in travelling around. The survey recorded that out of the people who could not travel around, 46.9% were physically challenged and, thus, could not access transport vehicles due to the absence of the requisite infrastructure on the existing transport services (Ghana Statistical Service, 2013).

These sections of the Ghanaian population require movement from various locations in their daily engagements to meet their livelihood needs, such as employment, health, education, leisure, and other activities (Naami, 2022). However, the nature of the public transport system does not help them reach their activity points to satisfy these needs. As a result, PWDs are limited in terms of exploring their full potential to reach opportunities in education, employment, health, and recreation. When PWDs are unable to access these opportunities, they become a burden on society, which has not yet put in the requisite social welfare systems and

programs to protect their rights as citizens (Kose, 2018). Moreover, the weakness in aspects of the legal and regulatory structures meant to protect PWDs' rights, and the frequent unfavourable treatment they encounter from fellow commuters further decrease their commuting potential.

In highlighting the plight of PWDs in Ghana, studies have focused on the sphere of family support, where the interplay of informal care from the family setting enables persons with disabilities to better cope with their situations (Asuman et al., 2021; Opoku et al., 2017; Oti-Boadi, 2017). Others have focused on the access and use of maternal health services (Wiredu et al., 2021; Ganle et al., 2016) and the built environment (Naami, 2022; Naami, 2019). These studies have further exposed the experiences of persons with disabilities in reaching functional social systems such as healthcare and other public spaces as part of their life events and trajectories. A study by Odame et al. (2020) and Danso et al. (2017) explored the mobility needs of students with disabilities in accessing university-run bus shuttles and in using transport infrastructure such as interchanges. These studies, which were carried out predominantly in urban areas, were, however, silent on the rural dimension of transport options for PWDs and their motivating factors for mode choice in general. Also, the impact of inaccessibility to transport services on the socioeconomic goals and opportunities among PWDs in rural and urban areas was sparingly explored. In the case that the rural and urban context and implications of inaccessible transport services are not investigated, both national and non-governmental strategies to empower PWDs will miss the targeted aims and subsequently lag in achieving the SDG goals and its antecedent prospects for the livelihoods of persons with disabilities.

Notwithstanding the previous research on PWDs in the country, there is an apparent paucity of studies exploring accessibility to various public transport services like minibuses (locally termed "trotro"), government public buses (e.g., Aayalolo, Metro Mass), shared taxis, tricycles and auto rickshaws, and the ride-hailing services (e.g., Uber, Bolt, Yango, etc.) among other

transport options and their use by PWDs within the urban and rural areas of Ghana. These realisations position this study to examine the disability-mobility nexus in Ghana from the spatial extent that also encompasses varied characteristics such as income level, educational level, and health status to provide a holistic appraisal of the state of mobility and accessibility of PWDs in their life-course journeys. Also, a policy re-examination and formulation is necessary to ensure full compliance with all the statutes of the international and national conventions carefully set aside to provide hope for PWDs concerning their physical mobility needs.

This study, thus, seeks to examine how PWDs access and utilise various public transport services within the urban areas of Greater Accra and the rural areas of the Ashanti Regions of Ghana to provide total inclusion into their respective communities and societal livelihoods.

1.2 Research Objectives

The general objective of this research is to explore the experiences of PWDs in accessing and using public transport services in the Greater Accra and Ashanti regions of Ghana.

Specifically, this study will:

1. Examine the public transport mobility options and motivations of PWDs.
2. Explore the coping strategies adopted by PWDs in their mobility journeys.
3. Assess the factors influencing transport operators' and users' knowledge of transportation mobility options for PWDs.
4. Examine the role of stakeholders in the provision of accessible transport for PWDs.

1.3 Research Questions

The key research questions for the study are:

1. What are the public transport mobility options available for PWDs and why do they choose certain options over others?

2. Why do PWDs adopt specific coping mechanisms, and how do they cope with these public transport mobility options when commuting?
3. How do various factors affect the knowledge of transportation mobility options for PWDs among transport operators and users?
4. What roles do stakeholders play in ensuring accessible transport for PWDs?

1.4 Research Propositions

Due to the fact that transport infrastructure that considers the total inclusion of persons with disabilities in developing nations like Ghana are either inadequate or unavailable (Kett et al., 2020), understanding these dynamics spatially, to better address them has become necessary in this regard. Also, a thorough comprehension of the issues at the various life stages of this vulnerable group is imperative to achieving the SDGs 4, 8, 10 and 11.

Based on this, the study is premised on the general proposition that:

- i. The experiences of PWDs in accessing and using public transport vary between rural and urban areas as others cut across the rural-urban divide.
- ii. The experiences of PWDs through the various life courses differ in their experiences of accessing and using public transport services (PWDs employed /unemployed, younger/older, educated/uneducated, married/unmarried, etc.).

1.5 Definition of Key Concepts

The study acknowledges the need to explain and define key concepts and terms used. This is deemed necessary as most concepts in the social sciences tend to have varied meanings in different contexts (Winch & Gaita, 2008).

Disability: Disability is a multi-dimensional concept that should be understood in terms of a continuum (Shakespeare, 2018). Disability refers to an impairment in body function and

structure that limits the normal participation of persons in activities within their geographic space (World Health Organisation, 2002).

Exclusion/Inclusion: Social exclusion and inclusion are multi-dimensional interlinked concepts that encompass social, political, cultural, and economic dimensions while operating at various social levels (Rawal, 2008). Social exclusion refers to the process by which individuals and groups are restrained from participating in normal activities in their residential area with significant spatial demonstration (Preston & Rajé, 2007). On the other hand, social inclusion is defined in relation to social exclusion and thus, broadly refers to the process of improving the terms on which individuals and groups take part in society (World Bank, 2013).

Public Transportation: Public transportation refers to any mode of transport that is available, shared and requires some payment to raise revenue to sustain its operation (Buehler & Pucher, 2012; Rodrigue et al., 2020; Ubbels et al., 2001).

Accessibility: Accessibility refers to the extent to which land-use and transportation systems facilitate the ability of individuals and groups to access activities or destinations through various modes of transportation or a combination thereof (Litman, 2009).

Mobility: Mobility encompasses the manner in which individuals move, the infrastructure facilitating movement, and the overall quality of transportation in terms of the ease with which the movement occurs (Cresswell, 2011; Larsen & Urry, 2016).

1.6 Significance of Study

This study is significant for several reasons that span academic, practical, and policy-making realms. Its contributions are critical not only for the academic field of Geography but also for urban planning, social policy, and disability advocacy in Ghana and similar contexts.

First, despite the growing body of research on urban mobility and disability, few studies have specifically explored the intersection of these issues within the context of urban and rural

Ghana. This research fills a critical gap by providing detailed insights into the experiences of PWDs using public transport in major urban centres in the Greater Accra region and the rural localities of the Ashanti region of Ghana. It extends the geographical discourse on mobility and accessibility by integrating the perspectives of PWDs, a group often overlooked in transportation studies.

Second, the study findings have the potential to influence the design and implementation of more inclusive public transport systems. By identifying specific barriers that PWDs face, the study offers practical recommendations that can be directly applied to enhance the accessibility of existing and future transportation infrastructures.

Third, the research provides empirical evidence that can inform policy decisions related to urban and rural transportation planning and disability rights. It aligns with Ghana's commitments under the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) and can serve as a basis for revising national policies to improve transport accessibility. The study also provides detailed accounts of the challenges and needs of PWDs that can drive advocacy efforts, raising awareness among stakeholders, including government agencies, transport providers, and the general public about the importance of inclusive transport services.

Finally, the integration of qualitative and quantitative findings provides a holistic view of the issues at hand. This integrated approach is particularly beneficial in policy formulation and in designing interventions, as it combines the breadth of knowledge with the depth of understanding necessary for effective decision-making.

1.7 Organisation of Study

The study is organised into eight chapters. The first chapter presents the background of the study and introduces the problem statement, its thematic objectives and questions, research

propositions, and the key concepts employed in the study. Chapter two focuses on the theoretical and conceptual frameworks for the study. This chapter reviews relevant literature pertinent to disability and public transport issues and some legal instruments necessary for driving the change in disability policy. In addition, it examines the various models of disability, including the Life Course Theory and the Critical Disability Theory, to make a case for explaining the social reality of disability and proposes social transformation mechanisms in that regard. Chapter three focuses on the contextual background information of the study areas and the philosophical underpinning of the study, where Critical Realism Philosophy is discussed as the pillar on which the study is grounded philosophically. It also elaborates on the research design, research methodology and methods employed in the study. The chapter explains the sequential exploratory mixed method approach and justifies its adoption for the study. The following four chapters present and discuss the findings from the study, gleaned from the four study objectives.

Chapter four broadly discusses the public transport options for persons with disabilities, their utility and usability, and the factors influencing their modal choice. To put the issues into context, the chapter begins with a description of the sociodemographic characteristics before examining the mobility options and motivations of PWDs. Chapter five discusses the various coping strategies that PWDs adopt in navigating the public transport environment in Ghana. Chapter six highlights the factors influencing public transport operators' and users' knowledge of transport options for persons with disabilities. It describes this from a quantitative dimension through the use of Multiple Logistic Regression Analysis to analyse the relationship between predictor variables (socioeconomic factors) and the outcome variable (knowledge level of transportation needs of PWDs). Chapter seven presents the findings from the relevant stakeholders from the transport governance institutions, the disability institutions, and the transport service providers to understand their roles in providing accessible transport for

persons with disabilities. Chapter eight, the final chapter, consolidates the key findings and conclusions and translates them into the study's contributions and implications for policy, reflecting on possible areas for future research in the transport and disability milieu.



CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL PERSPECTIVES

2.0 Introduction

The previous chapter highlighted the status of public transport accessibility from the global to the regional scale while describing the problem case and justifying the need for a systematic inquiry. This chapter reviews the literature on disability and public transport, and presents some theoretical and conceptual perspectives to guide the study. The chapter begins with the review protocol and the definitions of some key concepts and terms used in the study. A general overview of how disability is conceptualised, its antecedent ideologies, and the role of public transport in development is brought to the fore. Also, relevant empirical studies in developing regions, including Ghana, are presented. This is intended to provide a comprehensive picture of existing scholarly works within the disability-transport field. It aims to establish the research context, identify gaps, and demonstrate the researcher's nuanced understanding of key concepts. Theories around the disability discourse are presented to explain the nature of the problem being investigated. The chapter concludes with a theoretical overview and conceptual framework to guide the entire research.

2.1 Literature Review Protocol

The literature comprises peer-reviewed studies sourced from scientific databases such as JSTOR, ScienceDirect, Scopus, Web of Science, and Google Scholar. These databases were limited to 10 years, from 2012-2022, to capture recent literature and developments in the field of transport and disability. However, seminal works and debates that predate and postdate this period are also included in this review. Other reviewed literature sources include the UNCRPD,

WHO, African Disability Protocol (ADP), Ghana PWD Act 715, and other legal frameworks that guide the formulation of disability laws and policies to promote disability rights. The search was executed using the Harzing Publish or Perish (PoP) software (Harzing, 2010) on the one hand, and manually using the Boolean operators such as AND, OR, and NOT to maximise the number of retrieved articles and complement each method. Limited to English, keywords such as: **persons with disability, disability access, disability transport, transport and disability, public transport and disability, and mobility and disability** were explored. These words were used in varied combinations to come up with relevant information on the subject. A snapshot of the PoP software is attached in Appendix A. Literature for this study is referenced according to the seventh edition publication manual of the American Psychological Association (APA) referencing style (American Psychological Association, 2020).

2.2 Key Concepts

2.2.1 Disability

The definition, conceptualisation, and measurement of disability achieved a milestone with the endorsement of the International Classification of Functioning, Disability and Health (ICF) by all World Health Organisation Member States in the Fifty-fourth World Health Assembly in 2001. According to the ICF, which provides a standard language and framework for the description of health and health-related issues, disability is explained as occurring under four conditions as depicted in Figure 2.1, where:

- (i) Body function is impaired
- (ii) Body structure is impaired
- (iii) Activity and participation limitations/barriers
- (iv) Environmental limitations/barriers

A person may be considered disabled if she/he experiences limitations or barriers in any one of the above-named conditions. The ICF provides a comprehensive framework for understanding disability, taking into account the diversity of individual experiences and the various factors that can contribute to disability. ICF is the WHO's framework for health and disability, and thus, it mainstreams the experiences of disability and recognises it as a universal human experience (World Health Organisation, 2002). From Figure 2.1, this study explains disability as an impairment in body function and structure that limits the normal participation of persons in activities within their geographic space.

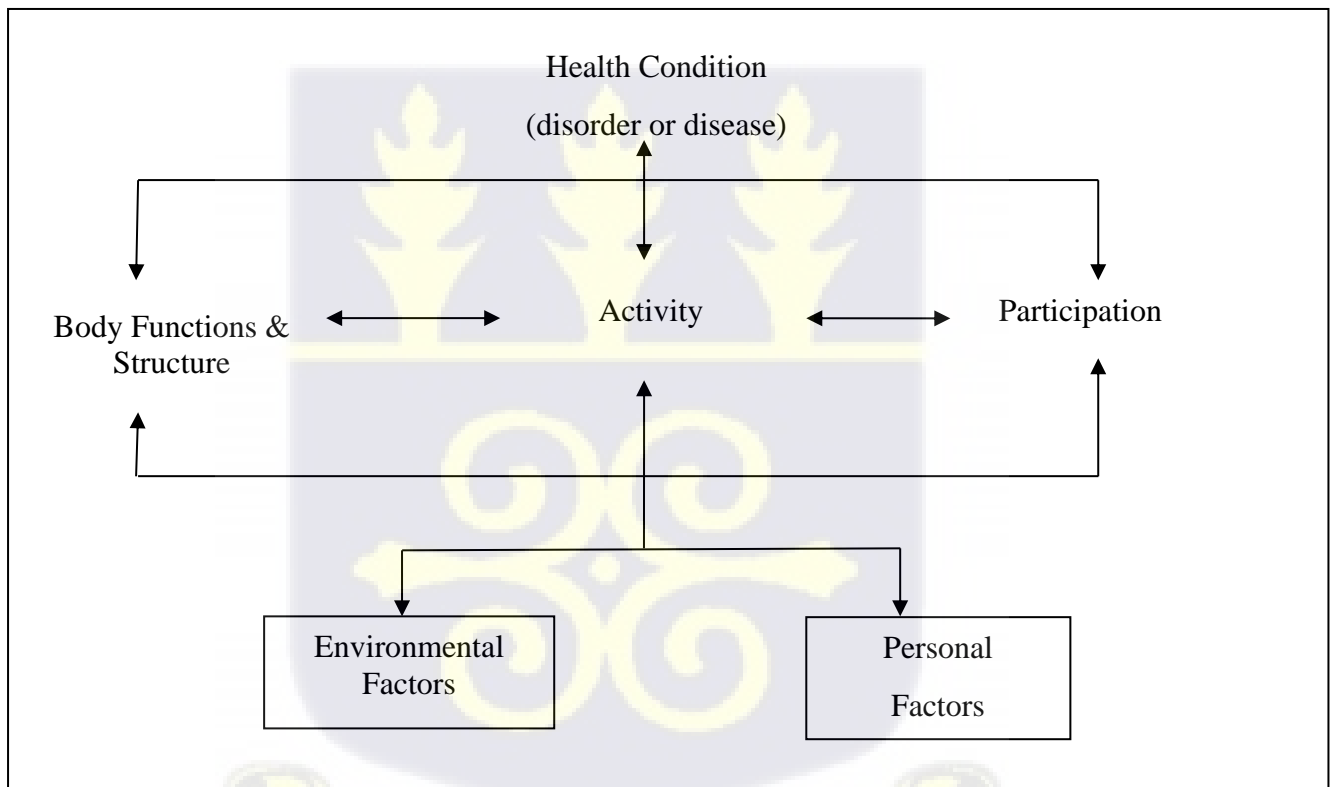


Figure 2. 1 ICF Classification of Disability

Source: World Health Organisation, (2002)

2.2.2 Exclusion/Inclusion

Social exclusion and inclusion are multi-dimensional and interlinked concepts that reflect the dynamics within a society regarding the treatment and opportunities afforded to its members

(Rawal, 2008). With entrenched roots and association in Europe during the mid-1970s, the terms have been adopted worldwide in policy and research contexts (Lyons et al., 2012). They describe the process through which individuals and groups, wholly, partially, or not entirely, participate in their society. Social exclusion involves the deliberate and systematic restrictions placed upon individuals or groups, impeding their involvement in normal activities within their local community (Preston & Rajé, 2007). Social exclusion presents a useful perspective as it offers an actor-oriented approach that focuses on structures to identify and tackle power issues. Most socially excluded people lack financial resources and experience other forms of disadvantages. In the case of persons with disabilities, this makes them particularly vulnerable to marginalisation that worsens their livelihoods (Ionescu, 2019).

On the other hand, social inclusion is intricately tied to the concept of social exclusion. It essentially involves the effort to better the conditions that enable individuals and groups to fully engage in various aspects of society. This is aimed at equal participation by all by improving the ability, opportunity, and dignity of those disadvantaged on the basis of their identity (World Bank, 2013). However, Jackson (1999) argues that there can be simultaneous exclusion and inclusion where individuals and groups may be excluded in one sphere and included in another. In relation to the UNCRPD, social inclusion involves feeling accepted, having individual and collective agency to determine participation, and the removal of structural and attitudinal barriers to participation (UNCRPD, 2007).

2.2.3 Public Transportation

Public transportation is a vital component of urban mobility, providing essential transport services to the general public. Several scholars have used public transportation to denote many things, but throughout the literature, it has been generally used to mean a shared passenger transportation service that is available for use by the general public (Buehler & Pucher, 2012; Pucher et al., 2004; Rodrigue et al., 2020). Ubbels et al. (2001, p.73) refer to public transport

as "a collective transport system, which is made available, usually against payment, for any person who wishes to use it." The authors recognise the concepts of "access," "shared," and "revenue" in their definitions. This triad concept encapsulates the essential feature of public transport since it is open to the public for access, shared with others, and a commitment in monetary terms is made to the operators or owners by commuters in order to be conveyed to their destinations while sustaining the operations of the transporting vehicle or service.

In the context of Ghana, public transport encompasses shared transport services such as trotros (minibuses), motorbikes (okada), high-occupancy buses or coaches, autorickshaws (pragya), taxis, and ride-hailing services like Uber and Bolt. These services provide essential mobility options to the general public across urban, rural and adjoining areas. They operate on fixed, semi-fixed, and flexible routes and schedules, with fares charged for usage. Public transport in Ghana is characterised by a mix of formal and predominantly informal services, catering to a wide range of economic and social needs.

Having glossed over the conception and definition of public transport, this study agrees with the definition by Ubbels et al. (2001). Consequently, any mode of transport that is available, shared, and requires payment to generate revenue for its operation is considered public transport. This definition is particularly relevant to Ghana's diverse and dynamic nature of public transportation.

2.2.4 Accessibility

Understanding accessibility has generated definitions over the years and has been explained by scientific scholars to connote the potential for interaction (Hansen, 1959), the ease of reaching areas of activity using particular transport modes (Dalvi & Martin, 1976), and the benefits provided by a given transport system (Ben-Akiva & Lerman, 1979) among others. In this study, accessibility refers to "the extent to which land-use and transport systems enable individuals

and groups to reach activities or destinations by means of, or a combination of transport mode (s)". This definition is in line with Litman (2009, p.128). This definition acknowledges three main indicators: the infrastructure element, the activities/land use element, and the people element in providing total accessibility (Bocarejo & Oviedo, 2012). The "infrastructure" indicator focuses on transport supply and demand characteristics in terms of the infrastructure design, capacity, and level of service. The "activities" indicator is associated with land use, location, distance, and the distribution in space generated from gravity measures (see Kansky, 1963). The "people-based" indicators combine the first two indicators and consider their influence on individuals in reaching activities through time via a transport system.

2.2.5 Mobility

Mobility encapsulates the way people move, the infrastructure and condition of the movement, and the quality of movement in relation to the ease with which the movement is made (Cresswell, 2011; Larsen & Urry, 2016). This mobility concept builds on Hansen's (1959) idea of accessibility. However, it is defined as the potential for movement. Mobility is, thus, associated with the impedance component of accessibility, making it a requirement for participation in social activities (Hernandez, 2018). Mobility can be measured by trailing people's travel behaviour (Litman, 2017), and using their actual movement or transit supply in the form of the number of trips made or kilometres travelled (Rossetti et al., 2020). Ascher (2004) describes the right to mobility as a precondition for other rights, which implies a causal relationship between mobility and accessibility, a conduit through which other goods and opportunities impact one's life.

2.3 Geographical Mobility and Accessibility

Transport studies, an interdisciplinary field, has helped elaborate the intricacies of all activities embedded in the movement of people, goods, and information from one geographical location to another. Mobilities research has also crossed disciplines to explore the movement of people,

ideas and things, as well as the broader social implications of those movements (Cresswell, 2011; Grieco & Urry, 2011; Sheller & Urry, 2006). Evolving into the "mobility turn" of the last decades of the social sciences, Sheller & Urry (2006) emphasise improvisation, flexibility, and novelty in approaches that have been applied in mobile settings. Mobilities are thus, "engrained in the history, daily life and experiences of people" and are "inspired by different motives, aspirations and obligations" (De Bruijn et al., 2001, p. 1).

Within the field of transport studies, the mobility of individuals consisting of the trips they make has primarily taken to be a derived demand. Mobility is, thus, derived from people's need or desire to participate in activities at alternative locations. As a result, transport geography has emerged to focus on the spatial aspects of transportation. This includes the location, structure, environment, and development of networks, as well as the analysis and explanation of the interaction or movement of goods and people (Rodrigue et al., 2020).

Within the mobility discourse, the quality of mobility is inherent in the experience of mobility through time and space (Adey et al., 2014). However, some people's boundaries regarding quality mobility are limited, restricted, or unavailable due to their peculiar characteristics, such as disability. These groups of individuals reserve the right to be mobile and, thus, participate in normal human activities. In this regard, making transport vehicles and infrastructure more accessible to everyone is an integral part of high-quality, sustainable transport systems. Rodrigue et al. (2020, p. 376) define accessibility as "the measure of the capacity of a location to be reached by, or to reach different locations." By this definition, the capacity and availability of appropriate transport infrastructure become key elements in the determination of accessibility. As such, transport accessibility is concerned with an all-inclusive and user-friendly environment for such persons (Freund, 2001).

2.4 Universal Design

Universal design connotes a process of designing and operating environments, products, and systems that ensure the usability, safety, health, and social participation of all persons in responding to the diversity of people with disabilities. This is sometimes denoted as "design for all" and "inclusive design". In 1997, a working group of architects, engineers, product designers, and environmental researchers led by Ronald Mace of the North Carolina State University developed the 7 Principles of Universal Design (Story, 1998). The principles were developed to guide the design of products and environments that can be used and experienced by people of all ages and abilities to the greatest extent possible, without adaptation." (Story & Mueller, 2001, p. 10.3). "The 7 principles are outlined according to Story & Mueller (2001) as follows:

1. Equitable use: The design is useful and marketable to people with diverse abilities. In this study, this implies that public transport services should be accessible to everyone, including those with disabilities.
2. Flexibility in use: The design accommodates a wide range of individual preferences and abilities. This includes providing options for individuals with different mobility needs and ensuring that the system is flexible enough to meet various requirements.
3. Simple and intuitive use: The use of design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level. Public transport should thus be designed with simplicity and intuitiveness, with clear signage and information and communication systems.
4. Perceptible information: The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities. In the context of transport, this could involve audible announcements, tactile information, and other means to convey information regardless of ambient conditions.

5. Tolerance for error: The design minimises hazards and the adverse consequences of accidents or unintended actions. This ensures a safer and more forgiving environment for all users, especially individuals with disabilities.
6. Low physical effort: The design can be used efficiently and comfortably and with a minimum of fatigue. For people who are already challenged in one way or another, this is a particularly important principle, especially, for PWDs who may have mobility challenges.
7. Size and space approach and use: Appropriate size and space are provided for approach, reach, manipulation, and use regardless of the user's body size, posture, or mobility.”
(Story & Mueller, 2001).

In the context of persons with disabilities, applying universal design principles to transport infrastructure would involve creating a system that is inclusive, accommodating, and accessible to individuals with diverse needs, ensuring that they can use public transportation comfortably and independently. These principles, along with their guidelines, strongly advocate for public transport infrastructure that is accessible, usable, and inclusive for all. This approach to design aims to accommodate people with functional limitations so as to meet their specialised needs, which the study seeks to investigate.

2.5 Global Situation of Accessibility of Public Transport by PWDs

Transportation plays an important role in the day-to-day life of all people, including PWDs (Rodrigue et al., 2020). PWDs travel to workplaces, schools, markets, health facilities, and other engagements via public transport. In this regard, a lack of access to transportation limits the ability of PWDs to reach these opportunities. An important outcome of every transportation system is the element of accessibility (Saif et al., 2019). Accessibility for public transport has become very relevant in designing transit systems regarding mobility and sustainability. As global populations have increased with much of the increase in urban areas of developing

countries, the need for mobility has concurrently increased. As such, if the transport infrastructure cannot meet these mobility demands, it leads to an increase in waiting times, delays, and congestion. Accessibility has thus become an indicator of social inclusion on the potential of economic development down to the individual level (Sze & Christensen, 2017).

Even for the elderly group of people, public transport provides a primary source of movement. However, it has not been the most accommodating due to some challenges and constraints. Fatima and Moridpour (2019) identify three such challenges from their study in Melbourne, Australia. There were primarily difficulties with the public transport facility and design, its operation, and ridership cost. They further identified features that impeded the elderly accessibility to public transport, such as, the absence of railing ramps, poorly maintained bus stops (especially in winter), inaccessible zebra crossing (particularly for low-vision people), and poor access to communal toilets and low quality of surfaces. These challenges have a way of swaying these groups of people into using the private mode of transport over the public transport services or forcing them not to travel at worst.

Public transport accessibility and social exclusion have brought about transport-related social exclusion (Saif et al., 2019). This refers to the process where people are prevented from participating in the community's political, economic, and social life and other opportunities because of reduced accessibility and insufficient mobility in a society. A study by Fransen et al. (2015) in Flanders, Northern Belgium, revealed that the demand for transit, and the supply of transit agencies could be greatly improved to enable the less privileged population segments to participate in transport activities through the introduction of a public transport index based on the spatial distribution of various sociodemographics in order to highlight spatial mismatches between two indices. Public transport can, thus, be more attractive by providing more accessible services that increase its performance and impact other social aspects.

In order to effectively address issues of accessibility, identifying factors that limit or bar PWDs in their mobility journeys will be a starting point among other next-level processes. Barriers to accessibility have been analysed from 3 main perspectives: social, psychological, and structural (see Danso et al., 2017; Naami, 2019; Venter et al., 2002). Social barriers relate to the lack of disability awareness, transport cost dimension, lack of assistance, and communication. Psychological barriers centre on the PWDs' low self-esteem and their personal security status. The structural barrier relates to the transport infrastructure, including pedestrian environment, vehicle design, planning and dissemination of information on transport for PWDs (Venter et al., 2002).

These barriers are evident in current studies, which further buttresses the point that the ability of PWDs to move freely and independently leads to further consequences, affecting their quality of life. Social barriers have been identified in the studies of Abraham et al. (2023), Fast & Wild (2019), and Park et al. (2017), where the transport operators lacked training and had low knowledge of PWD's pertinent needs and rights, which led to their challenge and exclusion encountered on the transport service. The personal security component of the psychological barrier was similarly identified in Fast & Wild (2019). Structural barriers have been identified in studies such as Low et al. (2020), Odame et al. (2020), and Park & Chowdhury (2018), where both the vehicles and environments were not friendly to PWDs. The barriers to accessibility in public transport have wide-ranging consequences that extend beyond mobility limitations. They impact the overall quality of life, independence, and participation of persons with disabilities in various aspects of society. In this regard, addressing these barriers is crucial for promoting inclusivity, equal opportunities, and social well-being.

2.6 Mobility Options for PWDS

The decision to choose a particular public transport mode is one that comes with a careful assessment of the cost, benefits, and timeliness, among other considerations for travel

feasibility (Abane, 2011; Agyemang, 2017). For persons with disabilities, this decision-making process is rather complex as they need to assume that their choice of transport can adequately accommodate their peculiar needs for them to embark on their journey. As such, people who encounter social, financial, psychological, or physical barriers in accessing transportation are considered transportation disadvantaged (Bejleri et al., 2018; Delbosc & Currie, 2011; Mattson, 2012). This makes any attempt at increasing access and mobility options for PWDs a primary way of improving their independence, self-esteem, and total inclusion.

In advanced countries, most PWDs and older people are highly dependent on motorised transport for their travel needs (Luiu et al., 2018). This leaves very few of them with options to use non-motorised transport options. As such, some PWDs and elderly persons have fallen on adaptive bikes (bicycles that have been augmented from a standard bicycle) such as trikes/quadracycles, tandems, handcycles, recumbent bicycles or tricycles, and electric-assisted bikes (MacArthur et al., 2020). While app-based ride-hailing services such as Uber have been proven to be valuable in the provision of paratransit services to people with disabilities (Curtis et al., 2019), its patronage has rather been at a lower rate, as examined by Cochran & Chatman (2021) due to reasons such as lower income levels and the geographical location of PWDs being farther from larger cities. Generally, public transport options for PWDs have been more accessible in the cities than in the hinterlands (Bezyak et al., 2017; Hough & Taleqani, 2018; Sze & Christensen, 2017).

An earlier study in the United States showed that more PWDs (61%) reported using the private mode of transport compared to riding with others (6%), public transportation (6%) and paratransit (1.5%), (Bureau of Transportation Statistics, 2003). A more recent study suggests that PWD's preference for private vehicle use dropped significantly (32.9%), while that for public transport rose marginally (18.7%), with ridesharing and paratransit representing 14.2% and 16.5%, respectively (Bascom & Christensen, 2017). In a bid to understand the reasons

shaping this narrative, Afukaar et al. (2019) indicated that service frequency and predictability, travel comfort, transport fares and charges are the factors contributing to this narrative in rural areas. Ahmad (2015) extended this account when his study in rural Pakistan revealed that poor environment, inadequate terminal facilities, poor design of vehicles, improper behaviour of transport staff, and travel safety and security threats make disabled individuals less likely to have access to public transport than their non-disabled peers.

Similarly, studies in Africa have shown that PWDs prefer hiring taxis and personal/private cars over public transport mainly due to the discomfort and difficulties they experience with the service (Chakwizira et al., 2021; Haruna, 2017; Kett et al., 2020).

In developing countries like Ghana, economic factors significantly influence people's decisions when choosing public transport services, as evidenced by several studies (see Abane, 1993; Abane, 2011; Agyemang, 2017; Hotor, 2016). For persons with disabilities, these reasons reflect similarly. A study by Odame et al. (2023) indicates that persons with disabilities in Accra, Ghana, opt for ride-hailing services such as Uber due to the convenience and friendly service, despite higher costs. Conversely, trotros (minibuses) are chosen for their lower fares, underscoring the need for improved accessibility. Another study by Akaateba et al. (2023) highlights the fact that although intercity bus services in Tamale are not disability-friendly, leading to discrimination and difficulties for persons with vision, hearing, and walking/climbing impairments, they still opt for this mode of transport for their travel needs, since it is a necessary option to reach locations outside of their cities and regions. Similarly, Odame et al. (2020) revealed that university shuttles, despite not being user-friendly, remain a necessary mobility option for students, emphasising the critical concern for inclusive access.

The continental differences suggest that provision for PWDs in developing countries falls short of the standards and, as such, pushes disabled persons away from the service, while that of

advanced countries encourages them on their services with the requisite infrastructure and support.

2.7 Coping Strategies of Persons with Disabilities on Transport Services

Coping is defined as the effort used to manage potentially harmful internal and external demands on an individual (Lian & Tam, 2014). Coping is, thus, a process that spans several phases. The term is often associated with psychology and mental health, but the concept of coping has been applied more broadly to various disciplines in the social sciences, such as Human Geography. Coping strategies, therefore, refer to the actions, methods or behaviours that individuals use to effectively manage and adapt to a wide range of challenges, changes, and stressful situations across different areas of their lives (Freire et al., 2020). For this study, coping strategies refer to the actions and methods that persons with disabilities adopt to effectively manage the challenges and barriers they face in accessing and using public transport services.

Planning for travel in advance is an essential activity that enables people with disabilities to manage impending barriers and challenges, making them more eligible to enjoy their journeys. A study by Schlingensiepen et al. (2015) in Germany identified that providing transport information to PWDs to manage uncertainty with transport helped them plan their trips more effectively. The study indicated that providing information on routes that met individual PWDs' capabilities, restrictions, and needs, such as availability of stairs, accessible and inaccessible bus stations, and timely bus schedules and their locations, was essential to PWDs. For example, providing information on vehicle type included different attributes describing the kind of vehicle that could be used depending on the height from the floor to the entrance (to be used by wheelchair users) and the existence of special places (seats) in the car for the use by other persons with disabilities. This information helps PWDs know their travel itinerary before deciding on which travel mode to use, the cost of such travel, and the accessibility expectations,

among others, which guide them in making well-informed trips. Another careful review of practices and guidelines for accessible transportation design in the United Kingdom was undertaken by Sze & Christensen (2017). They found that pre-trip journey planning and ease of access to information on service facilities with photographs depicting potential barriers were recognised as imperative to people with disabilities who had lower levels of travel independence. These studies (Schlingensiepen et al. 2015; Sze & Christensen 2017) altogether point to the necessary action of trip planning for PWDs as it equips them with the information needed to execute the journey while managing their expectations regarding accessible and usable travel infrastructure and enhance the overall travel experience.

The use of assistive and mobility devices by PWDs to surmount challenges regarding accessing public transport has been reported in the literature. Studies such as Unsworth et al. (2019) and Sáez et al. (2019) demonstrate how PWDs have navigated public transport infrastructure. The study by Unsworth et al. (2019) revealed that PWDs resorted to using mobility aids such as walking frames, wheelchairs, canes, and crutches to facilitate their access to public transport services in Australia. Some PWDs combined two of such mobility aids to gain access, where necessary. Sáez et al. (2019) explored the use of radio frequency communication devices, which provide an alternative to assist people with visual disabilities with their mobility in Panama City's public transport system. The components of this model work together to enable PWDs to interact with buses and their stops in public transportation. The results from testing the devices suggest that using radio frequency for communication is a promising approach to assist individuals with visual disabilities navigate public transport services. The system will, thus, provide a means for users to receive information about bus locations, stops, and other pertinent details, enhancing accessibility for those with visual impairments.

Grounded in these studies, the use of these mobility aids is projected to increase as populations continue to age with the advancement in assistive technology and legislation on inclusive

transportation. Coping mechanisms employed by PWDs in navigating public transport, thus, involve a multifaceted approach. As such, continued efforts to address diverse needs, eliminate stigmas, and promote inclusivity are crucial for ensuring that public transport systems accommodate and serve all members of society, regardless of physical abilities.

2.8 Stakeholder Interventions in the Provision of Public Transport for PWDs

Stakeholders play a crucial role in promoting accessible transport infrastructure for all, including persons with disabilities. The role of stakeholders in promoting accessible transport infrastructure for all cannot be overemphasised (Javid et al., 2021; J. Park & Chowdhury, 2018; Saif et al., 2019). In a bid to put more resources into achieving this, institutions and agencies have made commitments to providing requisite public transport services to PWDs. These have come in the form of policies and legislation that have influenced the transport infrastructure and its management, which considers the needs of PWDs. One such initiative is the provision of free bus and rider passes for the most common travel for PWDs and older adults (see Barnes et al., 2016). This relief was targeted at trips during off-peak travel hours. This recommendation was piloted by the London Concessionary Travel Scheme in 2003, funded by the London Local Authorities and has been touted as one of the most advantageous schemes in terms of cost-effectiveness to users and the geographical extent of travel (Metz, 2003). Another case in point is the provision of Special Transport Services (STS) to people who are unable to use public transport or personal cars. STS often provides tax rebates for the owners through public procurement of taxi services (Hansson & Holmgren, 2017). Another study proposes a focus on improving public transport stops/terminals. This is aimed at helping passengers who suffer from reduced vision to follow tactile markers to lead their way through the doorways of buses and bus shelters (Aarhaug & Elvebakk, 2015).

The governance and provision of accessible transport services for students with disabilities involve various key stakeholders, such as families, schools, transport operators, and

government institutions (Ross et al., 2020). Thus, a comparative study analysis of the UK and Poland highlights the significance of stakeholder engagement and management processes in the construction of inclusive transport infrastructure projects (Łukasiewicz & Francis, 2014).

In developing countries, interventions for PWDs regarding transport have taken a different turn as a significant proportion of persons living with disabilities fall within the poverty bracket. For instance, a study by Danso et al. (2017) focuses on the accessibility of the Sofoline Interchange in Kumasi, in the Ashanti Region of Ghana, to persons with disabilities. Their study showed that although stakeholders were aware of the accessibility concepts, the visually impaired were totally ignored in the design and construction of the Interchange. It, therefore, highlights the need for stakeholders to address the issue and incorporate facilities that cater to the needs of PWDs in transport (Danso et al., 2017). As such, a much more requisite intervention is needed in transportation since it is an enabler of strategies to fight poverty, improving access to education, employment, and other social services.

Some approaches to accessibility have been identified and implemented in many countries. These tie in with the best practice regarding interventions for the inclusion of PWDs in transport. They include:

1. Legislative approaches to accessibility
2. Disability awareness training
3. Provision of transport information
4. Consultation with PWDs and their various groups
5. Improvements to the pedestrian environment
6. Improvements to transport infrastructure
7. Improvements to vehicle design
8. Specialised transport for people with disabilities.

These approaches holistically cut across all economies and present a starting point for drawing more attention to the transport needs of persons with disabilities.

2.9 Legal Frameworks on Disability, Transport & Accessibility

2.9.1 United Nations Convention on the Rights of Persons with Disabilities (UNCRPD)

The UNCRPD is an international treaty that identifies and sets out the fundamental human rights of people with disability. The Convention seeks to promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities and to promote respect for their inherent dignity (UNCRPD, 2007). Following decades of work by the United Nations to change approaches and attitudes towards persons with disabilities, the Convention was adopted on 13th December, 2006 at the United States Headquarters in New York and was opened for signature on 30th March, 2007. The UNCRPD is made up of two documents: the Convention on the Rights of Persons with Disabilities, which contains the main human rights provisions expressed as a series of Articles and the Optional Protocol to the Convention on the Rights of Persons with Disabilities. The Optional Protocol provides individuals and groups with the opportunity to seek redress for violations of their rights under the UNCRPD. It establishes procedures for individuals to submit complaints or communications to the Committee on the Rights of Persons with Disabilities, which is the body responsible for monitoring the implementation of the UNCRPD by state parties.

The Convention in Article 9 outlines the rights of PWDs to access the physical environment and transportation, which is key to this thesis. From the UNCRPD (2007), Article 9 and its sub-sections are explained as follows:

Article 9: Promoting and Ensuring Accessibility

Section 1: Promoting Accessibility.

Article 9 of the UNCRPD mandates that governments take proactive steps to guarantee equal access for PWDs to physical environments, transportation, information, and public services. This comprehensive accessibility mandate applies to both urban and rural areas, encompassing buildings, roads, schools, housing, and medical facilities. By identifying and removing obstacles and barriers, governments can ensure that PWDs live independently and participate fully in society.

Section 2: Ensuring Accessibility Standards.

The convention provides a detailed framework for governments to implement and enforce accessibility standards:

- a. **Setting and Enforcing Standards:** Governments are required to set and enforce minimum accessibility standards for public facilities and services, ensuring that both public and private entities consider accessibility in their operations.
- b. **Training Stakeholders:** Providing training on disability-related accessibility issues is crucial for creating awareness and ensuring that stakeholders understand and implement these standards effectively.
- c. **Braille and Easy-to-Read Signage:** Installing Braille and easy-to-read signage in public buildings ensures that PWDs, including those with visual impairments, can navigate public spaces independently.
- d. **Live Assistance and Intermediaries:** Offering live assistance, such as guides, readers, and sign language interpreters, makes public facilities more accessible to PWDs with various disabilities.

- e. **Access to Information:** Promoting various forms of support for PWDs to access information, including through new technologies, is essential for their full participation in society.
- f. **Accessible Technology:** Encouraging the development and distribution of affordable, accessible technology and communication systems from the early design stages ensures that these innovations are inclusive.

Article 20: Personal Mobility

Again, in Article 20, the UNCRPD focuses on the personal mobility of PWDs. It makes provisions for the facilitation of PWDs' mobility in the manner and time of their choice and at an affordable cost. It also provides access to quality mobility support in the form of mobility aids, assistive technologies and devices while encouraging manufacturers to take into account all aspects of mobility for PWDs. Moreover, it considers the training in mobility skills for PWDs and specialist personnel working with PWDs. These sub-sections of the UNCRPD join the clarion call towards making the mobility of PWDs accessible to enable them to reach various engagements throughout their lives.

Since the convention was adopted, the UN has released general commentaries aimed at helping the state parties to fulfil their obligations. A thorough review of the convention on accessibility does not holistically exhaust the accessibility issues of PWDs adequately; hence, on 11th April, 2014, the United Nations released a general commentary on Article 9 of the Convention, which delves deeper into the highlighted protocols. The commentary enumerates the relevant authorities, engineers, designers, architects, urban planners, transport authorities, service providers, members of the academic community, PWDs, and their organisations and strongly calls for awareness creation among these bodies. Also, the direct involvement of PWDs in vehicle infrastructure development would improve the understanding of existing needs and the

effectiveness of accessibility tests. Ultimately, it is the builders of the transport infrastructure who make a transport vehicle accessible or not. As such, it is essential to put training and monitoring systems in place for all these groups in order to ensure the practical application of accessibility standards (United Nations, 2014).

2.9.2 The African Disability Protocol (ADP)

The African Disability Protocol (ADP) is the African Charter on Human and Peoples' Rights on the Rights of Persons with Disabilities in Africa with the purpose of promoting, protecting and ensuring the full and equal enjoyment of all human and people's rights by all persons with disabilities, and to ensure respect for their inherent dignity. The ADP is, thus, the legal framework based on which member states of the African Union are expected to formulate and align disability laws and policies to promote disability rights in their countries (African Union, 2018). The protocol was adopted on January 29th, 2018, as the Disability Protocol to the African Charter on Human and People's Rights (Banjul Charter). Coming into existence 12 years after the UNCRPD, the ADP sought to address the unique inclusion challenges within the continent. Concerning accessibility to transport services, the protocol makes provision in article 14 (Right to Live in the Community), sub-section (2:g), which ensures that: Community services and facilities for the general population, including health, transportation, housing, water, social, and educational services, are available on an equal basis to PWDs and are responsive to their needs. Also, article 15 (Accessibility), sub-section (1) states that: Every person with a disability has the right to barrier-free access to the physical environment, transportation, information, communications technologies and systems, and other facilities and services opened or provided to the public. Sub-section (2:b) further states that: Parties shall take reasonable and progressive measures to facilitate full enjoyment by PWDs of this right, and such measures shall, among others, apply to buildings, roads, transportation, and other indoor and outdoor facilities, including schools, housing, medical facilities, and workplaces.

These emphatic statements charge African governments to invest in the inclusion of PWDs in their socioeconomic development plans. However, Onazi (2020) argues that it is not the absence of laws and policies that has been the obstacle to disability justice in Africa, but rather the inability of existing human rights laws and policies to challenge negative cultural beliefs and social perceptions of disability. Onazi (2020), therefore, calls for a revision of the manner and processes in which duties are presented and articulated in the protocol to challenge the fallouts within our cultural and traditional systems.

2.9.3 Ghana 1992 Constitution (Article 29)

The Ghanaian constitution presents very emphatic statements that support the inclusion of PWDs in all aspects of livelihoods. Specifically, Article 29 of the constitution expresses the rights of PWDs therein. These are presented briefly in thematic areas.

Family and Social Inclusion: PWDs have the right to live with their families or foster parents and engage in social, creative, or recreational activities.

Equal Treatment: PWDs shall not face different treatment regarding their residence, except as needed for their condition or improvement.

Specialised Care: When specialised care is necessary, it should resemble a normal life for a person their age as closely as possible.

Protection: PWDs are protected against exploitation, discrimination and degradation.

Legal Proceedings: Legal proceedings involving a disabled person must consider their physical and mental condition.

Public Accessibility: Public places accessible to everyone should have appropriate facilities for disabled persons.

Incentives for Business: Special incentives are given to disabled persons involved in business, as well as to businesses employing a significant number of disabled persons.

Enforcement: Parliament is responsible for the enforcement of laws by passing legislation.

The highlighted sections of Article 29 show a strong commitment from the state to recognise the unique needs of persons with disabilities. Specifically, sub-section 6 on Public Accessibility relates more directly to their access to public transport services and facilities, which is the focus of this study. Sub-section 8 on Enforcement also provides the legislature with powers to enact tailor-made laws and policies for persons with disabilities, out of which the PWD Act 715 (2006) has been passed. The study objectives seek to understand from the stakeholders and custodians of the constitution how these laws have been realised and offer possible ways they can be implemented to include PWDs in their mobility journeys.

2.9.4 Persons With Disability Act 715: Section 23

On 23rd June, 2006, the Ghanaian Parliament passed the “Persons with Disability Act”, which aims to provide a legal framework for persons with disabilities in Ghana, establish a National Council on Persons with Disability, and provide for other related matters. The passage of the Act sought to fulfil a constitutional obligation to enact laws to protect and promote the rights of PWDs and to meet Ghana’s international obligations. The aspect of the Disability Act that relates to this study is the sub-section on Transportation (23-30). These are highlighted as follows:

Section 23 - Transportation Accessibility

The Ministries responsible for rail, air, and road transport, along with the Ministry of Local Government where appropriate, must consider the needs of persons with disabilities when designing, constructing, and operating the transportation network. This provision emphasises

the integration of accessibility features from the planning stages, promoting inclusive infrastructure.

Section 24 - Importation of Adapted Vehicles

A person with a disability may import a vehicle adapted for their use. Others may only import such vehicles with the Minister's express approval. Vehicles imported under this provision, as recommended by the Minister and approved by the Minister for Finance, are exempt from import duties and related taxes. These vehicles, once imported, cannot be re-exported. Violation of subsection (4) results in an offence punishable by a fine or imprisonment. This provision facilitates access to suitable transport options for PWDs, but the need for ministerial approval could be seen as part of the bureaucratic hurdles to its execution.

Section 25 - Right of Way for Persons with Disabilities

Motorists must stop for PWDs intending to cross the road at pedestrian crossings or designated points, promoting safer road-crossing conditions.

Section 26 - Reserved Parking for Persons with Disabilities

District Assemblies and parking lot operators must designate exclusive parking spaces for persons with disabilities. Public parking areas must have clearly marked areas for PWDs.

Section 27 - Driving License for Persons with Hearing Disabilities

Persons with hearing disabilities may obtain a driver's license after passing a driving test and meeting conditions set by the Driver and Vehicle Licensing Authority (DVLA). This provision promotes independence and mobility among this demographic.

Section 28 - Facilities at Port Terminals

The Civil Aviation Authority and port management authorities must provide facilities to assist the movement of PWDs at ports, ensuring their mobility and comfort during travel.

Section 29 - Reserved Seats on Commercial Buses

Those responsible for booking passengers on commercial buses must reserve at least two seats for PWDs. If these seats are unoccupied when the bus is full, they can be filled by other passengers. This provision aims to prioritise PWDs' access to public transportation.

Section 30 - Contravention of Sections 25 and 29

A person who violates Sections 25 and 29 commits an offence and may face fines of up to fifty penalty units or imprisonment over a term. Where “penalty unit” refers to such units established by the Fines (Penalty Units) Act 2000 (Act 572). The monetary value of a penalty unit stands at GHS 12.00¹. In this regard, the contravention of Sections 25 and 29 is subject to pay up to GHS 600.00 or face imprisonment for up to three months or both. These fines emphasise the importance of compliance with the legislation. However, the effectiveness of these penalties in enforcing compliance needs further assessment.

The Disability Act has, by far, been the most elaborate legislation protecting persons with disabilities in Ghana. Its provisions acknowledge the diverse needs of PWDs across different transport modes, promoting their safety, independence, and convenience. The exemption from import duties for adapted vehicles is particularly noteworthy, as it reduces financial barriers for PWDs seeking suitable transport options.

¹ The United States Dollar to Cedi rate as of November 2023 is \$1=GHS 11.6, according to the Bank of Ghana. As such, a penalty unit of GHS12.00 is equivalent to \$1.0344.

Despite its strengths, the Act has several limitations that warrant further consideration. Regarding the core inclusivity issues, the Act lacks provisions addressing the gender dimension of discrimination, rights of children with disabilities, and non-discrimination. This omission highlights the need for a more holistic approach that considers intersectional aspects of disability. As such, there have been calls for further amendments to reflect and conform to the provisions in the United Nations Convention for Persons with Disabilities (UNCRPD), of which Ghana is a signatory, to enhance the Act's impact and ensure that it meets international best practices.

In this regard, scholars have reviewed the Act and presented some worrying observations that should be addressed to fully realise the intended impact on PWDs. Upon analysing the Act, Asante and Sasu (2015) observed that although the Act covered key thematic provisions such as education, health, and accessibility, it offers no provision on the gender dimension of discrimination, rights of children with disabilities, and non-discrimination. A comparison of Ghana's Disability Act with those in other African countries shows that Ghana's Act lags on significant indicators, as seen in Table 2.1

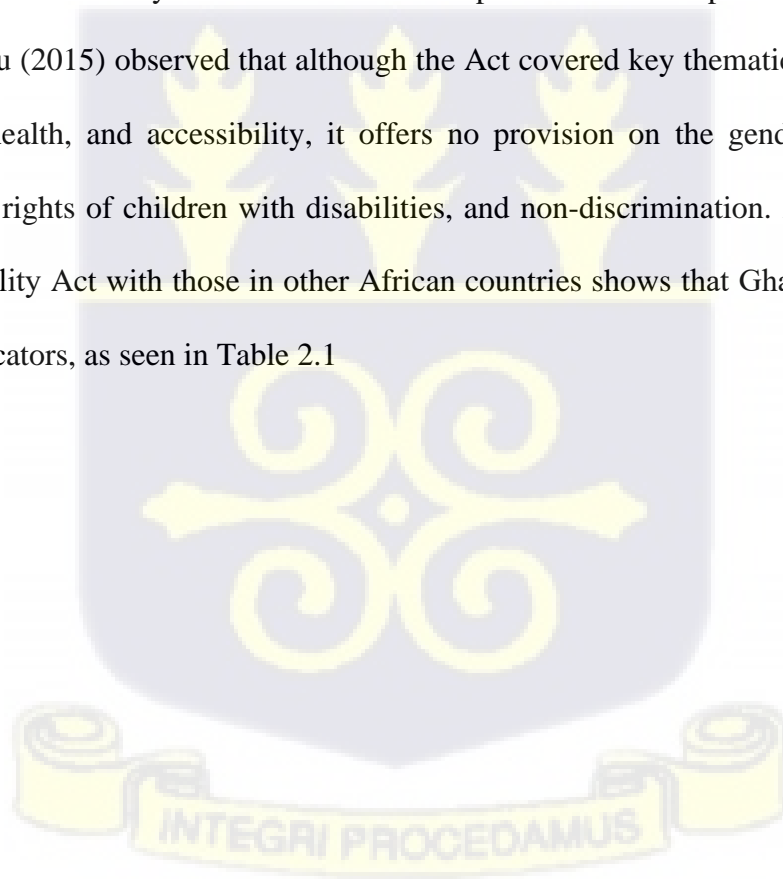


Table 2. 1 Ghana's Disability Act as against other Disability Legislations and Conventions

Disability Legislation, Policies and Conventions	Provision(s)			
	Women with Disability (WWD)	Housing for PWDs	Voting Rights of PWDs	Liability of Construction Professionals
Persons with Disability Act, 2006 (Act 715) (<i>Ghana</i>)	None	None	None	None
United Nations Convention on Rights of Persons with Disability (2008)	Article 6 recognises WWD as subject to multiple discrimination.	Article 28(2d) ensures access by PWDs to public housing programmes.	Article 29(a)(iii) guarantees the free expression of the will of PWDs as electors. It also allows PWDs to vote by proxy, where necessary.	None
Nigerians with Disability Decree, 1993 (<i>Nigeria</i>)	None	Section 7 makes a provision of not less than 10% of all public houses	Section 13 makes provision for PWDs right to vote either in person or by proxy amidst accessible and available polling stations.	None
Persons with Disabilities (Amendment) Act, 2007 (<i>Kenya</i>)	Section 6 recognises WWD as subject to multiple discrimination	None	None	None
National Policy on Disability, 2004 (<i>Namibia</i>)	Schedule 2.5.1 ensures the equal opportunity to participate in all aspects of life by WWD.	Schedule 3.8.4 ensures the provision of housing and its access to PWDs.	None	Schedule 3.4 guarantees that construction industry experts can readily obtain the disability policy and the stipulated criteria for ensuring spaces are accessible to PWDs
National Policy on Care for People with Disabilities, 1996 (<i>Botswana</i>)	None	Schedule 4.3.1.4 Mandates that any land development includes provisions for PWDs.	None	None
National Policy on Equalisation of Opportunities for Persons with Disabilities (<i>Malawi</i>)	Schedule 2.4.10 recognises that WWD encounter heightened discrimination and face increased levels of exclusion from the broader society.	Schedule 4.11.1 ensures improved access to adequate housing facilities for PWDs.	Schedule 2.4.9 acknowledges the frequent denial of the fundamental right of PWDs to participate in national elections."	None

Source: Adopted from Asante & Sasu (2015).

Other studies have indicated similar shortfalls in the implementation of the tenets of Act 715 regarding education, physical access and infrastructure compliance, respectively (Asante & Sasu, 2015; Gavu et al., 2015; Ocran, 2019).

2.9.5 The National Transport Policy (NTP)

Ghana's National Transport Policy (NTP) was first drafted in 2008 and has since been revised in 2020 as the primary governance document for the transport sector. The NTP outlines strategic implementation contexts at the global, regional, and national levels, ensuring Ghana's alignment with international conventions such as the Sustainable Development Goals (SDGs) by the United Nations (2016), the Paris Agreement on Climate Change (2015), and the African Union Agenda 2063 (2014).

More specifically, the NTP significantly contributes to the attainment of several SDGs, particularly SDG 8 (promoting inclusive economic growth), SDG 9 (building resilient infrastructure), SDG 11 (making cities inclusive, safe, resilient, and sustainable), SDG 12 (ensuring sustainable consumption and production patterns), and SDG 13 (taking urgent action to combat climate change). However, concerning the accessibility of persons with disabilities (PWDs) in transportation, Goals 8 and 11 are particularly relevant as they emphasise inclusive economic growth and human settlements for all.

The National Transport Policy aligns with the provisions of the Persons with Disability Act 715 of 2006, specifically concerning transportation accessibility. Policy Goal 1 of the NTP aims to create an accessible, affordable, reliable, safe, and secure transport system for all users. This alignment is crucial for bridging the gap in transportation services for PWDs.

Table 2. 2 Policy Goal 1: Create an accessible, affordable, reliable, safe and secure transport system for all users.

Policy Objective	Strategies	Key Activities	Responsible Ministries/Agencies
1.7 Ensure user-friendly facilities for PWDs to access all modes of transport.	1. Ensure implementation of the provisions on transportation under the PWDs Act, 2006, Act 715 through the enactment of the appropriate Legislative Instruments.	Provide facilities for PWDs (Persons with Reduced Mobility) at airports for aircraft boarding.	Ghana Airports Company Limited (GACL), Ministry of Transport.
	2. Passenger vehicles and rolling stock shall be designed with door openings and platforms suitable for easy access for PWDs.	Develop standards and guidelines. Create public awareness and disseminate information.	Ministry of Transport DVLA, ISTC, MMTL.

Source: National Transport Policy (2020, p. 92)

The implementation of this policy will be prioritised within the medium term of 4 to 5 years and over a long-term period from 10 to 20 years to focus resources to address immediate priorities in the transport sector (Ministry of Transport, 2020).

Strengths and Implications:

1. **Inclusivity and Accessibility:** The NTP's commitment to creating an accessible transport system aligns with the broader goals of inclusivity and accessibility. By incorporating provisions for PWDs, the policy promotes equal access to transportation services, which is vital for the social and economic participation of all.
2. **Strategic Alignment:** Aligning the NTP with international conventions and SDGs ensures that Ghana's transport policies are consistent with global standards. This

alignment facilitates international cooperation and access to funding and technical assistance for transport infrastructure projects.

3. **Holistic Approach:** The policy's comprehensive approach, covering various transport modes and involving multiple agencies, enhances the likelihood of successful implementation. The emphasis on developing standards, guidelines, and public awareness campaigns is critical for fostering a culture of inclusivity.

Areas for Improvement:

1. **Implementation Challenges:** While the policy outlines ambitious goals, the practical implementation of these provisions remains a challenge. There is a need for robust monitoring and evaluation mechanisms to ensure compliance and track progress.
2. **Bureaucratic Hurdles:** Streamlining bureaucratic processes for implementing accessibility features can accelerate progress. For instance, reducing red tape in approving vehicle adaptations for PWDs could enhance their mobility options.
3. **Funding and Resources:** Securing adequate funding and resources for the implementation of accessibility features is crucial. The government must prioritise budget allocations for these initiatives and explore partnerships with international organisations and the private sector.
4. **Public Awareness:** While creating public awareness is a key strategy, it must be ongoing and widespread. Comprehensive education campaigns can foster a more inclusive mindset among the general public and transport operators.
5. **Stakeholder Engagement:** Involving PWDs and their representative organisations in the policy formulation and implementation processes ensures that their needs are

accurately identified and addressed. Their input can provide valuable insights into practical solutions and effective strategies.

The National Transport Policy of Ghana is a commendable effort towards creating an inclusive and accessible transport system. Its alignment with international standards and the Persons with Disability Act 715 highlights the government's commitment to promoting equal access to transportation services. However, addressing implementation challenges, streamlining bureaucratic processes, securing funding, raising public awareness, and engaging stakeholders are critical for the successful realisation of the policy's objectives. By focusing on these areas, Ghana can make significant strides in enhancing mobility and quality of life for persons with disabilities, ensuring that no one is left behind.

2.10 Models of Disability

To better appreciate the nature, form and extent of disability present in individuals with disabilities, a general overview of disability and its explanatory models are highlighted herein. The study is carried out with the ideology that PWDs belong to a vulnerable group and are, thus, met with various challenges accessing and using public transport services in their life journeys. In understanding the concept of disability, several models have been developed and identified from different perspectives. These models represent some belief systems that portray disability in a certain way and proceed to show how it can be dealt with within society.

In this regard, two prominent models of disability have been recognised over the past 50 years. These are the Individual and Social Models of Disability (LoBianco & Sheppard-Jones, 2007). In addition, other notable models of disability can be described as off-shoots or a combination of the two dominant models, such as, the Biopsychosocial Model, the Multi-dimensional Model, the Cultural Model, the Relational Model, the Minority Model and several others (Goodley, 2011).

2.10.1 The Individual/Medical Model of Disability

This model of disability was historically the main model of disability, where disability was solely attributed to emanate from the individual's impairment or health condition (Goering, 2015). As such, this model links disability diagnosis to an individual's physical body. The individual model has, thus, brought forth terminologies such as, "invalid", "cripple", "spastic", "handicapped", and "retarded" into the disability literature, where the able-bodied person is perceived to be somehow "better" or superior to people with disabilities (Johnstone, 2012). The individual model posits that the call to cure or at least manage illness or disability must revolve around identifying the illness or disability from an in-depth clinical perspective to understand it better, learn to control it, or alter its course. However, the fixation of the individual model on the individual has led to stereotyping and defining people by a condition or their limitations (Davis, 2013). A typical example in transportation will be the inability of a person in a wheelchair to access a bus due to the lack of a wheelchair lift or ramp. Here, the emphasis from the individual model perspective is placed on the person's condition other than what the person needs to fully integrate, function, or get onto the bus.

2.10.2 The Social Model of Disability

This model of disability emerged from the intellectual and political arguments of the Union of Physically Impaired Against Segregation (UPIAS), a disability rights movement in the United Kingdom (UK) inspired by Marxism (Shakespeare, 2006). Worthy of mention is the UPIAS publication of "The Fundamental Principles of Disability" in 1976, which brought the social model to birth. Subsequently, the disabled academic Mike Oliver, in 1983, coined the phrase "social model of disability" in reference to the ideology at the time. The model asserts that experiences of disability are a social construct borne out of society's response to the psychological deficiency of an individual (Oliver, 2017). The social model of disability thus focuses on the environmental, political, social, and economic barriers to inclusion and,

therefore, aims for the full integration of PWDs into society. The model reduces the terminology widely used and agrees more with "disabled people" rather than "people with disabilities", which connotes a mainstream approach to disability. The model was also advanced in 2001 by the World Health Organisation (WHO), which redefined disability and declared disability an umbrella term with several components such as:

- **Impairments:** A problem in the body or alterations in structure. For example, paralysis, blindness, etc.
- **Activity limitations:** A difficulty encountered by a person in executing a task or action. For example, walking, eating, etc.
- **Participation restrictions:** A problem experienced by someone involved in a life situation. For example, facing discrimination in transportation, employment, medical care, etc.

In this regard, the WHO differentiates the idea of disability from that of impairment. It does this by identifying the systemic barriers, negative attitudes and exclusion by society as major contributory factors in disabling people (World Health Organisation, 2002). The model, thus, spurs the notion that although physical, sensory, intellectual or psychological variations may cause individual impairments or limitations, they do not necessarily lead to disability unless the society on its part fails to account for accommodating or including these people regardless of their differences. The typical example of the person in a wheelchair will be viewed in contrast, whereby the social model of disability would see the lack of the wheelchair lift or ramp as the disabling barrier and not the individual's impairment.

This model has been instrumental in building the social movement of disabled people. It has also been essential in the liberation of the disabled and has also psychologically improved the self-esteem of disabled people (Oliver, 2013). The model, thus, demands the removal of

physical, attitudinal, institutional or legal barriers to the participation of PWDs, since persons with similar impairments in different societies, may not experience the same limitations in their lives. The thinking of this model aligns well with the International Classification of Functioning, Disability and Health (ICF)'s "bio-psycho-social model", where a workable compromise between the medical and social models interacts with the health condition's contextual factors, both personal and environmental.

2.11 Life Course Theory

The first theory adopted for this study is the Life Course Theory. The life course perspective is a theoretical model that has been developed over the last 50 years across several disciplines (Elder et al., 2003). Sociologists, anthropologists, historians, psychologists, demographers, economists, and geographers have more recently helped shape and advance understanding altogether (Coulter et al., 2020; Elder Jr & Shanahan, 2006; Kolk, 2017; Pearce, 2018). An American sociologist, Glen Elder Jr., was one of the early authors to write about life course perspectives and continues to be one of the key forces behind its development. In the course of his earlier writings, he began to call for developmental theory and research that looked at the influence of historical forces on family, education and work roles (Hutchison, 2010).

A life course can, thus, be thought of as a "sequence of socially defined events and roles that the individual enacts over time" (Giele & Elder, 1998, p. 22). A life course perspective examines biological, developmental (including social and psychological), historical or geographic changes and attempts to identify factors that affect the arc of change and transformations that the change brings about (Hendricks, 2012). Life course theorists rely on a number of concepts that aim to lay a solid foundation and provide a much more lucid understanding of the life course perspective. These concepts include but are not limited to transition, cohort, trajectory, life event, interdependency, human agency, timing generation and a turning point as developed by Hutchison (2010). Brief explanations of these concepts are

presented as follows in relation to the central theme of this thesis on persons with disability's accessibility and use of public transport services:

2.11.1 Cohort: This refers to a group of persons born during the same period who experience particular social changes within a given culture in the same sequence and age. Examples are the Baby Boomers (people born between 1946-1964), Generation X (people born between 1965-1980), Millennials (people born between 1981-1996), Generation Z cohort (people born between 1997-2012), and the Generation Alpha (people born in the early 2010s-2024). The peculiar experiences of cohorts on public transport use and accessibility are vital to this research's exploration because each group has unique experiences and attitudes towards public transport use and accessibility. For instance, older cohorts may face more significant challenges due to ageing infrastructure and limited accessibility features in older transport systems, while younger cohorts may benefit from newer, more inclusive designs. By analysing the experiences of different cohorts, we can identify specific needs and improvements required to make public transport accessible for all.

2.11.2 Transition: This represents the phases of change that individuals experience. These changes are discrete and bounded. Here, each person experiences a number of changes in roles and statuses that represent a distinct departure from prior roles and statuses. When these transitions happen, an old phase of life ends, and then a new phase begins. Transitions relate to birth, death, marriage, divorce, and status changes or roles (Hutchison, 2010). For PWDs, understanding transitions is crucial as individuals who acquire disabilities during their developmental years have different experiences and coping strategies compared to those with congenital disabilities. Analysing these transitions helps in tailoring transport services to address the specific needs arising at different life stages, ensuring continuous accessibility.

2.11.3 Trajectory: Trajectories involve a long-term pattern of change in a person's life where transitions are embedded. Transitions in people's lives form a trajectory either understood in relation to a particular sphere of life (such as education trajectory) or a comprehensive view (such as a biography). Because people live and co-exist with others in multiple spheres, their lives are made up of multiple intersecting trajectories, such as, family life trajectories, work trajectories, and health trajectories, among others (Hutchison, 2010). For PWDs, trajectories are important as they span long periods during which transport infrastructure may evolve. Understanding these trajectories can reveal how changes in transport systems impact PWDs over time and help design interventions that accommodate their evolving needs.

2.11.4 Life Event: This is a significant occurrence involving a sudden change that may produce serious and long-lasting effects. Life events can be preset by social norms or come suddenly and unexpectedly, which can cause a crisis for individuals. The emphasis on a life event is in the happening itself and not the resultant transitions that occur as a result of the happening (Mortimer & Shanahan, 2007). An example is a wedding event, which leads to a transition that involves changes in roles and statuses concerning the family setting. However, the wedding event alone remains the focal lens as a life event. Within the disability context, acquired disability poses a critical life event, bringing a sudden change in the individual's abilities within their social environment. Understanding life events is crucial for identifying the immediate and long-term support needed for PWDs to adapt to new realities, particularly in accessing and using transport services.

2.11.5 Interdependency: This concept posits that the life courses of individuals are closely linked under the micro, meso, and macro systems in which people experience and interpret social, cultural and historical phenomena (Mortimer & Shanahan, 2007). For PWDs, interdependencies are evident in how family dynamics, community support, and societal attitudes impact their transport accessibility. By examining these interdependencies, we can

develop more integrated and supportive transport policies that address the interconnected needs of PWDs and their social networks.

2.11.6 Human Agency: This is based on the assumption that humans are able to make their own decisions that determine the fate of their lives rather than being passive recipients of a predetermined life course. This is well acknowledged, given the constraints and opportunities present in human decisions (Hutchison, 2010). For PWDs, recognising human agency is vital as it emphasises their ability to make choices and pursue education, work, and other life activities. Supporting human agency involves creating transport systems that empower PWDs to make independent travel decisions, enhancing their autonomy and participation in society.

2.11.7 Timing: The concept of time within this context refers to the chronological ordering of events rather than situating events in some historical and cultural milieu. Because life events are not rigidly predetermined, much attention is placed on the specific years/periods where transitions occur to understand the varied responses that people demonstrate in response to these transitions. Chronological age here spans biological, psychological, social, and spiritual ages, each underscoring people's pertinent responses and coping strategies (Hutchison, 2010). For PWDs, understanding the timing of events, such as the onset of a disability, can reveal critical periods when support and accessible transport are most needed, allowing for timely interventions.

2.11.8 Turning Point: This refers to a period when major changes occur in the life course trajectory. It involves a transformation in how the individual views the self in relation to the world and a transformation in how the person responds to risk and opportunity (Hutchison, 2010). For PWDs, turning points such as acquiring a disability or significant changes in health can drastically alter their transport needs. Recognising these turning points helps in designing

responsive transport systems that accommodate sudden and profound changes in mobility requirements.

2.11.9 Young Ages: During young ages, such as childhood and adolescence, the Life Course Theory considers the influence of family dynamics, education, and socialisation on mobility options. Children with disabilities may rely on parental or caregiver support for transportation, affecting the modes and accessibility of transport available to them (Hutchison, 2010). The theory recognises that experiences during this stage, such as inclusive education, social interactions, and early exposure to accessible transport, can impact their future attitudes, skills, and preferences regarding transport mobility. As such, ensuring accessibility from a young age fosters independence and confidence in using public transport later in life.

2.11.10 Youthful Ages: In the young adulthood and early career stages, the Life Course Theory examines how transitions into adulthood, education, employment, and social relationships shape transport mobility options (Hutchison, 2010). Young adults with disabilities may face unique challenges in accessing education and employment opportunities, which can influence their transport choices. The theory highlights the importance of inclusive educational institutions, vocational training, and employment support services that can enhance their independence and access to appropriate transport modes, ensuring that young adults with disabilities are not left behind during critical life transitions.

2.11.11 Adult and Aged Lives: In adulthood and older age, the Life Course Theory considers how life events, such as marriage, parenthood, changes in health status, and retirement, impact transport mobility options. For example, individuals with disabilities who get married or become parents may require accessible transport options that accommodate their family needs. Changes in health or mobility abilities can also influence the suitability of different transport modes, with individuals potentially transitioning from walking or cycling to using public

transport or accessible vehicles. Additionally, retirement or reduced income may affect affordability and access to private vehicles, potentially leading to a greater reliance on public or community-based transport services. Understanding these dynamics ensures that transport policies address the evolving needs of PWDs throughout their lives.

2.11.12 Intersection of Life Events and Factors: The Life Course Theory recognises that life events and factors, such as marital status, education, employment, and health status, intersect and shape the transport mobility options and choices of persons with disabilities. For example, individuals with higher education levels and stable employment may have greater financial resources and flexibility to afford private vehicles or specialised transport services. Conversely, individuals with lower educational attainment or limited employment opportunities may rely more heavily on public transport or community-based solutions. Additionally, changes in health status, such as the onset of a disability or worsening mobility, can significantly impact the transport options individuals find suitable and accessible. By understanding these intersections, policymakers can develop more targeted interventions that address the diverse needs of PWD.

Applying the Life Course Theory for this study offers an opportunity to analyse how individual trajectories, life events, and factors intersect to shape the transport mobility options, choices and experiences of PWDs across various life stages. This holistic perspective provides valuable insights into the complex interactions between individual characteristics, social environments, life events, and mobility decision-making processes. It underscores the importance of inclusive policies, education, employment opportunities, and supportive services at different stages of life to ensure equitable access to suitable transport options for persons with disabilities.

2.11.13 Limitations of the Life Course Theory and the Way Forward

While the Life Course Theory provides a valuable framework for understanding the dynamic nature of individuals' experiences over their lifetimes, it is not without its limitations (see (Cheverko, 2020; Dannefer et al., 2016; Hareven, 2019)). In its aim to provide a context for understanding, explaining, and predicting phenomena, the Life Course Theory emphasises individual development over time, but may not adequately address structural and sociocultural factors that significantly influence the experiences of PWDs in navigating public transportation systems.

First, the Life Course Theory tries to simplify the complexity of human lives into generalised stages, which may not fully capture the unique experiences of individuals. In this study, this limitation means that while the theory helps explain certain trends in PWDs' transport choices over their life transitions and trajectories, it might not account for all the nuances and individual differences among the participants. It is, therefore, important to look at multiple methods of data collection (mixed methods) and the use of case studies (multi-site case studies) to capture the nuanced complexities of individual experiences and differences.

Second, the theory tends to focus on individual-level factors and life events, sometimes neglecting the influence of broader societal, economic, and structural factors. In this research on PWDs' accessibility in Ghana, this limitation might underemphasise the impact of structural barriers like inadequate infrastructure or discriminatory policies, which can significantly affect PWDs' transportation experiences. In going around this limitation, the need to highlight the broader societal and structural factors that influence the transport experiences of PWDs is key.

Third, the Life Course Theory may underemphasise individuals' agency and their ability to make choices and take control of their lives. This may not fully recognise the coping strategies and resilience of PWDs who actively seek ways to change the status quo and navigate transport

challenges. To address this limitation, it is essential to recognise PWD's capacity to challenge and change social norms and practices in order to highlight how they actively adapt, seek support, and advocate for improved accessibility in the transport system.

2.12 Critical Disability Theory

The second theory adopted for the study is the Critical Disability Theory. Explanations of the disability phenomenon have evolved within scientific discourse, beginning from functionalist theories through interactionist theories to theories of discrimination and social exclusion (Davis, 2013). This has helped develop some theoretical frameworks for studying and analysing disability issues. The term “Critical Theory” was coined in 1937. It can be traced to Max Horkheimer's work titled "Traditional Critical Theory" as part of the works of the Western Marxist social researchers and philosophers at the Institute of Social Research, also known as the Frankfurt School in Germany (Bronner, 2017). Critical theory, as such, seeks to: (i) explain what is wrong with current social reality, (ii) identify the actors to change it, and (iii) make provision for criticism and practicable goals for social transformation (Hosking, 2008; Bohman, 2005).

The Critical Disability Theory (CDT), an offshoot of the Critical Theory family, provides an approach to the concept of disability that is simultaneously explanatory, practical, and normative (Hosking, 2008). The Critical Disability Theory is one of the theoretical approaches under Disability Studies and posits that disability is not simply a natural phenomenon, but it is always influenced by social relations, structures, and cultural values that stigmatise certain body-minds and populations. As such, the CDT eschews the core position of the individual model of disability, but combines aspects of the social model of disability and further includes how issues of political will, social values, and institutional considerations influence the experiences of persons with disabilities.

While the CDT is a useful theoretical framework in fields such as social work, its value in the field of geography is equally relevant in two main veins. In terms of spatial analysis, the CDT encourages the examination of spatial inequalities that affect PWDs. This is directly relevant to geography, which inherently studies spatial phenomena. By focusing on how spatial arrangements and geographical contexts influence accessibility, the CDT enriches geographic analyses. Secondly, in terms of temporal dynamics, the CDT also emphasises the historical and temporal contexts that shape experiences of disability. In geography, understanding how historical policies and urban development impact current transport accessibility for PWDs can provide deeper insights into spatial-temporal dynamics.

The CDT postulates that disability does not merely exist in the person with an impairment but rather, it is characterised by the interrelationship between (i) the disability of the individual, (ii) the environment in which the individual resides, (iii) how the individual responds to the disability, and (iv) how others treat the person with the disability among others (Hosking, 2008). Hosking (2008) further suggests seven elements that the CDT is hinged on as follows:

- 1) Social model of disability
- 2) Multidimensionality of disability phenomenon
- 3) Diversity as value
- 4) An approach based on rights
- 5) Voice to persons with disabilities
- 6) Influence of language in understanding disability
- 7) Transformative policies

The crust of all these assumptions of CDT is to free the dominating society from its fixated prisons of ableism towards one that provides access to all services (Meekosha & Shuttleworth, 2009), especially, public transport services in this case, from which persons with disabilities

will ultimately benefit. However, this study focuses on three elements: the social model of disability (1), the approach based on rights (4), and transformative policies (7), as listed above. These three elements are selected due to the interest in the specificity of special needs and the proposition of requisite infrastructure and policy to the response from society towards the various strands of disability that people are faced with.

The CDT version of the social disability model is very important for disability studies. It blends components of the medical and social model, which informed the World Health Organisation's explanation and reference of disability to a "biopsychosocial model" (Flynn, 2022). As such, this approach maintains a balance in the contributions of impairment, personal/individual responses to the impairment, and the barriers imposed by the social environment to the whole concept of disability. It also fills the environmental and structural gap identified in the Life Course Theory and highlights the broader societal and structural factors that influence the transport experiences of PWDs to provide a more comprehensive understanding.

The rights of PWDs are to be upheld at all times and in all activities. In this regard, the CDT calls for the rights to autonomy and (social) rights to full participation in social activities to ease the tensions between social welfare and rights-based approaches to disability policy. Thus, CDT finds loopholes in the existing liberal rights and pursues its rectification to incorporate the diversity of the disabled community within the scope of its conception of equality. In view of this, the CDT complements the Life Course Theory's underemphasising nature of agency by placing emphasis on the agency and empowerment of PWDs to demand and insist on their rights. It further acknowledges their potential and willpower to question and transform societal norms and behaviours.

Transformative policies have resolved a plethora of long-standing retrogressive issues, and those pertaining to disability are not to be left out. Max Horkheimer and his colleagues at the

Frankfurt School believed in critiquing the status quo, not solely for the purpose of theorisation or enhancing understanding, but rather to offer theorisation in pursuit of empowerment and substantive equity, not just formal (Bronner, 2017). Through this element, the CDT provides the basis for the formulation, amendment, and enforcement of policies on inclusion, equality, and autonomy that respond to persons with disabilities.

While geographical studies encompassing the critical disability theory and its tenets to understand the spatial and temporal aspects of mobilities of PWDs are limited in the literature, worthy of note are studies by Aldred & Woodcock (2008), Chouinard (2015), Gleeson (1996) and Yaagoubi et al., (2019).

Aldred & Woodcock (2008) primarily focused on cycling and urban mobility in relation to the broader discourse of mobility justice, which includes considerations for PWDs. The research discusses how urban design and transportation policies need to be inclusive to cater to the needs of all users, including those with disabilities. Chouinard (2015) dives deeper into the experiences of PWDs, particularly examining the intersection of disability, geography, and social justice. Chouinard's work focuses on how geographic and social contexts exacerbate or alleviate the exclusion of PWDs, critically assessing the role of societal attitudes and institutional arrangements. As a foundational figure in the application of CDT in geography, Gleeson (1996) examines the exclusion of PWDs from public spaces and facilities. His research critiques urban planning and policies that fail to consider the needs of PWDs, advocating for a more inclusive approach to urban environmental design and accessibility.

These scholars have integrated diverse perspectives on mobility, accessibility, and social justice, which is further explored in this study.

In this vein, the study adopts the Critical Disability Theory and the Life Course Theory to better understand how persons with disabilities access and use public transport services in Ghana. In

this regard, the individual's agency, the provisions within the community in which the individual lives, including the transport infrastructure and services available to the public, and how the individual copes with these infrastructure and social structures over their life course, are of great interest and as such, become a core aspect of the research. As derived from the Critical Theory, the CDT aims to change society's economic, political, and social structure for the liberation of humanity and to achieve empowerment and real equality. Critical Disability Theory, thus, centres on disability as it defines the potential for the social conditions of disabled people to be other than what they are (Garland-Thomson, 2018).

The Critical Disability Theory, over the years, has faced some criticisms. Notable among them is the fact that a mere deconstruction of differences does not lead to equality. Also, the theory does not fully encompass the key ethical and political issues facing persons with disabilities (Vehmas & Watson, 2014). In a bid to surmount this looming shortfall on the CDT, this study emphasises practicable goals for social transformation as it engages the moral and political issues sensitive to the experiences of individuals living with a disability.

The integration of Life Course Theory and Critical Disability Theory provides a powerful lens for examining the experiences of Persons with Disabilities (PWDs) within various spatial and temporal contexts. Applying the Life Course Theory in geographic research allows for the analysis of how spatial and temporal dynamics impact the lived experiences of individuals, particularly PWDs, throughout different stages of life. The Critical Disability Theory complements this by critically examining how societal structures and spatial arrangements contribute to the marginalisation of PWDs, advocating for more inclusive and equitable spaces. Together, these theories provide a comprehensive framework for understanding and addressing spatial inequalities and promoting social justice in geographic research.

2.12 Conceptual Framework

In guiding how researchers reflect on phenomena, conceptual frameworks provide a theoretical overview of intended research and order within that process. In this regard, the philosophical perspective researchers adopt to inform their studies embodies a conceptual framework. Typically developed from theory, a conceptual framework identifies the complex relationships and interrelationships between the phenomena under study (Hughes et al., 2019). As illustrated in Figure 2.2, the conceptual framework for this study is inspired by a unification of the Life Course Theory and the Critical Disability Theory within an urban and rural environment (Abane, 2011; Hosking, 2008; Hutchison, 2010; Rodrigue et al., 2020) to describe how PWDs access and use public transport services. The integration of Life Course Theory and Critical Disability Theory provides a unique lens through which to view the challenges and experiences of Persons with Disabilities (PWDs) in accessing public transport services. The necessity to merge these theories arises from the complex interplay between individual life trajectories and the broader socio-cultural and structural contexts that influence accessibility. The theories explain the dynamics surrounding PWDs of all life stages, various sociodemographic characteristics, and how they move within a society that has made little or no effort to accommodate their unique needs to access public transport of various modes to reach their activities. Behind these concepts, the study seeks to assess the status quo on disability inclusion in transport services and infrastructure from the actors and relevant stakeholders tasked with enforcing regulations, intervening, advocating, and leading the charge to improve such situations. This theoretical framework thus significantly contributes to the broader goals of social justice, equality, and improved quality of life for PWDs.

CONCEPTUAL FRAMEWORK

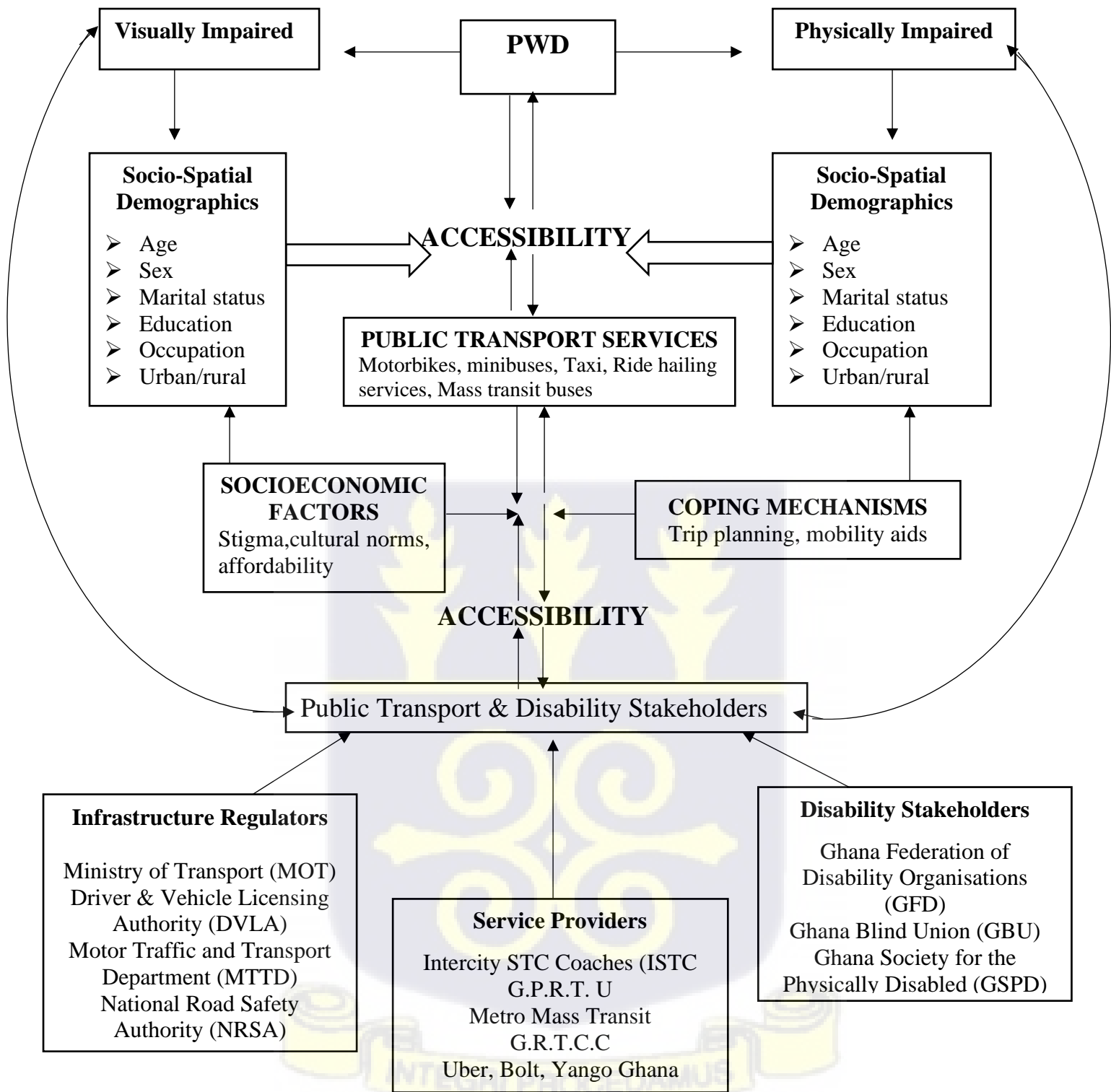


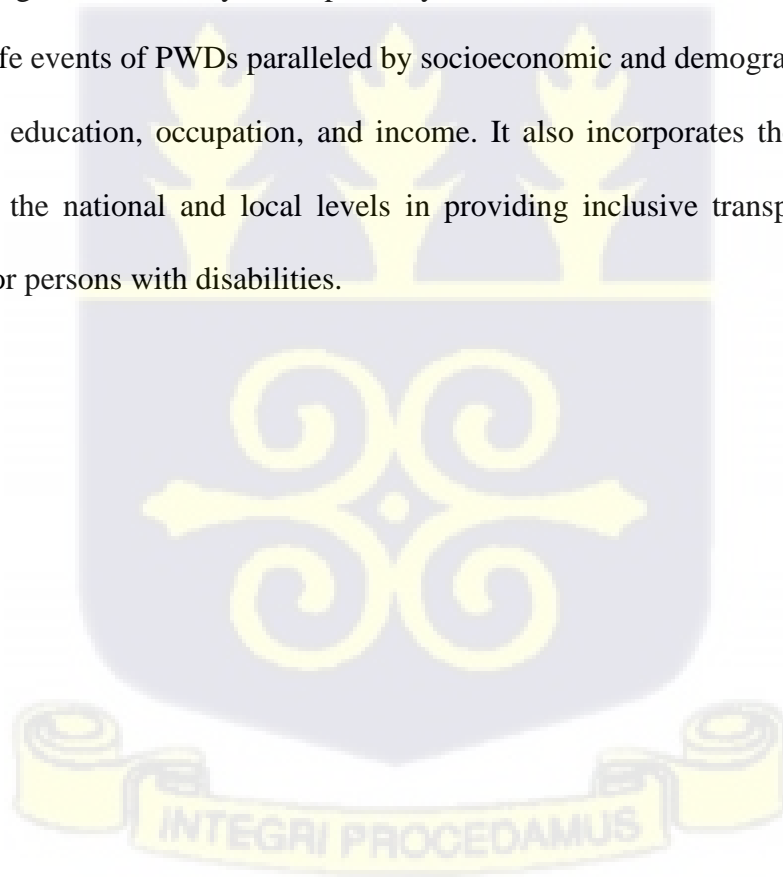
Figure 2. 2 Conceptual Framework. An integrated conceptual framework of accessibility and usability predictors of public transport services by PWDs. Source: Author's own construct, with inspiration from Abane (2011), Hutchison (2010), and Rodrigue et al. (2020).

As illustrated in Figure 2.2, persons with visual and physical impairments of various socio-spatial demographic characteristics navigate through the urban and rural spaces to have access to public transport services such as minibuses, taxis, ride-hailing services, and mass transit buses within the larger public transport infrastructure setting. The framework here delineates the different life stages and transitions of individuals with disabilities, taking into account factors such as their age, educational background, occupation, marital status, etc., which influence the nature of their experiences and their coping strategies in the quest to access and use public transport services. In navigating through these public transport services, PWDs encounter socioeconomic barriers such as stigma, negative cultural norms, and transport costs, which shape their mobility potential. In view of these looming constraints, PWDs from various socio-spatial demographics resort to strategies such as pre-trip planning and the use of mobility aids to access transport services. Also, from the stakeholder perspective, the transport stakeholders, comprising the transport infrastructure regulators, transport service providers, and the leadership of the disability community, ensure oversight and develop policies aimed at creating an inclusive public transportation system. A feedback loop from the 'Public Transport & Disability Stakeholders' back to 'PWDs' underscores the cyclical process of evaluation and improvement in accessibility measures. This loop represents the ongoing adjustments that stakeholders make in response to the evolving needs of PWDs and the outcomes of implemented changes. By establishing this feedback mechanism, the framework acknowledges that accessibility is not a static achievement but a continually evolving goal. Stakeholders utilise feedback from PWDs gathered through direct engagement or indirect assessments of service usage and accessibility barriers to refine, enhance, or overhaul transport services and policies. This iterative process ensures that public transport systems become increasingly responsive to the needs of PWDs, fostering greater inclusivity and practical utility. It also emphasises the role of PWDs as active participants in shaping the transport services they rely

on, rather than passive recipients. Thus, these interventions feed into the inclusive public transport infrastructure that the various transport services utilise in conveying PWDs on their mobility journeys.

2.14 Chapter Summary

The chapter broadly reviewed the literature on disability, accessibility, and public transport. The various concepts associated with the study's main objective were also explained. Selected theories like the social model of disability, the Life Course Theory, and the Critical Disability Theory were put forward to illuminate how the exclusions of PWDs in the public transport delivery chain affect their participation and sustain their life activities. The conceptual framework that guides the study is inspired by the coalition of theories and concepts of disability and life events of PWDs paralleled by socioeconomic and demographic factors such as age, gender, education, occupation, and income. It also incorporates the intervention of stakeholders at the national and local levels in providing inclusive transport services and infrastructure for persons with disabilities.



CHAPTER THREE

STUDY AREAS AND RESEARCH METHODOLOGY

3.0 Introduction

The previous literature review chapter highlighted the concept of disability, public transport and development. It delved into the pertinent research in the field of disability and transportation while also examining the legal frameworks enacted to provide context regarding the consideration of individuals with disabilities in relation to their mobility on public transportation services. This chapter delineates the study area and provides the geographic region's context and characteristics that constitute the study. It first presents the Greater Accra Region and the Ashanti Region of Ghana as study sites. It then discusses the philosophical underpinning, research paradigm, and methodology adopted for studying how PWDs move, access, and use public transport services. The chapter presents a detailed account of the research process from its conception and design and provides justifications for adopting a mixed-method approach and the case study design. The chapter finally discusses the validity, reliability, ethical considerations, and limitations in accordance with the methodological research procedures.

3.1 Background of Study Area

3.1.1 Geography of Ghana

This thesis delves into the case of accessibility and use of public transport services by persons living with disabilities in Ghana. First, a brief geography of Ghana and the selected regions and areas are presented.

Ghana is located in West Africa, with Cote D'Ivoire bordering it on the west, Togo on the east, Burkina Faso on the north, and the Gulf of Guinea on the south. The country occupies a total

surface area of 248,533 sq km, out of which land occupies 227,533 sq km and water occupies 11,000 sq km. According to the 2021 Population and Housing Census, the total number of Ghanaians in the country is 30,792,608, consisting of 15,610,149 females and 15,182,459 males (Ghana Statistical Service, 2021). The national population density (number of persons occupying a square kilometre of area) in the 2021 PHC is 129 persons per square kilometre. The country's population has seen increasing urban representation, with 56.7% urban and 43% rural. The most urbanised region is the Greater Accra Region (91.7%), while the least urbanised is the Upper East Region (25.4%). The average household size of the country is 3.6, the lowest recorded in the last six decades and represents a decrease by one person (0.9) since 2010 (4.5). Ghana's age structure is currently dominated by young people aged 15-35, representing 38.2%. The working-age bracket of 15-64 years represents 60.4%, while the dependent population of 0 - 14 years and 65 years and above represents 35.3% and 4.3%, respectively (Ghana Statistical Service, 2021).

The major ethnic groups in the country are the Akans (45.7%), the Mole-Dagbani (18.5) and the Ewes (12.8) out of the nine ethnic groupings. The overall literacy rate in the country is 69.8%. From this population, 74.1% of males are literate, while the literacy rate for females is slightly lower at 65.6%, indicating a gender disparity in literacy levels. About 8 percent (2,098,138) of the population have varying degrees of difficulty in performing activities, which is higher among females (58%) than males (42%). The proportion of the population with varying degrees of difficulty performing activities in rural areas (52%) is higher than in urban areas (48%). Among the recognised difficulties people experience in performing various functions, persons with difficulties in seeing constitute the highest (49.2%), followed by difficulties in walking/climbing stairs (45.5%), with the lowest being difficulties in communicating (13.3%) (Ghana Statistical Service, 2021).

The study selects the Ashanti and Greater Accra regions (shown in Figure 3.1) as study sites for reaching PWDs, with justification explained as follows.

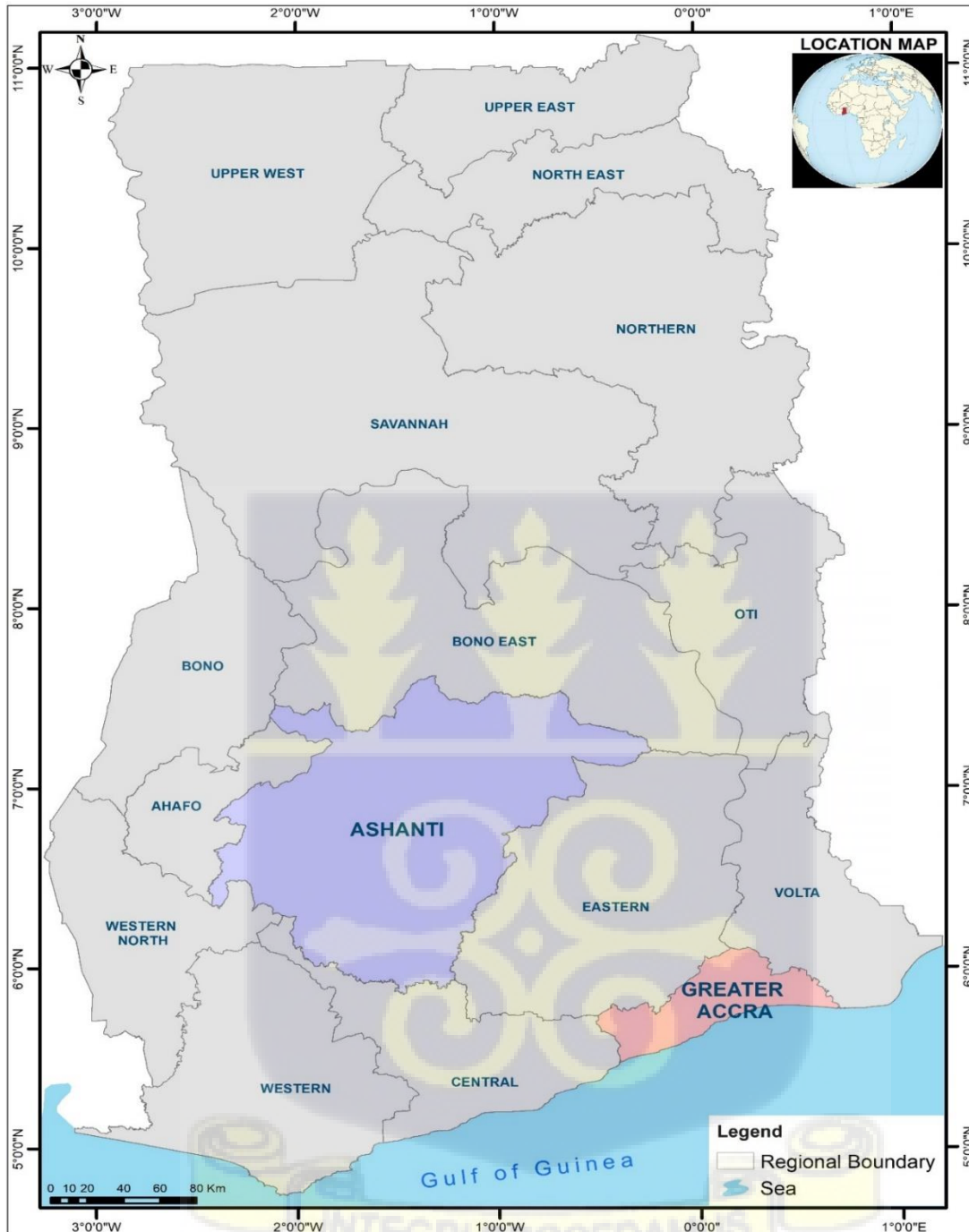


Figure 3. 1 Map of Ghana with the Selected Regions

Source: Centre for Remote Sensing and Geographic Information Services, 2022

3.1.2 Justification for Selecting the Greater Accra and Ashanti Regions as Study Sites

The selection of appropriate study sites is crucial for the validity and applicability of research findings. In the context of investigating public transport accessibility for Persons with Disabilities (PWDs) in Ghana, the Greater Accra and Ashanti regions represent strategic choices such as emphasising their demographic significance, economic and transportation centrality, and contrasting urban-rural landscapes.

3.1.2.1 Demographic Significance

First, the Greater Accra and Ashanti regions represent the most populous regions for PWDs in Ghana, specifically those with physical and visual impairments. According to the Ghana Statistical Service (2021), these regions house the largest communities of PWDs, making them pivotal in understanding the transport accessibility challenges and needs of this demographic (See Figure 3.2). Studying these areas allows for an in-depth exploration of the experiences of a significant portion of Ghana's disabled population, ensuring that the findings are reflective of the realities faced by those most affected. The concentration of PWDs in these regions facilitates a rich data collection process and enhances, to some extent, the generalizability of the research outcomes to similar urban and rural settings. Figure 3. 2 shows Ghana's PWD population density map with the selected regions highlighted.

3.1.2.2 Economic and Transportation Hubs

Second, both regions are vital economic and transportation hubs within Ghana. Acheampong et al. (2022) highlight that the dynamic nature of public transport services in these regions provides a comprehensive backdrop for analysing the accessibility spectrum available to PWDs. The diversity and complexity of the transport systems in these hubs offer a broad perspective on the infrastructure and services, highlighting both exemplary practices and critical gaps in accessibility. The economic prominence of these regions also ensures that

improvements in public transport services have the potential to catalyze significant socio-economic benefits for PWDs, thereby enhancing their quality of life and social inclusion.

3.1.2.3 Urban-Rural Contrast

Lastly, the contrasting urban and rural settings within these regions present a unique opportunity for comparative analysis. The Greater Accra region, being highly urbanised, and the Ashanti region, which encompasses more rural areas, represent different challenges and opportunities for PWDs accessing public transport. As noted by Ghana Statistical Service (2021) and Poku-Boansi & Cobbinah (2018), this contrast is critical for understanding how urbanisation influences transport accessibility. The insights gained from comparing these environments are invaluable for developing targeted interventions that are sensitive to the specific characteristics of urban versus rural settings.

In conclusion, the choice of the Greater Accra and Ashanti regions as the study sites for examining public transport accessibility for PWDs is grounded in robust demographic, economic, and geographic rationales. This strategic selection not only enhances the depth and relevance of the research but also ensures that the findings can effectively inform policy-making and practical implementations aimed at improving accessibility for PWDs. By focusing on these key regions, the study promises to contribute significant insights that could drive systemic changes in public transport services across Ghana.



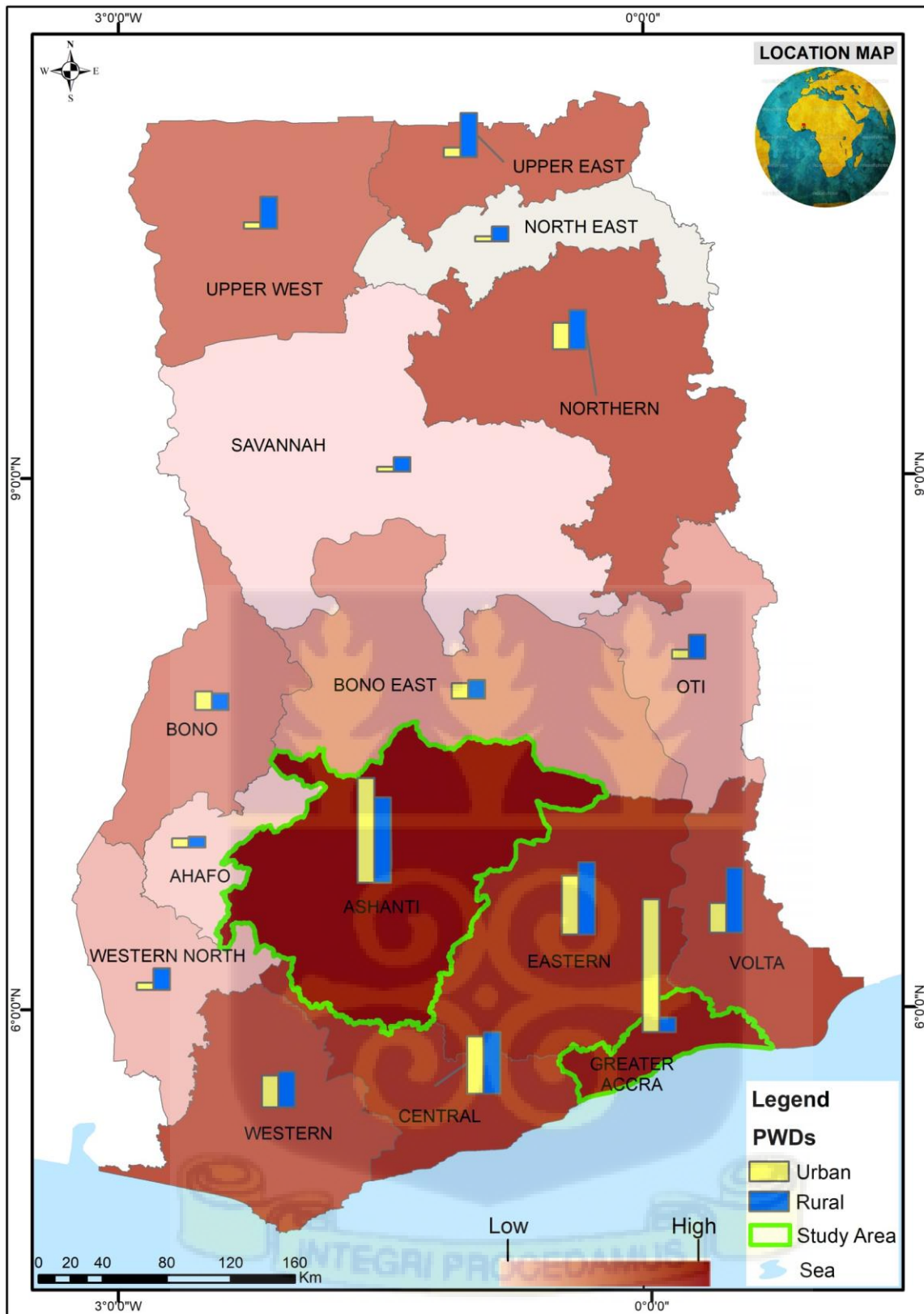


Figure 3. 2 PWDs Population Density Map of Ghana with the Selected Regions

Source: Centre for Remote Sensing and Geographic Information Services, 2022

3.1.3 Characteristics of the Greater Accra Region

The Greater Accra Region is located in the south-central part of the country and shares borders with the Eastern Region to the north, the Volta Region to the east, the Central Region to the west and the Gulf of Guinea to the south (Ghana Statistical Service, 2021). The region occupies a total land surface area of 3,245 square kilometres, representing 1.4% of the national surface area, making it the smallest among the 16 administrative regions in the country. Despite being the smallest region in size, it is the most populous, with approximately 5,446,237 inhabitants representing 17.7% of the national population. The region is home to about 282,719 PWDs, with 254,276 (89.9%) of them representing the highest number of such persons living in urban areas in Ghana (Ghana Statistical Service, 2021). Almost half a million (477,543), representing 1.8% of persons 5 years and older, have a lot of difficulty in performing an activity or cannot do any activity at all in at least one domain, with the proportion of females (56.6%) being higher than males (43.4%). Out of the population of 5 years and older persons with varying degrees of difficulty in performing activities, a higher proportion of males than females in both urban (22.7% vs. 20.8%) and rural (24.1% vs. 23.7%) areas have a lot of difficulty in performing an activity or cannot do any activity at all in at least one domain (Ghana Statistical Service, 2021).

The region comprises 29 Metropolitan, Municipal, and District Assemblies that steer the affairs of the geographical areas they represent. Even though there are a number of ethnic groups in the region, the Ga-Dangme is the indigenous ethnic group. The Greater Accra Region hosts the national capital city of Accra, and as a result, a lot of social infrastructure and amenities, along with a few tourist attractions, can be found in the region (Ghana Statistical Service, 2021). In terms of road transportation, the Greater Accra Region is served by salient national highways that include the N1, N2, N4 and N6 highways, which connect Accra to the Central, Western,

Eastern, Ashanti and Upper East Regions as well as linking it to the immediate international neighbours (Ghana Statistical Service, 2021).

For this research, 3 Metropolitan and Municipal areas of the Greater Accra Region are selected to be explored as they represent urban areas with high numbers of PWDs from the census data (GSS, 2014, 2021). These are the Accra Metropolitan Assembly (AMA), the Tema Metropolitan Assembly (TMA), and the Ga South Municipal Assembly (GSMA).

3.1.3.1 The Accra Metropolitan Assembly (AMA)

The Accra Metropolitan Assembly (AMA) is part of the Two Hundred and Sixty-One (261) Metropolitan, Municipal, and District Assemblies (MMDAs) situated in Ghana. Within the Greater Accra Region, it is one of the Twenty-Nine (29) MMDAs. Its establishment dates back to 1898, and over the years, it has undergone various transformations, including changes in name, size, and the number of Sub-Metros. In 1993, with the restoration of constitutional rule in Ghana, the AMA gained its legal framework from the Local Government Act, 1993 (Act 462), which has since been amended and is now known as the Local Governance Act, 2016 (ACT 936), operating under Legislative Instrument (L.I) 2034. In 2019, the AMA began an exercise to register all Persons with Disabilities (PWDs) within its catchment area to develop a credible database to guide decision making in designing programmes specifically tailored to address the needs of PWDs in the city. AMA currently consists of three sub metros. These are Ablekuma South, Ashiedu Keteke, and Okaikoi South (Ghana Statistical Service, 2021).

Korle Bu is a town located in the Ablekuma South sub-metro. It hosts a prominent public teaching Hospital, the Korle-Bu Teaching Hospital (KBTH), which is affiliated with the medical school of the University of Ghana. Mamprobi is also a town in the Ablekuma South sub-metro. It is situated to the south of Lartebiokorshie, to the northeast of Old Dansoman, and to the north of Chorkor. Kaneshie, located in the Accra Metropolitan district, is a suburb within

the Greater Accra Region of Ghana. Kaneshie is well noted for its large market, the Kaneshie market, and basic and secondary schools, among other recreational spaces (Ghana Statistical Service, 2014).

3.1.3.2 Tema Metropolitan Assembly (TMA)

The Tema Metropolis, located approximately 30 kilometres east of Ghana's capital city, Accra, is a coastal district. It shares its borders: to the north-east with the Kpone Katamanso and Ningo-Prampram Districts, to the south-west with Ledzokuku Krowor Municipal, to the north-west with Adentan Municipal and the Ga East Municipal, and to the south, it faces the Gulf of Guinea. Within the Tema Metropolis, the Ashaiman Municipal forms an in-lock enclave. Encompassing an area of about 396 km², with Tema as its capital, the metropolis lies within the coastal savannah zone (Ghana Statistical Service, 2021).

Tema Community 1 and Community 4 are situated in the southern part of the Greater Accra Region of Ghana. They are mainly residential areas at the heart of Tema. They serve as the central hub for trade and transportation, acting as a vital link to the harbour (Ghana Statistical Service, 2021).

3.1.3.3 Ga South Municipal Assembly (GSMA)

The Ga South Municipal District is among the twenty-nine districts in the Greater Accra Region, Ghana. Originally, it was part of the larger Ga West District in 2004. However, on 29 February 2008, the western section was separated to form the first Ga South Municipal District, with Weija as its capital. The remaining portion was then designated as Ga West Municipal District. Subsequently, a small segment of the district was carved out to establish the Ga Central Municipal District on June 28, 2012. The remaining area retained its status as Ga South Municipal District (Ghana Statistical Service, 2021).

On 15th March 2018, the northern part of the district underwent another division to create a new Ga South Municipal District, with Ngleshie Amanfro as its capital. Consequently, the remaining portion was renamed Weija-Gbawe Municipal District, with Weija as its capital. This municipality is positioned in the western part of the Greater Accra Region, with Ngleshie Amanfro serving as its capital town (Ghana Statistical Service, 2021).

Bortianor, New Aplaku, and New Weija are suburbs of the Ga South Municipal. Bortianor is a village in Ga South within the Greater Accra Region. It is located in close proximity to the areas of Bojo Beach and the hamlet of Oshiyie. New Weija is located close to the suburb of New Aplaku and the area known as Old Barrier/Kokrobite Junction (Ghana Statistical Service, 2014). Figure 3. 3 shows the Map of Greater Accra with the selected Districts

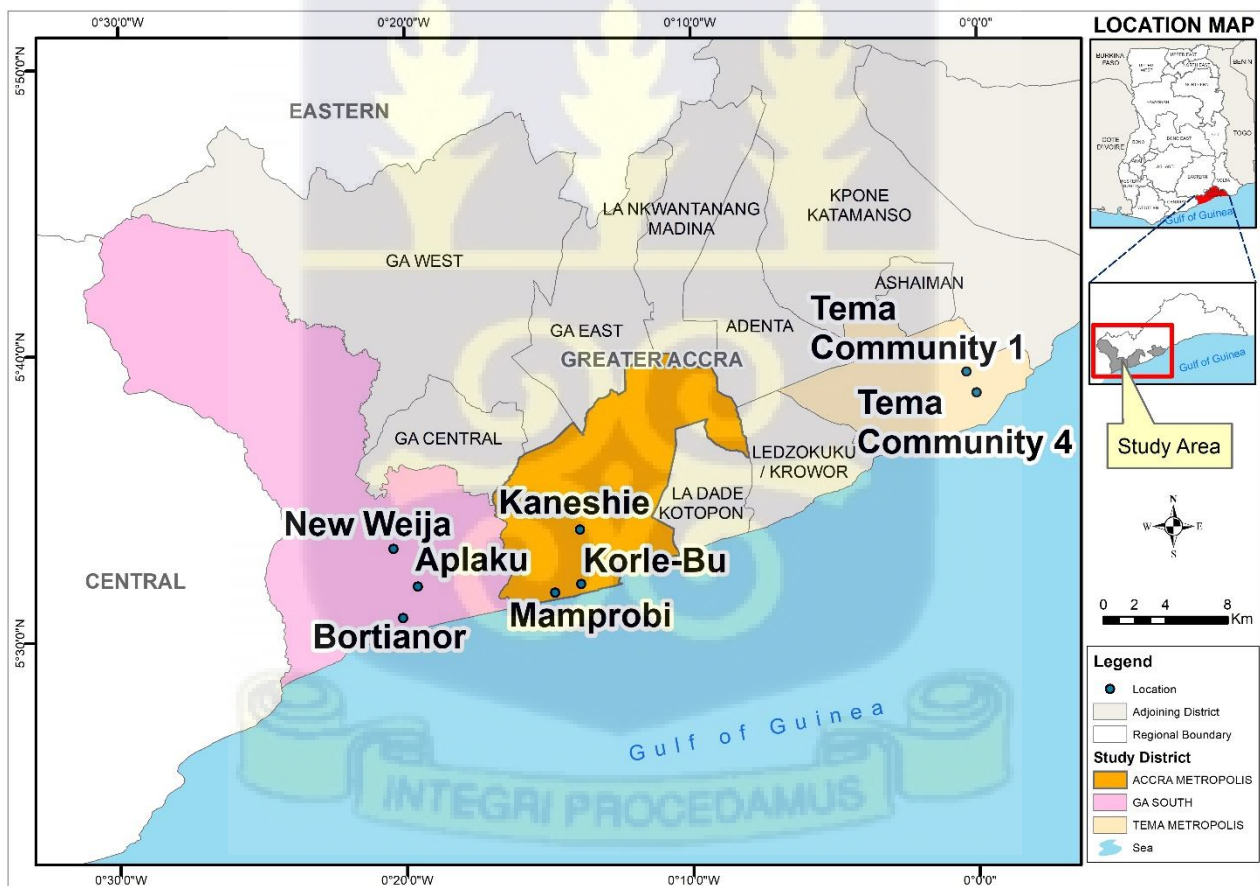


Figure 3. 3 Map of Greater Accra with the Selected Districts

Source: Centre for Remote Sensing and Geographic Information Services, 2022

3.1.4 Characteristics of the Ashanti Region

The Ashanti Region is located in the southern half of the country, approximately within longitudes 0.15° E and 2.25° W and latitudes 5.50° N and 7.46° S. The Region is sandwiched between 6 other regions, namely, the Central Region to the south, the Eastern Region to the east, the Bono-East Region, Bono region and Ahafo regions to the north, and the Western-North region to the west (Ghana Statistical Service, 2014).

The region occupies a total land surface area of 24,389 sq km, representing 10.2% of the national surface area, making it the 3rd largest region among the 16 administrative regions in the country. Until the 2021 Population and Housing Census (PHC), the region has been the most populous since 1970 but is now the second most populous, with approximately 5,432,485 inhabitants representing 17.6% of the national population. The region also hosts about 363,321 PWDs, with 163,011 (44.8) of them representing the highest number of persons living with some disability within rural areas of the country (Ghana Statistical Service, 2021).

The region is divided into 43 Metropolitan, Municipal, and District Assemblies (MMDAs). Regarding road transport, five national highways serve the region, namely, the N4, N6, N8, N10, and N6, and a few regional highways, such as, the R52 and R106. The N6 highway connects Kumasi via Kwame Nkrumah Circle and connects Nsawam and N4 to Accra. The region is also connected to the Central Region by the N8 and N10 highways, which originate from Yamoransa in the Central Region. The N10 highway also connects the regional capital of Kumasi to the northern part of Ghana through Burkina Faso (Ghana Statistical Service, 2021).

For this research, 2 District Assemblies and 1 Municipal Assembly of the Ashanti Region are selected to represent areas with high numbers of PWDs in rural areas of the region. These are the Amansie West District Assembly, Ahafo Ano South West District Assembly, and the Ejisu Municipal Assembly.

3.1.4.1 Amansie West District

The Amansie West District was first established as an assembly in 1988, originating from the former Amansie District Council. On 15th March 2018, the southern part of the district was split off to create Amansie South District; thus, the remaining part has been retained as Amansie West District. The district assembly is located in the southern part of the Ashanti Region and has Manso Nkwanta as its capital town (Ghana Statistical Service, 2021). In Amansie West, the towns of Mpatuam, Akataniase, and Jeninso were selected for the study.

Mpatuam, Akataniase and Jeninso are major mining communities located in the North-Western part of the Amansie West District. The area's abundant mineral deposits have attracted numerous mining companies, leading to the acquisition of significant concessions by these companies. Inhabitants of these areas also engage in cocoa farming as a source of livelihood (Baah et al., 2023). These towns are situated near the Tetrem, Tetekaso, and Esaase Bontefufuo villages to the east and Bonteso village to the west.

3.1.4.2 Ahafo Ano South West District

The Ahafo Ano South District was initially established as a district assembly in 1988 when it emerged from the former Ahafo Ano District Council. However, a pivotal change occurred on March 15, 2018, when it was divided into two distinct districts: the Ahafo Ano South West District, with its capital in Mankranso, and the Ahafo Ano South East District, with its capital in Adugyama. This district assembly was situated in the western part of the Ashanti Region, with Mankranso acting as its central hub (Ghana Statistical Service, 2021). In the Ahafo Ano South West District, Mankranso and a nearby village, Betuom, were selected.

Mankranso is the district capital of the Ahafo Ano South West District. It is located in the North Eastern part of the district and is some 34km north-west of Kumasi on the Kumasi-Sunyani

highway. It is closer to the popular towns of Kunsu to the west and Mfensi to the east. The area is known for the cultivation of plantain, cassava, cocoyam, rice, and maize.

3.1.4.3 Ejisu Municipal

The Ejisu-Juaben Municipal District was an ordinary district assembly carved from the former Ejisu-Juaben-Bosomtwe District Council. It then advanced to the status of a municipal district assembly effectively on February 29, 2008, becoming the Ejisu-Juaben Municipal District. However, on March 15, 2018, the Municipal District was divided into two separate municipal districts: the Ejisu Municipal District, with its capital in Ejisu, and the Juaben Municipal District, with its capital in Juaben. This municipality was positioned in the central part of the Ashanti Region, with Ejisu serving as its capital town (Ghana Statistical Service, 2021). In the Ejisu Municipal, the rural areas of Ejisu, Kwaso, Abankro, Akyawkrom, and Asotwe were selected. Ejisu is the district capital of the Ejisu Municipality. It is located in the North Western part of the district and is some 20km north-east of Kumasi on the Kumasi-Accra trunk road. The towns are noted for mixed farming of major crops such as plantain, cassava, cocoyam, citrus and oil palm. Kwaso, Abankro, and Akyawkrom are smaller towns located in the southern and western parts of the municipality with characteristics similar to the capital (Oduro-Ofori, 2011).

The chosen municipal area encompasses significant rural zones, providing a diverse rural population that reflects the characteristics and experiences of rural communities. This setting allows the researcher to explore the rural dynamics and interactions within a municipal context, offering comprehensive insights into the phenomena under investigation. While acknowledging the presence of urban areas within the municipality, the study focused exclusively on the rural segments. The inclusion of these rural zones within the municipal area, combined with better research infrastructure, makes it an appropriate and practical choice for studying rural perspectives. This approach ensures that the researcher captures the rural

dimension effectively while leveraging the logistical advantages or otherwise of the municipal setting. Figure 3. 4 show the map of Ashanti Region with the selected Districts

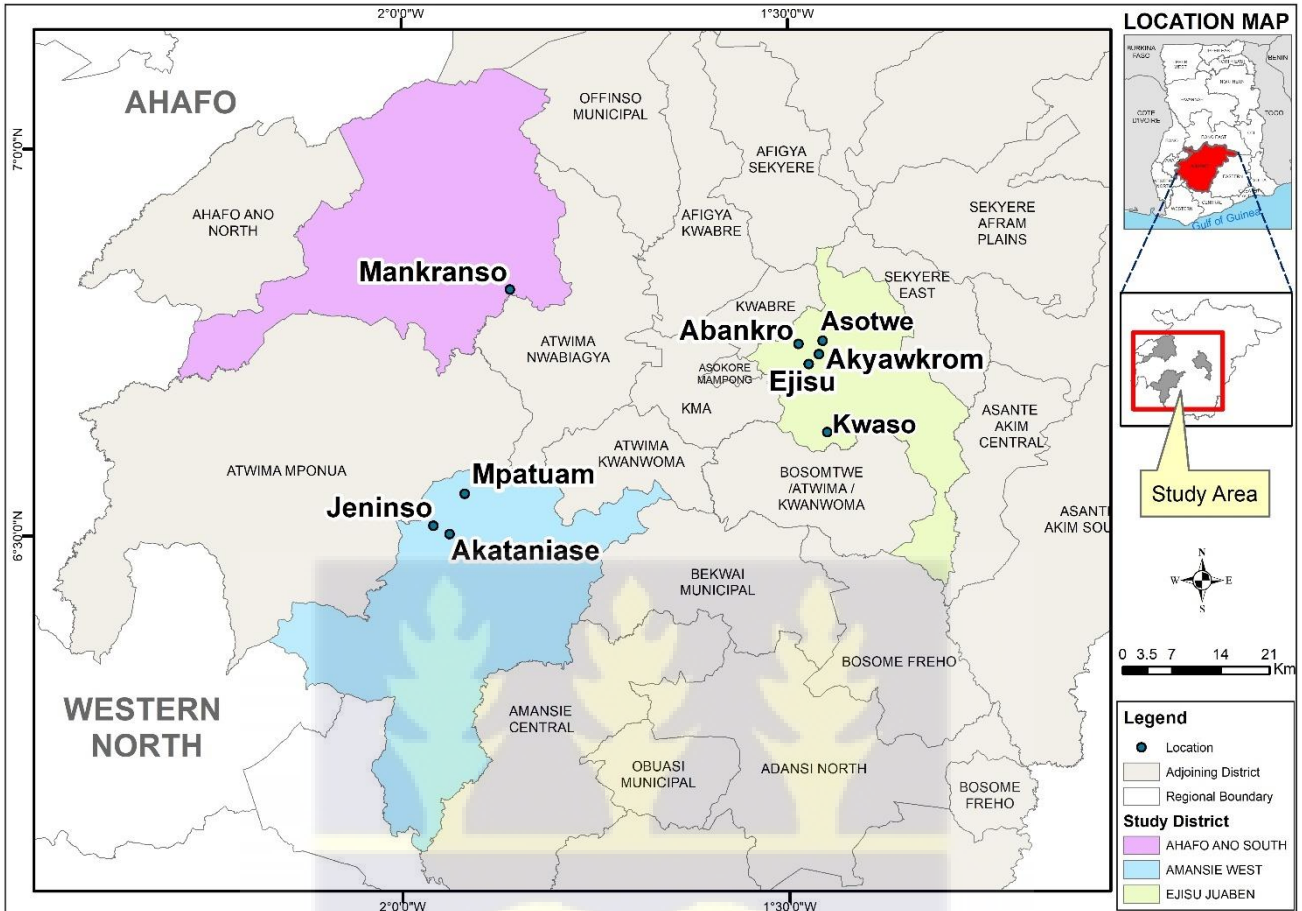


Figure 3. 4 Map of Ashanti Region with the Selected Districts

Source: Centre for Remote Sensing and Geographic Information Services, 2022

3.2. Philosophical Underpinning of the Study

Philosophical underpinnings provide the foundation for building research inquiries, shaping the theoretical framework, and guiding the analytical approach (Winch & Gaita, 2008). In this thesis, the investigation is grounded in the philosophical framework of critical realism. By adopting a critical realist perspective, this study sheds light on the multifaceted dynamics and experiences surrounding the accessibility and utilisation of public transport services by PWDs within the Ghanaian context. Critical realism provides a robust philosophical lens through

which to examine this complex issue, acknowledging the existence of an objective reality that transcends individual perceptions while recognising the limitations of our knowledge (Gerrits & Verweij, 2013).

3.2.1 Critical Realism

Critical realism is a philosophical framework that seeks to understand the social world by examining the interplay between underlying structures, people's experiences, and the outcomes or events that occur (Reed, 2009). It recognises that there is an external reality that exists independently of our perceptions and beliefs, but our understanding of reality is mediated through our subjective experiences and social structures (Archer et al., 2013).

Critical realism emerged as a response to the limitations of positivism (which focused solely on observable phenomena) and constructivism (which emphasised subjective interpretation), seeking to bridge the gap between the observable world and the underlying social structures that shape it. The roots of critical realism can be traced back to the work of philosopher Roy Bhaskar in the 1970s. Bhaskar's book, "A Realist Theory of Science" (1975), is often considered a foundational text within the critical realism milieu. In this book, Bhaskar argued for the existence of an external reality that exists independently of our thoughts and perceptions while recognising the influence of our subjective experiences and social contexts on our understanding of reality (Bhaskar, 2013). Thus, Bhaskar's book laid the foundation for critical realism, calling for a critical examination of theories and concepts to improve our understanding of reality. He emphasised the importance of uncovering underlying structures and mechanisms and recognised the interplay between different levels of reality. The theory has since been expanded by Margaret Archer, Andrew Sayer, Tony Lawson and others (Archer et al., 2013).

3.2.2. Key Tenets of Critical Realism

3.2.2.1 *Ontological realism:* Critical realism asserts that a real world exists independently of our thoughts and perceptions and thus, rejects the idea that reality is solely a construct of human consciousness or social construction. Critical realists argue that our knowledge of reality is fallible and incomplete but can be improved by systematically investigating its underlying structures and mechanisms. In this regard, critical realism posits that underlying structures and mechanisms generate observable events and phenomena (Archer et al., 2013).

3.2.2.2 *Epistemological relativity:* Critical realism acknowledges that our subjective experiences, cultural backgrounds, and social contexts influence our understanding of reality. This tenet recognises that different people may have different perspectives on the same reality. As such, we can never fully grasp the entirety of reality, but through ongoing inquiry and critical engagement, our understanding can be enhanced (Mingers, 2000). Critical realists emphasise the importance of recognising the fallibility of our knowledge while striving for greater explanatory power.

3.2.2.3 *Stratified reality:* Critical realism suggests that reality is stratified into different levels or domains, each characterised by its own distinct properties and mechanisms. These levels interact and influence each other, and phenomena at higher levels may emerge from the interactions of entities at lower levels (Archer et al., 2013). Critical realists argue for the exploration of these underlying structures and mechanisms at multiple levels to gain a deeper understanding of reality.

3.2.2.4 *Causal powers and mechanisms:* Critical realism emphasises the existence of underlying causal powers and mechanisms that generate observable phenomena. While these generative mechanisms may not be directly observable, they are responsible for the patterns

and regularities we observe in the world (Sayer, 2004). Understanding these mechanisms is crucial for explaining and predicting phenomena.

3.2.2.5 Contextuality and historicity: Critical realism recognises the importance of social, historical, and cultural contexts in shaping and influencing phenomena. It emphasises the need to consider the broader social structures, power relations, and historical conditions that contribute to the emergence and development of social phenomena (Bhaskar, 2010).

3.2.2.6 Reflexivity and self-critique: Critical realism encourages reflexivity and self-critique in the process of knowledge production. Researchers are encouraged to critically reflect on their own assumptions, biases, and perspectives and how these may influence their understanding of reality (Price & Martin, 2018). This self-critical stance helps to minimise subjective biases and contributes to a more rigorous and reliable approach to knowledge generation.

3.2.3 Disability, Public Transport and Critical Realism

In examining the interplay between disability and the public transport service system, a philosophical lens must be used to account for complex and multifaceted issues. Critical realism, as a philosophical framework, offers invaluable insights into understanding the underlying structures, mechanisms, and contextual factors that shape the accessibility and utilisation of public transport services by persons with disabilities. By adopting a critical realist perspective, this study acknowledges that disability and the challenges faced by individuals with disabilities in accessing public transport services are not solely products of subjective perceptions or social constructions. Instead, critical realism asserts the existence of an objective reality that transcends individual experiences.

Within the critical realist framework, the concept of ontological realism underscores the understanding that the barriers and limitations encountered by PWDs in the public transport

system are not mere illusions but are rooted in tangible social, infrastructural, and attitudinal factors. It recognises that disability is not solely an individual attribute but is shaped by broader social structures, cultural norms, and power dynamics (Brinkman et al., 2023). This perspective allows us to examine the intricate interplay between disability, social contexts, and public transport policies and practices.

The stratified reality, another key tenet of critical realism, provides a framework for analysing the different levels of influence on the accessibility of public transport for persons with disabilities. At the individual level, the experiences and challenges faced by individuals with disabilities are influenced by their impairments and specific needs (Sharma et al., 2022). However, critical realism prompts us to consider the social, institutional, and economic structures that operate at higher levels. By examining these underlying structures, such as transport infrastructure, policies, and service provision, critical realism enables us to understand how they shape the accessibility and utilisation of public transport services for persons with disabilities.

Causal powers and mechanisms are central to the critical realist perspective (Mingers & Standing, 2017). Understanding the generative mechanisms at work within the public transport service system is vital for uncovering the factors that contribute to barriers or facilitators of accessibility. Critical realism prompts us to investigate the interactions between policy frameworks, stakeholder interests, funding mechanisms and social attitudes. By identifying and analysing these causal powers, we can develop a more nuanced understanding of how and why certain accessibility challenges persist and explore potential interventions to address them effectively.

Contextuality and historicity are crucial considerations within critical realism when examining disability and public transport. In Ghana, the experiences of PWDs are shaped by the specific

historical, cultural, and socio-political contexts in which they reside. By critically engaging with the historical development of public transport systems and the evolving social attitudes towards disability, we can uncover the structural roots of accessibility challenges and how they have been influenced by shifting societal norms and values. Within the Greater Accra Region's urban areas and the Ashanti Region's rural environments, the peculiarities of experience may differ, providing specific inclinations and attitudes of PWDs regarding public transport access and use. As such, a contextual analysis will provide a richer understanding of the complexities involved and aid in the formulation of context-sensitive policies and interventions.

Reflexivity and self-critique are inherent to the critical realist approach (Willis, 2019). By acknowledging the potential biases and assumptions of researchers and policy-makers, critical realism calls for self-reflection and critical examination of one's own perspectives. Engaging in reflexivity helps ensure that research and policy recommendations are not unduly influenced by preconceived notions or perpetuate existing inequalities. It encourages a continuous process of self-critique and openness to alternative interpretations, contributing to more inclusive and socially just public transport systems for persons with disabilities.

In the context of disability research, critical realism acknowledges that disability is not merely an individual attribute but is shaped by social structures, norms, and power dynamics. It seeks to uncover the underlying mechanisms and social processes that contribute to the experiences of disabled individuals and the reproduction of disability-related inequalities. Critical realism emphasises the importance of context, causation, and the social structures that influence the lives of individuals with disabilities. It recognises the need to go beyond surface-level observations and uncover the deeper, often hidden, mechanisms that contribute to the perpetuation or transformation of disability-related phenomena. By employing critical realism, researchers can contribute to a deeper understanding of disability as a complex social phenomenon while also identifying potential avenues for intervention and social change to

promote inclusivity and equity for disabled individuals. A critical realist perspective in disability research helps to uncover the mechanisms that contribute to barriers, exclusion, and inequality faced by persons with disabilities while also identifying possibilities for transformative change and social inclusion.

3.2.4 Methodological Stance of Critical Realism

The methodological leaning of critical realism is characterised by a commitment to a multi-layered approach that acknowledges the complex and multi-dimensional nature of reality (Mukumbang, 2023). Critical realism emphasises the need for both empirical investigation and theoretical analysis to develop a comprehensive understanding of the social and natural world (McEvoy & Richards, 2006). In this regard, critical realism advocates for the use of multiple research methods to study different aspects of reality. This includes quantitative methods, qualitative methods, case studies, experiments, and historical analysis. The aim is to gather diverse forms of evidence and insights to construct a more nuanced understanding of the underlying mechanisms and structures that shape observable phenomena.

Unlike the pragmatists, who emphasise practical problem-solving approaches through multi-methods (Tashakkori & Teddlie, 1998), critical realism allows for mixed method approach but places a greater emphasis on uncovering the underlying structures and mechanisms that generate observable phenomena (Allmark & Machaczek, 2018). It, thus, seeks to develop explanatory frameworks that go beyond immediate problem-solving and provide a deeper understanding of the social and natural world (Mukumbang, 2023). Within the study design context, critical realism has been well documented for case study research (see Easton, 2010; Edwards et al., 2014; Mingers et al., 2013; Walsh & Evans, 2014; Williams, 1999). However, there is the need to proceed with caution, as Brown (2014) admonishes, in order not to misconstrue empirical, real and actual components of research outcomes during data synthesis and integration.

3.3 Research Methodology

The research methodology for the study outlines the procedures and techniques that are employed to gather and analyse data, ultimately guiding the research process. This process begins with the foundations of constructed knowledge in research, the research approach, research design, the qualitative and quantitative components of the study, ethical considerations and limitations of the study.

3.3.1 Epistemological and Ontological Path to Research

In order to understand how persons with disabilities access and use public transport services over their life course, the study assumes some ontological and epistemological positions to provide a clear path to the research methodology. The purpose of research is to discover answers to questions through the application of scientific procedures (Creswell, 2009). Social science research is that which draws on the social sciences for conceptual and theoretical inspiration as it is motivated by the developments and changes in society. Within this field of research are two main strategies: quantitative and qualitative. The former is applicable to phenomena that can be expressed in terms of quantity, while the latter centres on eliciting discursive constructions (Creswell & Creswell, 2017; Kothari, 2004).

Ontology seeks to explain the essential nature of reality (Leavy, 2014). The central point of orientation here is whether social entities can and should be considered objective entities that have a reality external to social actors or whether they can and should be considered social constructions built up from the perceptions and actions of social actors (Bryman, 2016). These positions are frequently referred to as objectivism (positivism) and constructionism. Their differences can be illustrated by referencing two of the most common and central terms in social science: organisation and culture. While objectivism is an ontological position that implies that social phenomena confront us as external facts that are beyond our reach or influence, constructionism challenges the suggestion that categories such as organisation and

culture are pre-given and, therefore, confront social actors as external realities that they have no role in fashioning (Neuman, 2014).

On the other hand, Epistemology concerns the question of what is (or should be) regarded as acceptable knowledge in a discipline, and answers whether or how we can gain knowledge of reality (Jupp, 2006). A key issue within this context is the question of whether the social world could and should be studied according to the same principles, procedures, and ethos (custom) as the natural sciences (Bryman, 2016).

A quantitative research perspective assumes that knowledge is out there to be discovered and there is a physical, knowable reality that a trained researcher can observe. Moreover, this reality can be dismantled, and its parts can be extensively examined (Lisboa, 2018). On the other hand, a qualitative perspective assumes that knowledge is constructed through communication and interaction. As such, knowledge is not out there but within the perceptions and interpretations of the individual. The epistemological stance for quantitative research is that of positivism, while interpretivism is agreed upon by qualitative research. Although there are disparities between quantitative and qualitative research in terms of their epistemological and ontological commitments, the connection between research strategy, on the one hand, and the epistemological and ontological obligations, on the other, is not deterministic. In this regard, it is possible for quantitative and qualitative research to be associated with either epistemological or ontological positions based on the research's orientation (Bryman, 2016).

Debates around quantitative and qualitative research have led to the mixed-method design that agrees to a middle ground and combines the two strategies. As such, researchers who want to benefit from the strengths and weaknesses of the two approaches engage in mixed-method research, which has its roots in pragmatism (Creswell & Creswell, 2017). The pragmatist position rejects the traditional view that the paradigms underlying quantitative and qualitative

approaches (positivism and constructionism, respectively) are discordant but rather recognises that their unique and distinctive strengths and weaknesses can be usefully combined to complement one another and proceeds to explore research questions with as many available tools as possible. Essentially, pragmatism advocates and identifies a form of methodological pluralism.

Two approaches to mixing the methods have been identified within the mixed-method design. First, mixing methods via a priority decision explains the extent or depth to which the qualitative or quantitative research method becomes the principal data-gathering tool. Second, the determination of sequence explains the order in which either quantitative or qualitative data collection is blended and which method precedes the other or is done at the same time (see Bryman, 2016). These processes have led to sequential and concurrent mixed-method research emanating from the two main approaches.

In this study, a constructionist ontological position was adopted, as the study assumes the relationship between persons with disabilities (social actors), and sees society as produced (constructed) through social interaction rather than through some predefined structures (Lewis-Beck et al., 2004). Furthermore, the study follows an interpretivist epistemological position to emphasise the meaningful nature of people's character and participation in various opportunities (Benner, 1994). By this research paradigm, the study sought to understand the social world and experiences of PWDs through their own examination and interpretation.

3.4 Research Approach

The study adopted a mixed-method approach in the collection of both qualitative and quantitative data (QUAL-quant). This type of triangulation employed the use of different research methods across the dominant research strategies to answer the research questions stated. This method enables the study to enhance its validity, complementarity, and initiation

from results obtained from multiple methods (Bryman, 2016). The mixed-method strategy was carried out in a sequential exploratory fashion. In this strategy, greater emphasis was placed on the initial qualitative phase, where the qualitative data was collected and analysed to gain insight into the experiences of PWDs regarding public transport access and use. Insights from this phase were used to inform the relevant variables and factors in the development of the research instruments, specifically, questions regarding the inclusive behaviour of public transport operators and users and the accessibility of public transport vehicles and terminals. It was also aimed to produce new knowledge in this regard before the secondary execution of the quantitative data collection to examine the perception and knowledge of public transport users and stakeholders to produce some generalisable findings. The sequential exploratory research approach provides a powerful means to take full advantage of the strengths of both qualitative and quantitative data (Plano Clark, 2017; Tashakkori & Teddlie, 1998). The data collected from both methods were integrated into the analysis and discussions to produce rich information (Bryman, 2016).

3.5 Research Design

The study adopted a case study design, which explains a thorough, in-depth analysis of a particular phenomenon and its interrelationships (Kothari, 2004). Under this design, a detailed exploration and analysis of persons with disabilities in terms of their access and use of public transport services was carried out in two regions in Ghana. This type of case study, a multi-site case study, was adopted to investigate the problem in different settings to come up with within-site patterns and cross-site syntheses (Harrison et al., 2017). The boundary for the case study is set based on the following premises:

Geographically, the study focuses on the Greater Accra and Ashanti Regions. These areas are significant urban and rural centres in Ghana, where public transport systems are more developed on the one hand and yet potentially more problematic regarding accessibility for

PWDs in both areas. Limiting the study to these regions allows for a focused examination of varied urban-rural contexts and infrastructures, reflecting different challenges and practices concerning transport accessibility.

Demographically, the case study zeroes in on PWDs with visual and physical disabilities as the primary subject group. This demographic boundary enables a focused exploration of specific challenges, experiences, and needs related to public transport that are unique to PWDs rather than a more generalised study of all public transport users.

As a result, richer and deeper understandings of the problems are brought to the fore. Due to its flexible method and strategy, multi-site case study designs can take up the overarching framework of research that consists of several related investigations, or they can be nested within a more extensive study.

Exponents and proponents of case study designs have often favoured qualitative data collection methods such as unstructured interviews and participant interviewing because they are imperative in the in-depth evaluation of phenomena. However, case studies have also proven appropriate sites for combining qualitative and quantitative methods (Bryman, 2016). This is achieved using data from different sources in data collection and subsequent analysis (Babbie, 2020; Plano Clark, 2017). In this study, the case of PWDs in accessing and using public transport services in various geographic locations was the focus of interest. Hence, the researcher sought to elucidate this case's unique features and complexities.

3.5.1 Data Sources

The study sourced data from both primary and secondary sources. Primary data was collected from the field survey and observations, while secondary data was sourced from journals, books, newspaper publications, official documents, and electronic materials within the disability and transport milieu. Other secondary data sources were acquired from stakeholder institutions

such as the Ghana Statistical Service (GSS), which is the central agency in Ghana mandated to produce and disseminate official national statistics. The Ministry of Transport is also responsible for formulating and coordinating transport policies for the country. Other materials used include Legal Instruments (LI) on Disability, such as the PWD Act 715 (2006) and the National Transport Policy (NTP) in Ghana, the African Disability Protocol (ADP) and the UNCPRD, which were interrogated and consulted for the study.

3.5.2 Data Collection

Data collection for the two regions was done in two phases. The preliminary phase was conducted in June and July 2022. The major phase was done from August to December 2022.

3.6 The Qualitative Component

Qualitative research focuses on the meanings and interpretations of social phenomena and social processes in their natural setting to better understand social phenomena (Jupp, 2006). The study adopts an exploratory case study design. An exploratory case study design involves studying a particular case or phenomenon in-depth to gain insights into the underlying factors that influence it (Bryman, 2016). The exploratory case study is often used in situations where little is known about the phenomenon being studied and when there is no pre-determined outcome. According to Yin (2018), case studies are appropriate when asking “how,” “why,” “what,” and “who” questions. In this exploratory case study, the question being answered is “what” and “how”. Exploratory case studies are also appropriate for gaining an extensive and in-depth description of a phenomenon. It is useful for generating new ideas and theories that can be used to guide future research. This design is also valuable in identifying the contextual factors that influence the phenomenon being studied. The exploratory case study is used to explore presumed causal links that are too complex for a survey or experiment (Yin, 2018).

In this regard, a thorough, detailed, and complete understanding was sought from the study participants. This contextual approach, rather than generalisability, is the hallmark of qualitative research. The study utilised qualitative methods of in-depth interviews to address the first, second and fourth research questions, which seek to understand:

- i. The public transport mobility options available for PWDs and what motivates their choices.
- ii. How PWDs cope in their commuting journeys with these public transport mobility options.
- iii. The extent to which stakeholders collaborate with existing policies to facilitate the mobility of persons with disabilities (PWDs) and ensure accessible transportation options.

3.6.1 Study Population

The study population was comprised of persons with visual and physical disabilities and stakeholders in road transport institutions. Also, stakeholders at the various disability group organisations constituted the population under the qualitative study.

The primary target population for this study included persons with visual and physical disabilities since they represent about 95% of Ghana's disability population and are also the most visible form of disability (GSS, 2021). Also, the mobility issues of this group, although distinctive, are known to be representative of other minority disability groups (Venter et al., 2002). These groups of persons were residents of the Greater Accra Region, which served as a site for reaching PWDs in urban areas. Similarly, the Ashanti Region of Ghana served as a site to reach PWDs from rural areas. This selection criterion is based on the results of the most recent Population and Housing Census, where the Greater Accra Region houses about 254,276, i.e., 12.12% of total PWDs, the highest number of such persons living in urban areas in Ghana,

while the Ashanti Region also hosts about 163,011, i.e., 7.77% of total PWDs, the highest number of such persons living within rural areas of the country (GSS, 2021).

Stakeholders in the disability milieu, such as the Ghana Federation of Disability Organisations (GFD), the Ghana Blind Union (GBU), and the Ghana Society of the Physically Disabled (GSPD), were included in the study. Also, stakeholders in transport governance such as the Ministry of Transport (MOT), Driver and Vehicle Licensing Authority (DVLA), Motor Traffic and Transport Department (MTTD) of the Ghana Police, the National Road Safety Authority (NRSA), were included in the study. Finally, stakeholders in transport service provision such as the Metro Mass Transit Limited (MMTL), the Intercity State Transport Corporation (ISTC), the V.I.P Jeoun Transport Service, the Ghana Private Road Transport Union (GPRTU), and Yango Ghana (Digital Taxi) were included in the study to gain insights into their provisions and considerations towards all-inclusive transport for the PWDs. The list of all stakeholders interviewed for the study are presented in Table 3.1

Table 3. 1 List of Stakeholders Interviewed

Transport Governance	Disability Governance	Transport Service Providers
Ministry of Transport (MOT)	Ghana Federation of Disability Organisations (GFD)	Metro Mass Transit Limited (MMTL)
Driver and Vehicle Licensing Authority (DVLA)	Ghana Blind Union (GBU)	Intercity STC Coaches (ISTC)
Motor Traffic and Transport Department (MTTD) of the Ghana Police Service	Ghana Society for the Physically Disabled (GSPD)	V.I.P Jeoun Transport Service
National Road Safety Authority (NRSA)		Ghana Private Road Transport Union (G.P.R.T.U)
		Yango Ghana (Digital Taxi)

Source: Fieldwork, 2022

3.6.2 Inclusion and Exclusion Criteria

All persons with visual impairment who were 18 years and above were included in the study. In this case, visual impairment relates to people whose vision is 6/12 or worse. Specifically, this refers to people who fall within the category of low or poor vision or those who are totally blind and cannot see any light. For example, 6/30 means that a person should at least see an object at 6 meters, just as a normally sighted person would see the same object at 30 meters. Visual acuity, the measure of the sharpness of vision, is usually measured using a Snellen's chart (eye chart) at a distance of 6 metres or 20 feet. The ICF (2018) and World Health Organisation recognises the following degrees of visual disability:

Mild –visual acuity worse than 6/12 to 6/18

Moderate –visual acuity worse than 6/18 to 6/60

Severe –visual acuity worse than 6/60 to 3/60

Blindness –visual acuity worse than 3/60

In this study, anyone who failed to see a said object at moderate, severe, or blindness levels was included. The study did not include people with mild vision or better vision. Persons with a physical impairment who were 18 years and above were also included in the study. Physical impairments include visceral, skeletal and disfiguring impairments such as amputations, paralysis, limping and lameness, deformity, and hunched back. This type of impairment is defined as any physiological disorder or condition, cosmetic disfigurement, or anatomic loss affecting one or more of the following body systems: neurological, musculoskeletal, lymphatic, skin, and endocrine (see Chiteraka, 2010). This group is primarily comprised of amputees, wheelchair/skate/crutches users, and persons who use any mobility assistive technology. Stakeholders in higher positions of authority at the various national departments of transport were also included in the study.

3.6.3 Sample Size and Sampling

The sample size for the qualitative study encompassed a total of 42 PWDs and 12 stakeholders due to the willingness and availability of PWDs, as well as transport and disability stakeholders, to participate in the study. However, this was arrived at dependent on the point at which data saturation was reached, consistent with the qualitative research approach (see Guest et al., 2006; Polit & Beck, 2021).

In terms of sampling, purposive and snowballing techniques were employed to recruit participants for the qualitative study. Purposive sampling allows the researcher to strategically select participants based on judgements about the population needed for the study. The PWDs were reached via a list of members of the Ghana Blind Union (GBU) and the Ghana Society of the Physically Disabled (GSPD), the umbrella bodies of PWDs in these categories. The PWDs living in households were reached through an exponential non-discriminative snowball sampling process where every recruited participant recruited potential subsequent participants (see Etikan et al., 2016). Similarly, some stakeholders were selected using this procedure. Purposive sampling was employed to reach other stakeholders at the various Disability Organisations and National Institutions with jurisdiction over disability issues.

To capture and include a broad section of the target population, the urban study locations were selected across three MMDAs that host most of these persons with disabilities. This delineation was aimed to bring out the differing viewpoints, experiences and intricacies of PWDs from specific spaces and places (see Asuman et al., 2020; Banks et al., 2017; Pinilla-Roncancio, 2015). It was expected to also bring to the fore the collective issues regarding accessibility to transport services by PWDs.

Greater Accra Region: The following Metropolitan and Municipal areas were selected purposively as they represent urban areas with high numbers of PWDs from the census data (GSS, 2014, 2021).

Accra Metropolitan Assembly (10), Tema Metropolitan Assembly (6), Ga South Municipal Assembly (5). Total number of PWD interviewees: 21.

Ashanti Region: The following district and municipal areas were purposively selected because they represent rural areas with the most PWDs.

Amansie West District Assembly (8), Ahafo Ano South West District Assembly (5), Ejisu Municipal Assembly (8). Total number of PWD interviewees: 21.

Grand Total number of PWD interviewees: 42.

The interview locations of participants are shown in Table 3. 2.

Table 3. 2 Interview locations of participants

Greater Accra Region	Specific Locations
Accra Metropolitan Assembly	Korle Bu, Kaneshie, Mamprobi,
Tema Metropolitan Assembly	Tema Community 1, Tema Community 4,
Ga South Municipal Assembly	Bortianor, New Aplaku, New Weija,
Ashanti Region	
Amansie West District Assembly	Mpatuam, Jeninso, Akataniase,
Ahafo Ano South West District Assembly	Mankranso, Betuom,
Ejisu Municipal Assembly	Ejisu, Kwaso, Abankro, Akyawkrom, Asotwe

Source: Fieldwork, 2022

3.6.4 Data Collection Method

In-depth interviews were conducted to solicit qualitative data. In-depth interviews are a methodological approach in qualitative research that emphasises flexibility, depth, and the interviewee's perspective to gather rich, detailed data that reveals deeper insights into the subject matter being studied (Bryman, 2016). For this study, the use of in-depth interviews as a methodological approach is well-justified by the nature of the research objectives, which aim to explore the nuanced experiences of Persons with Disabilities (PWDs) regarding public transport services in Ghana. Also, in-depth interviews produce rich qualitative data that include verbatim quotes, stories, expressions of emotions, and detailed descriptions. This data is invaluable for qualitative analysis, allowing themes and patterns to emerge from the participants' own words.

The interview guide, voice recorder, and notepad were used as the primary data collection instruments. The interview guide was developed in English and was based on the research objectives, existing literature, and key themes of transport mobility for persons with disabilities. This was in a semi-structured fashion, which comprised questions and topics that guided the researcher during the interview process. The focus of the interviews ranged from PWD's mobility journey, coping strategies, transport operators' perceived thoughts of disability, and the extent to which these imageries influence their social exclusion through the lens of transport service provision. Here, emphasis was also placed on the extent to which society's acceptance and expectations influence PWDs' ability to engage in social activities and the extent to which stakeholders address the mobility needs of PWDs (see Appendix B). Interviews with PWDs were conducted in English and in the local dialects of Twi and Ga and lasted an average of 45 minutes. The voice recorder was used to capture the verbal responses of participants accurately, allowing for later transcription and analysis. The notepad enabled

the researcher to jot down observations, non-verbal cues, or additional thoughts during the interview.

The outcome of the qualitative enquiry was to measure PWD's accessibility and use of transport services by examining their travel choices in the various geographical areas and income groups, frequency of enjoying opportunities and what they would wish to be done to improve their situation. The summary of these narratives indicated the role of stakeholders in PWD's mobility concerns regarding transport service provision. Interviews were conducted in the participant's communal or residential settings to observe some of their social experiences at home and in their community assembly meeting venues to see first-hand the challenges they face in their everyday lives. Also, the “informal” setting encouraged participants to participate actively.

On the other hand, supplementary observations and photographic evidence were collected. During the fieldwork, the researcher made several incidental observations and captured photographs that supported the study's findings. Although observation was not initially listed as a formal data collection method, these observations were documented as supplementary evidence to enhance the understanding of the primary data. The researcher maintained detailed field notes, including these observations, to better contextualise participant responses. Reflexive practices were employed to reflect on the researcher's role and experiences in the field, acknowledging how these incidental findings informed the study.

The contextual information observed during participant interactions provided valuable insights that were captured photographically to illustrate specific points more vividly. All observations and photographs were taken ethically, with the informed consent of the participants, and in line with ethical guidelines. These incidental observations and photos were deemed crucial in providing a comprehensive understanding of the transport experiences of Persons with Disabilities (PWDs), thereby justifying their inclusion in the thesis as supplementary evidence.

To ensure systematic and comprehensive documentation of these observations, an observation checklist was employed. This checklist, included in Appendix E, outlines the specific aspects observed, providing a structured approach to capturing relevant details in the field.

3.6.5 Qualitative Data Management and Analysis

Interview audio recordings were transcribed into text (Microsoft Word) and organised using electronic files and folders. Some selected interviews were played back to participants to confirm if they captured their experiences and also give them the opportunity to retract or add portions of them. This process, thus, aligns with the data validation procedure of "member checking" to find out if the data recorded is congruent with the participants' experiences (see Curtin & Fossey, 2007; Creswell & Miller, 2000). The transcriptions were done verbatim to allow the participants' voices to be "seen" in the data analysis. The data analysis was done in themes within the NVivo 12 software via the node structure. The thematic analysis allows flexibility and inductive approaches in data analysis consistent with exploratory qualitative research. NVivo tools such as word frequency, word trees and word clouds were queried to highlight salient prominent experiences and interlinked experiences from the research participants. A screenshot of the NVivo 12 software analysis interface displaying the dataset and coding themes is attached in Appendix C and D.

3.7 The Quantitative Component

The quantitative component of the study collected data from everyday public transport users and public transport operators to answer objective 3, which sought to:

- i. Assess the factors influencing transport operators' and users' knowledge of transportation mobility options for PWDs.

A sample design refers to the strategy of selecting a subset of individuals from a target population, while a sample is the subset of this target population selected to represent the population for a study purpose (Creswell & Creswell, 2017).

Due to the fact that researchers cannot cover a whole population for their studies, the provision is to draw a sample from the target population. In drawing a sample, there is the need to ensure that the selected participants are representative. Thus, the researcher can make some generalisations from sample statistics about the population under study (Israel, 2013).

In this study, Cochran's formula (Cochran & Wiley, 1977) is employed as follows:

$$n_0 = Z^2 pq/d^2$$

Where: n_0 = estimated sample size

Z = confidence level (90% level of confidence = 1.64)

p = the probability of having knowledge of public transport mobility options for PWDs = 0.20

$q = 1 - p$ = which is the probability of having no knowledge of public transport mobility options for PWDs = $1 - 0.20 = 0.8$

$d = 0.05$ as the acceptable margin of error. Therefore:

$$n_0 = \frac{(1.64)^2 (0.20)(0.8)}{(0.05)^2}$$

$$n_0 = \frac{0.430336}{0.0025} = 245.8624$$

$$n_0 = 172$$

A total of 172 persons were used for the survey. However, in anticipation of a 16% non-response rate, the study adjusted to a total of 200 participants (172 + 28) in both regions (See Israel, 2013). In this regard, the study sampled 200 respondents in each region, consisting of 100 public transport operators and 100 public transport users. This sample was used proportionally for each of the selected districts of the two regions, making a total of 400

participants for the entire study. To achieve representativeness, an equal distribution approach was carried out to ensure that both regions are adequately represented in the study, allowing for a balanced comparison across regions. This is particularly important in this study as regional disparities and similarities in experiences are a focal point of the analysis. Tables 3.3 and 3.4 show the sampling of selected districts in the Greater Accra and Ashanti regions.

Table 3. 3 Sampling of selected districts in the Greater Accra Region

Greater Accra Region MMDA's	Population	Population %	Total Sample	Sample size of Operators/Users
Accra Metropolitan Assembly Kaneshie/Korle Bu (cluster)	284,124	35	70	35+35=70
Ga South Municipal Assembly Bortianor/Kokrobite (cluster)	350, 121	43	86	43+43=86
Tema Metropolitan Assembly Community 1 (cluster)	177, 124	22	44	22+22=44
Total	811,369	100	200	100+100=200

Source: Author's construct based on GSS (2021).

Table 3. 4 Sampling of selected districts in the Ashanti Region

Ashanti Region MMDA's	Population	Population %	Sample size of 200	Sample size of Operators/Users
Ahafo Ano South West District Mankranso (cluster)	65,770	18	36	18+18=36
Amansie West District Assembly Mpatuam (cluster)	109, 416	31	62	31+31=62
Ejisu- Municipal Assembly Ejisu (cluster)	180,723	51	102	51+51=102
Total	355,909	100	200	100+100=200

Source: Author's construct based on GSS (2021).

Multi-stage sampling was adopted for the quantitative data collection. In a multi-stage sampling method, samples are selected and sub-selected from the resulting sample in stages or steps (Bryman, 2016). As such, each stage represents a distinct sampling operation that culminates to make up the overall multi-stage sampling procedure. The first phase of multi-stage sampling involved purposive sampling in the Greater Accra and Ashanti Regions in Ghana. These were selected based on the fact that they had the most PWD populations living in urban and rural areas of the country, according to the 2021 Population and Housing Census (Ghana Statistical Service, 2021). The second stage of the multi-stage sampling involved the selection of three MMDAs of each region to serve as clusters (subgroups) within the two regions. Out of the 29 MMDAs in the Greater Accra Region, the Accra Metropolitan Assembly, the Ga South Municipal Assembly, and the Tema Metropolitan Assembly were selected as clusters. Out of its 43 MMDAs in the Ashanti Region, the Ahafo Ano South West District Assembly, the Amansie West District Assembly and the Ejisu-Juaben Municipal Assembly were selected as clusters. These clusters were selected because they represented areas with dominant persons with visual and physical disabilities in the two regions. In view of this, selecting participants who live in these areas aims to find out the factors that influence their knowledge of transport mobility options for these PWDs. The final stage of the multi-stage sampling was a simple random sampling from households, transport terminals, market centres, offices, and other working and recreational spaces available to reach transport operators, users, and other commuters within the selected area for the survey.

The simple random sampling was conducted with a preliminary count through direct observation to estimate the average number of transport users and operators available at these locations during typical research hours. This exercise produced a sampling frame of 400 transport users and 100 transport operators in the selected districts of the Ashanti region and 1000 transport users and 400 transport operators in the selected districts of the Greater Accra

region. Using a modified lottery method, two coins depicting “Yes” and “No” were presented to participants in fairness and transparency, as each participant had an equal chance of being selected based solely on chance. Each participant was briefly informed about the study and its objectives, ensuring they understand that choosing a "Yes" coin indicates their willingness to participate, while a "No" coin means they opt not to participate. The process was designed to be quick and non-intrusive, respecting the participants' time and activities.

Each selection was recorded, and participants who drew a "Yes" coin were further engaged for consent and participation in the study. The sampling continued until 100 transport users and 100 transport operators were successfully selected in each region, ensuring the sample size is met according to the study's requirements.

Regarding simplicity and practicality, the "Yes/No" lottery method is straightforward and easy to implement in varied environments, from busy urban centres to more laid-back rural settings. It does not require complex technology or extensive logistical arrangements, making it ideal for field research in a Ghanaian context. Ethically, by allowing participants to choose their involvement randomly, the method upholds ethical standards of voluntary participation and informed consent. It thus provides participants with a clear, direct way to decide their involvement, which is crucial in ethical research practices.

3.7.1 Data Collection Method/Instrument

Quantitative data was collected through semi-structured questionnaire surveys. The questionnaire was digitally designed in English and coded using the Kobo Collect portal, part of the Kobo Toolbox suite of tools for field data collection. The Kobo software was developed in 2005 by the Harvard Humanitarian Initiative in association with Brigham and Women's Hospital, USAID. The software provides a free, open-source tool for mobile data collection

using mobile devices such as mobile phones or tablets and computers (Lakshminarasimhappa, 2022).

The focus of the survey ranged from the transport users' and operators' perceived thoughts of disability, the legal rights of PWDs, and the extent to which these imageries influence their social exclusion through the lens of transport service provision. From the operators' and users' perspectives, information on the public transport vehicle, the terminal characteristics, and their overall level of knowledge on mobility options for PWDs were explored in the questionnaire (see Appendix F and G). The questions for public transport users covered the various modes of transport they used and sought to ascertain if these modes had some considerations for PWDs. Other questions focused on gauging respondents' knowledge level regarding the rights of PWDs regarding transport, such as, the right to a reserved seat on a public transport vehicle, the right for vehicles to stop for PWDs to cross at pedestrian crossings or other designated crossings, and the right for hearing impaired persons to be licensed vehicle drivers. The questions also included their sociodemographics in order to put the analysis in the requisite context. Surveys were conducted along journeys within the study area, major and minor public transport terminals, and in public transport users' and operators' communal or residential settings. Each questionnaire survey lasted an average of 25 minutes.

3.7.2 Quantitative Data Management and Analysis

Completed questionnaires were downloaded from the Kobo Collect platform and put into a Microsoft Excel spreadsheet. Data was then cleaned and exported into SPSS version 25 for processing. Descriptive statistics were performed initially, where frequencies, means, and percentages were generated for the characteristics of all the variables. The respondents' socioeconomic status was measured by assessing the respondents' sex, age, occupation, income level, and educational/professional status. Inferential statistics were employed in the quantitative analysis to draw inferences and make predictions about the variables of a

population (Creswell et al., 2003). Logistic regression analysis was performed to understand some socioeconomic (age, sex, education level, occupation, income level) and vehicular characteristics (vehicle type, wheelchair accessible entry, specialised seat) predictors of knowledge of transport options for PWDs.

3.8. Reliability and Validity of Data

Reliability in qualitative research refers to the consistency and dependability of the research findings over time and across different researchers and contexts. In quantitative research, it focuses on the consistency and stability of the measurement over time (Bryman, 2016). In order to ensure the validity and reliability of the primary data used in this thesis, several measures were put in place. The following explains how the study maintained rigour and data quality.

Standardisation of Instruments: All data collection instruments were standardised to ensure consistency across different respondents and settings. This included the use of a uniform questionnaire and interview guide, which were meticulously developed and reviewed to maintain uniformity in the administration of surveys and interviews.

Training of Data Collectors: The researcher singlehandedly conducted all 54 qualitative in-depth interviews. However, prior to the commencement of the quantitative fieldwork, data collectors were recruited and underwent comprehensive training sessions. These sessions covered the objectives of the study, the proper use of data collection tools, and standardised procedures for engaging with respondents. This training ensured that data collection was uniform and that all data collectors were well-equipped to handle the tools and interact professionally with respondents.

Pilot Testing: A pilot test was conducted to evaluate the effectiveness of the data collection instruments and procedures. This preliminary phase allowed for necessary adjustments to be made before full-scale data collection, thereby enhancing the reliability of the instruments.

Inter-Rater Reliability: Measures were put in place to ensure inter-rater reliability for qualitative data. Three other researchers within the disability and transport fields were tasked to independently analyze a subset of the data to ensure consistency in the coding and interpretation of the primary researcher. Differences were discussed and reconciled to refine the analysis process and ensure uniform application of the analytical framework.

Validity: Criterion validity and pilot testing were done to address the study's specific needs. The study's criterion validity was established through comparisons of the findings with external benchmarks, such as the Government of Ghana's Statistical Service publications on disability, the United Nations and World Health Organisation transport and disability statistical reports. This comparison helped validate the research instruments and the responses obtained. The pilot testing phase also served to validate the content and structure of the survey instruments. Feedback from participants during this phase was instrumental in confirming that the questions were well-understood and captured the intended data accurately.

These comprehensive measures ensured the reliability and validity of the data collected, thereby reinforcing the robustness of the study's findings.

3.9 Ethical Consideration

Ethical issues are of greater importance in research within the social sciences as they investigate complex issues that involve cultural, economic, legal, and political phenomena (Bos, 2020). Moreover, these research activities involve human subjects, and hence, there is a need to execute them in an ethical process. Ethical Clearance for the study was sought from the University of Ghana Ethics Committee for Humanities (ECH) with reference number ECH 179/22-23 (see Appendix H).

One of the fundamental ethical principles is that research should not bring about any form of harm to the respondents. However, the long-term consequences of research participants are not

always easily calculated. Another fundamental ethical principle in social science research is that of informed consent. Informed consent respects the rights of human subjects to know that they are being researched, the purpose of the research, and their expectations of the research. This gives them the leeway to provide consent to be part of it or not. This ethical principle commonly presents issues regarding who can give informed consent. The most obvious attempt to address this is to include adults, not children, unless the research had children as a target population, which even requires some valid parental consent on behalf of children under 18. Within this research, PWDs were briefed on the purpose of the study, which was to make them aware of what was expected of them before they could participate in the research. In cases where the potential respondent is not in the capacity to give consent, the guide or caretaker, as of the time of the visit, was asked to consent on behalf of the person with a disability.

Another ethical issue that was considered was anonymity. This refers to the assurance given to participants that they will not be individually identified by disguising or withholding their personal characteristics (Bos, 2020). This is in line with protecting the rights of research participants. In this study, case numbers and pseudonyms were used to identify respondents' data. By this consideration, the study avoided further victimisation or stigmatisation of persons with disabilities in the quest to ensure their rights to transport facilities and physical mobility. Confidentiality of information was assured to all participants. This was explicitly spelt out to participants that the research data was not to be shared with anyone outside the research team and that the data was to be used only for academic purposes. To conclude, the study ensured voluntary participation, no harm to participants, participant confidentiality, and an anonymous participants' information protocol in line with best practices.

3.9 Study Challenges and Limitations

The study encountered a number of challenges and limitations that influenced its execution in a number of ways. First, the challenge of locating the PWDs for interviews in the three selected

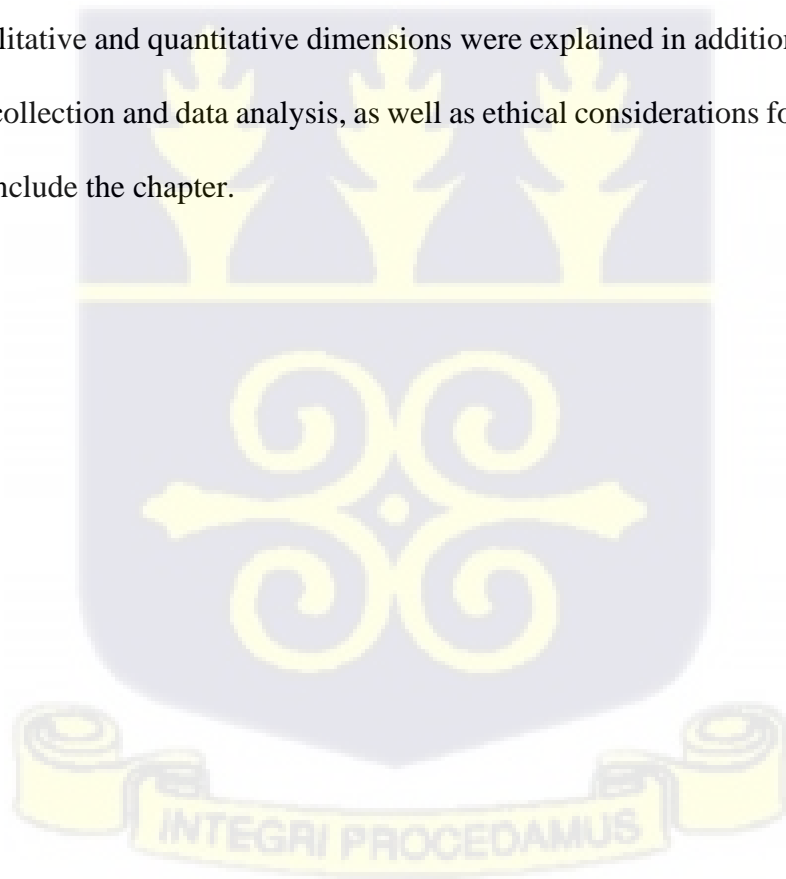
districts in urban areas was quite daunting due to their very scattered locations. In view of this, the researcher had to schedule two-thirds of the interview sessions in the homes and workplaces of the PWDs who lived quite apart in the Tema metropolis and the Accra Metropolitan Area. The remaining areas within the Ga South Municipal, which were geographically closer, had their interview sessions batched up at a central residence of a member in New Aplaku, who volunteered her home. In surmounting this looming challenge faced in the urban areas, the interviews in the rural areas were arranged and conducted in a central location of the district assembly halls in Ejisu (Ejisu Municipal) and Mankranso (Ahafo Ano South West) and at a residence of a PWD member in Akataniase (Amansie West) who volunteered his compound for the interviews.

Also, the researcher could not reach out to major stakeholders in the ride-hailing sector. These were notably Uber and Bolt, the leading ride-hailing service providers in Ghana. Despite making persistent efforts, spanning over 10 months, with continuous checks and multiple visits to their offices, the researcher was unable to successfully schedule an interview session with them. In this regard, a third player in the ride-hailing space, Yango Ghana, was engaged to solicit their views on their role in providing accessible transport for PWDs.

3.10 Chapter Summary

The chapter has presented the selection and justification of the study area for this research. The application of critical realism to the study of disability and the public transport service system is particularly valuable, as it facilitates a thorough exploration of the underlying structures, mechanisms, and contextual factors that influence accessibility. By adopting this philosophical framework, the study benefits from a deeper understanding of the challenges encountered by persons with disabilities, discerns the causal powers at work, and develops contextually sensitive interventions that foster inclusivity and equity within public transport services. Critical realism serves as a powerful tool in unravelling the complexities of disability and

public transport, informing policy development, and contributing to positive social change. By embracing the key tenets of critical realism, including ontological realism, stratified reality, and the exploration of underlying causal mechanisms, this research aims to uncover the intricate interplay between social structures, policy frameworks, and the experiences of PWDs in using public transport services within an urban and rural context of a developing country. Through this philosophical underpinning, this thesis endeavours to contribute valuable insights to the field, informing policy recommendations and fostering inclusivity within public transportation systems. This chapter has also given an overview of the research methodology for the study. The target population, including the visually impaired and the physically challenged, were highlighted, and their characteristics for inclusion in the study were presented. The study's qualitative and quantitative dimensions were explained in addition to the sampling methods. Data collection and data analysis, as well as ethical considerations for the study, were presented to conclude the chapter.



CHAPTER FOUR

PUBLIC TRANSPORT OPTIONS FOR PERSONS WITH DISABILITIES IN GHANA

4.0 Introduction

The preceding chapter discussed the mixed research methodology used in this study, which combined qualitative and quantitative approaches to explore the experiences of PWDs in accessing and using public transport services in Ghana. This chapter presents results and discussions on the first research objective, which sought to explore the available public transport options, as well as their utility and usability for persons with disabilities. The chapter begins with discussions on the sociodemographic composition of persons with disabilities. This is presented in relation to their actual needs, options, and means of access to public transport services. Interviews with the forty-two PWDs sampled in this study provided the primary data from which the characteristics have been gleaned. This chapter particularly delves into the nature of these public transport service options from both urban and rural areas. To achieve this objective, the study examines the public transport options in the rural areas of the Ashanti Region and the urban settings in the Greater Accra Region of Ghana.

4.1 Sociodemographics of PWDs

The total number of PWD interviewees in the research was forty-two. These include twenty-three males and nineteen females, where twenty-nine persons were physically challenged and fourteen were visually impaired. Tables 4.1 and 4.2 summarise the sociodemographic characteristics of participants in Ghana's Greater Accra and the Ashanti Regions, respectively. The distributions of the interviewees by gender, age, education level, marital status, and number of children are presented in Table 4.3.

Table 4. 1 Sociodemographic characteristics of PWDs in the Greater Accra Region

PWD Participant	Sex	Age	Disability Type	Education	Marital status	No. of children	Occupation
Participant 1	M	47	Physical	SHS	Married	3	Unemployed
Participant 2	M	44	Visual	JHS	Single	None	Unemployed
Participant 3	F	64	Visual	SHS	Separated	1	Petty trader
Participant 4	M	61	Physical	SHS	Married	2	Cobbler
Participant 5	F	39	Physical	SHS	Separated	4	Drink vendor
Participant 6	F	43	Physical	SHS	Single	1	Momo merchant
Participant 7	M	52	Physical	JHS	Separated	1	Momo merchant
Participant 8	M	67	Physical	No education	Widowed	1	Unemployed
Participant 9	M	58	Visual	Vocational	Married	4	Civil servant
Participant 10	F	66	Visual	JHS	Divorced	5	Trader
Participant 11	M	29	Visual	JHS	Single	None	Unemployed
Participant 12	F	53	Visual	JHS	Single	2	Petty trader
Participant 13	F	51	Visual	JHS	Widowed	1	Unemployed
Participant 14	M	68	Visual	JHS	Widowed	1	Rtd. Musician
Participant 15	F	41	Physical	SHS	Divorced	3	Baker
Participant 16	M	57	Physical	1st degree	Married	None	Civil servant
Participant 17	F	51	Physical	JHS	Cohabiting	5	Petty trader
Participant 18	M	47	Physical	Vocational	Separated	1	Tailor
Participant 19	F	31	Physical	1st degree	Single	None	Teacher
Participant 20	M	54	Visual	Masters	Married	1	Civil servant
Participant 21	M	42	Visual	1st degree	Single	None	Civil servant

Source: Fieldwork, 2022

Table 4. 2 Sociodemographic characteristics of PWDs in the Ashanti Region

PWD Participant	Sex	Age	Disability Type	Education	Marital status	No. of children	Occupation
Participant 1	F	37	Physical	No education	Married	2	Seamstress
Participant 2	F	59	Visual	SHS	Married	6	Teacher
Participant 3	M	56	Visual	JHS	Married	3	Unemployed
Participant 4	M	32	Physical	JHS	Single	None	Trader
Participant 5	M	70	Physical	SHS	Married	2	Rtd. Teacher
Participant 6	M	45	Visual	Degree	Married	5	Teacher
Participant 7	M	41	Physical	Diploma	Married	3	Unemployed
Participant 8	F	49	Physical	Class 2	Married	6	Soap maker
Participant 9	F	46	Physical	JHS	Married	4	Petty trader
Participant 10	M	65	Physical	JHS	Cohabiting	8	Farming
Participant 11	M	54	Physical	JHS	Married	3	Farming
Participant 12	M	62	Physical	JHS	Married	6	Petty trading
Participant 13	F	48	Physical	Class 4	Married	8	Unemployed
Participant 14	F	31	Physical	Class 6	Married	3	Seamstress
Participant 15	F	51	Physical	Class 1	Married	7	Cocoa farmer
Participant 16	F	65	Physical	JHS	Widowed	10	Unemployed
Participant 17	F	47	Physical	None	Married	5	Farming
Participant 18	F	64	Physical	Class 1	Married	6	Petty trader
Participant 19	M	53	Physical	JHS	Married	4	Farmer
Participant 20	M	46	Physical	JHS	Married	2	Unemployed
Participant 21	M	58	Physical	JHS	Married	4	Unemployed

Source: Fieldwork, 2022

Table 4. 3 Sociodemographic characteristics of PWDs

Variable	Frequency	Percent
Total	42	100
Gender		
Male	23	54.8
Female	19	45.2
Age (years)		
20-29	1	2.4
30-39	5	11.9
40-49	13	30.9
50-59	13	30.9
60-69	9	21.4
70 and above	1	2.4
Educational level		
No education	3	7.1
Primary education	5	11.9
JHS/JSS	18	42.9
SHS/SSS	8	19.0
Vocational	2	4.7
Tertiary	6	14.2
Marital status		
Single	7	16.7
Married	23	54.8
Divorced	2	4.7
Widowed	4	9.5
Separated	4	9.5
Cohabitation	2	4.7
Number of children		
No child	6	14.2
1-3	19	45.2
4-6	13	30.9
7-9	3	7.1
10 and above	1	2.4
Occupation		
Unemployed	11	26.1
Retired/pensioner	2	4.7
Civil servant	7	16.7
Petty trading	11	26.1
Vocational	6	14.2
Farming	5	11.9

Source: Fieldwork, 2022

4.1.1 Gender

The male participants in this study were marginally more (54.8%) than females. This was observed in both Greater Accra and the Ashanti Regions. Although the Population and Housing Census of 2021 identified more females living with disabilities (58%) than males (42%) nationwide (GSS, 2021), the study was able to reach more males in both regions. Vulnerable persons such as PWDs may have some challenges in availing themselves for research of this kind, hence, the participation of the female participants was relatively low, although a clarion call was made to them in their various districts. The few female participants who successfully availed themselves for the interviews did so amidst other duties and responsibilities around the home and within their working environments. In the rural areas, the females were more open to participating in the study in comparison to their counterparts in the urban areas. This is due to the overly communal living in the rural areas, while, PWDs from the city were met either at home, at work or in between these two activities, hence their inability to participate as the researcher expected.

4.1.2 Age Distribution

The age distribution of the participants provides an idea of how old the study participants were. With a key inclusion criterion for the study to only consider PWDs older than 18 years, most participants were between the middle to old adult age bracket of 40-59 and 50-59 years, altogether representing 61.8.0% of the total population. The study shows that the younger participants mostly lived in urban areas, while the majority of the older PWDs resided in rural areas. Age affects physical capabilities, which in turn influences transport mode choices and accessibility needs (see Ryan et al., 2023). In the study, younger PWDs were found to be more open to using riskier modes like Okada (motorcycle taxis), while older PWDs preferred more stable options like traditional taxis.

4.1.3 Educational Level

Education level can influence employment opportunities, which in turn affects travel patterns and transport needs. Also, a higher education level may correlate with a better understanding of rights and the ability to advocate for accessible transport. From the study, the degree of formal education (92.9%) attained by participants indicates a well-educated population of persons with disabilities. Whereas the majority of the formally educated persons were located in the Greater Accra Region, the least educated lived in the Ashanti Region. This could be attributed to the many educational institutions within the urban areas, specifically the country's capital region (Anlimachie & Avoada, 2020; Ghana Statistical Service, 2019). To an extent, the level of education attained by most participants was not where they would have wished it to end; however, due to some constraints, continuing to higher levels of education in their conditions was not realisable. A participant indicated the lack of financial support as a barrier to his educational achievements. He narrates:

I was in the village at Sapeima DC middle school while my guardian was a farmer, so he could not afford that. If there was money, I would've gone beyond the Form 4 level (A 62-year-old physically challenged man in Accra).

Another participant retorted:

I didn't further my education after O levels because of money issues and lack of support from my parents. If I had gotten the support, I would have continued (A 53-year-old visually impaired woman in Ejisu).

On the other hand, some participants chose not to pursue further schooling despite having the means to continue their education. Instead, they opted to initiate entrepreneurial ventures in businesses to support their families and contribute more to household responsibilities. A participant intimated:

After Form 4, it was my decision not to further my education. Money for fees was not the issue. I was just tired of schooling then and wanted to do something for myself and my family (A 62-year-old physically challenged woman in Tema).

4.1.4 Marital Status

Marital status can significantly affect travel patterns and transport choices for PWDs. Those with a spouse may need to consider family-friendly transport options and may benefit from additional support for mobility. In contrast, single PWDs may face more challenges in navigating their transport needs. Findings from the interviewees show that more than half of them (54.8%) were married, with a lower percentage (16.7%) being single. In this category, the least number of participants (4.7%) were divorced or cohabiting. There were more married PWDs in the Ashanti Region than in the Greater Accra Region. This could be due to the more traditional and conservative cultural norms in rural areas, which place a higher value on marriage in Ghana (see Dako-Gyeke & Owusu, 2013). In contrast, urban areas have a more diverse and cosmopolitan population with different values and lifestyle choices. Other economic, educational, religious, and migration factors also explain this disparity in the marital status of PWDs between urban and rural areas.

4.1.5 Number of Children

The study findings reveal that the vast majority of interviewees (85.8%) were parents, and among them, those with up to six children constituted the majority (76.2%). The remaining participants reported having more than seven children. The spatial dimension plays out significantly and reflects the data on marital status as the parental status of participants in the rural areas recorded more children (6-10) as against the lower number of children (1-5) recorded by participants in the Greater Accra Region. Here, PWDs with children may need to

consider family-friendly transport options more than those with no children, with consequences for their mobility.

4.1.6 Occupation Status

Employment status significantly impacts the travel needs and patterns of PWDs. The type of occupation determines the frequency and distance of travel required, with those needing to commute regularly requiring reliable and accessible public transport. Stable employment can provide the financial resources for private transport options, whereas lower-paying jobs or unemployment might necessitate reliance on public transport services or result in an inability to travel overall. Within the world of work, it was revealed that the dominant (26.1%) source of livelihood for PWDs was petty trading of items such as fruits, confectioneries, stationeries, and wax prints, among others. On the other hand, 26.1% of these dominant groups were unemployed and were not engaged in any form of economic activity at the time of the interviews. The remaining groups of employed people were engaged in teaching and administrative jobs within the government sector (civil servants) and artisanal-related jobs such as dressmakers, bakers, and soap makers. A greater number of participants in the Ashanti Region indicated farming as their primary occupation, given the area's prevalence of arable and expansive lands. In contrast, participants from the Greater Accra Region were predominantly engaged in government employment. The least group (4.7%) of PWDs under this designation were retirees.

4.2 Public Transport Mobility Options for PWDs

Knowledge of the public transport mobility options for PWDs in Ghana is essential to foster inclusivity, promote social equity, and enhance the overall well-being of PWDs. In view of this, the study discovered varied public transport services available to persons with disabilities.

These were commercial two-wheeler motorcycles (i.e., Okada²), commercial three-wheelers (i.e., Pragma³), personal cars, traditional taxis, minibuses (i.e., trotro⁴), higher occupancy buses (e.g., Metromass/Aayalolo⁵/STC/VIP), digital taxis or ride-hailing taxis (e.g., Uber, Bolt, Yango, etc.). These modes are presented in Table 4.3. Within the rural-urban mix, these options varied such that PWDs in Greater Accra had access to many lower occupancy transport services in the presence of other medium to high occupancy vehicles. In the Ashanti Region, public transport options reflected lower vehicle occupancy. However, these were the main available transport options, with no alternatives to higher occupancy vehicles due to the relatively lower populations in the selected districts and the deteriorating nature of their transport route infrastructure. In this regard, participants in the rural areas had access to commercial two-wheeler and three-wheeler motorcycles more than the trotro and traditional taxi vehicles available in urban areas. A few PWDs owned their means of transport. These included a saloon car, a motorised tricycle and a non-motorised tricycle to aid their mobility journeys. The researcher hereby provides a typology of the transport options presented in Table 4.4. The various public transport options usually patronised by PWDs in the two regions are presented in Figure 4.1 and are explained further.

² Okada is a term purported to have originated from a defunct Nigerian Airline, OKADA AIR. The term is used to signify motorcycles operating commercially as taxis (Frimpong et al., 2021; Oteng-Ababio & Agyemang, 2012).

³ Pragma is a local term for an auto rickshaw in southern Ghana (Obiri-Yeboah et al., 2021).

⁴ Trotro is a local Ghanaian expression meaning “three pence”, which was the fare charged for local trips in trucks (known as “mummy trucks”) in GAMA in the late 1950s and 1960s (Abane, 2011). Today, the word loosely refers to all vehicles engaged in commercial transport, including Nissan Urvans, Toyota HiAce minibuses, and the 207 series Mercedes-Benz buses (Agyemang, 2015).

⁵ The Aayalolo bus service was inaugurated in 2016 as a modified kind of BRT service to address traffic congestion in Accra. (Asimeng, 2021).

Typology of Public Transport Options Available to PWDs

The researcher in Table 4.4 provides a typology of public transport options available to PWDs, categorised by key themes of passenger capacity, operational characteristics and flexibility, and non-motorised transport. This typology highlights the range of options from low-capacity vehicles like motorcycles and tricycles to high-occupancy vehicles such as buses and coaches, as well as non-motorised transport options like walking and cycling. Each category addresses different aspects of accessibility and operational characteristics, providing insights into how these modes of transport can be utilised to enhance the mobility of PWDs.

Table 4. 4 Typology of Public Transport Options Available to PWDs

A. (Passenger capacity)	B. (Operational characteristics & flexibility)	C. Non-Motorised Transport
Low-capacity Vehicles	Flexible and Demand-Responsive Vehicles	a. Walking
a. Two-wheelers (Motorcycles/Okada)	a. Motorcycles (Okada)	b. Bicycle
b. Three-wheelers (Tricycles/Pragya)	b. Tricycles (Pragya)	c. Handcycles
Medium capacity vehicles	c. Traditional Taxis	d. Cycle rickshaw (Pedicab)
a. Traditional Taxis	d. Ride-hailing Taxis (e.g., Uber, Bolt, Yango).	
b. Ride-hailing Taxis (e.g., Uber, Bolt, Yango)	Fixed-Route and Scheduled Vehicles	
c. Minibuses (Trotro)	a. Minibuses (Trotro)	
High-occupancy Vehicles	b. Buses (e.g., Metro Mass Transit, Aayalolo)	
a. Buses (e.g., Metro Mass Transit, Aayalolo)	c. Coaches (e.g., Intercity STC Coaches, VIP Jeoun Transport Services)	
b. Coaches (e.g., Intercity STC Coaches, VIP Jeoun Transport Services)		

Source: Authors Construct.

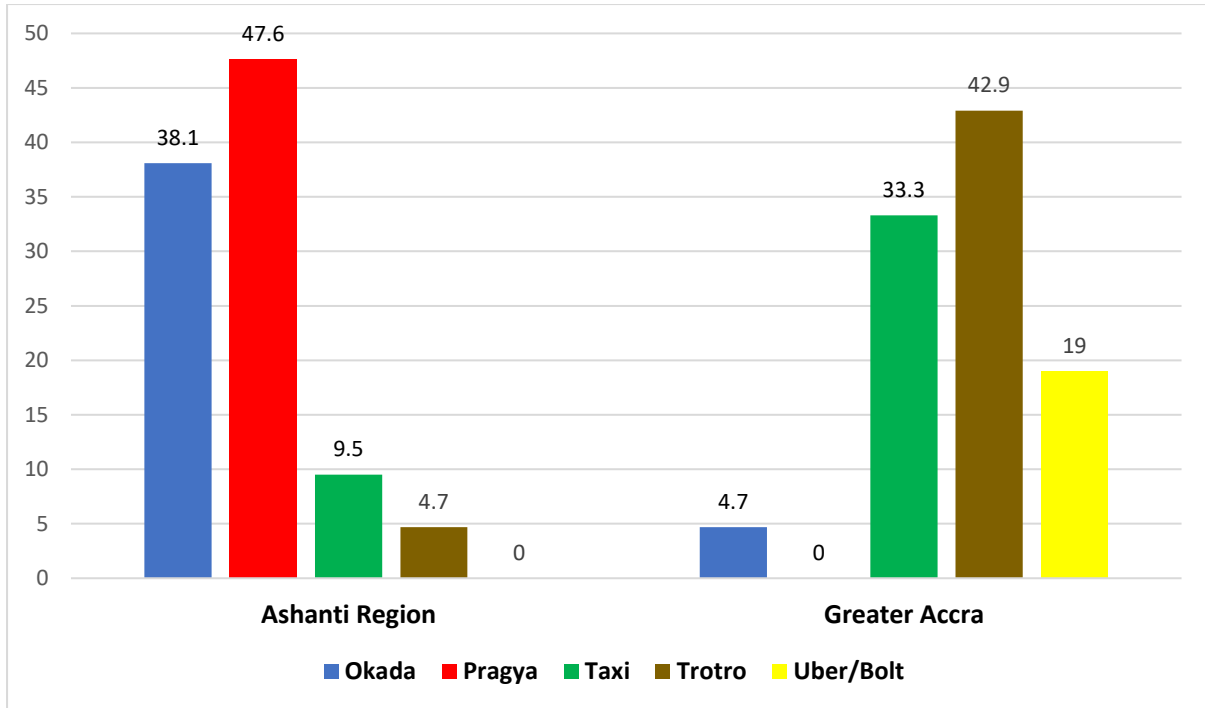


Figure 4. 1 Modal share of public transport service used by PWDs in the selected regions

Source: Fieldwork, 2022

4.2.1 Commercial Two-wheeler Motorcycles (i.e., Okada): PWDs who had Okada available considered it an option they could use where necessary. For this mode of passenger transport, as shown in Figure 4.3, persons with low severity of physical disabilities were more open to engaging in its services than persons with severe physical disabilities. Okada was also patronised more in the rural areas, where roads may be less developed and more challenging for larger vehicles than in the urban areas. Also, Okadas can navigate these areas more easily and provide a quick and flexible transport solution, especially in areas with limited public transport options. The use of helmets by PWDs patronising these services was overly non-existent, posing severe traffic and safety risks. PWDs who were younger were more open to patronising the Okada than the older PWDs and their married counterparts who were extra risk cautious. They sometimes used the Okada as an adjoining mode of transport and as an alternative when their primary mode of transportation was inaccessible.

A participant narrates:

Sometimes, I have to take an Okada before I can get my ideal mode of transport (A 41-year-old physically challenged woman, AMA).

Another participant narrates:

Now, I don't take the Okada regularly like before. I take it only when in a hurry because of how they ride it and considering the risk (A 47-year-old physically challenged man, Ejisu).

4.2.2 Commercial Three-wheelers (i.e., Pragma): The Pragma, as shown in Figure 4.2, was dominant in the rural areas and patronised by Ejisu-Asotwe, Mankranso and Mpatuam residents in the Ashanti Region. Pragma offered passenger and goods transport, unlike the two-wheelers, which mainly transported passengers. Pragma offers a more adaptable and cost-effective solution for navigating less developed roads, making it a popular choice. The flexibility and affordability of Pragma suit the economic conditions and geographic layout of the Ashanti region. Pragma's ridership was sought by the young and old in rural areas. The Pragma was a more comfortable motorcycle than the Okada, providing some stability and comfort to PWDs, making it a preferred choice for PWDs who frequented places like religious fellowships.

A study participant narrates:

On Sundays, I take the Pragma to church as it is less costly and I get to ride with my sister as well (A 52-year-old visually impaired woman, Ejisu).

4.2.3 Traditional Taxis: The taxi service, as shown in Figure 4.4, comes in a saloon, hatchback or estate car, carrying passengers and goods. It offers PWDs some privacy with a standard maximum capacity of four. The urban environment of Greater Accra, with its higher economic activity and better road conditions, supports a greater prevalence of traditional taxis. These

taxis provide a more comfortable and private transport option for short to medium-distance travel, which is in demand in a bustling urban centre. In rural areas, due to inadequate taxi services, they tend to pick up passengers that exceed the legal passenger carrying capacity, popularly termed “overloading”. As such, the vehicle is packed with over six passengers to cater to the high demand for the service. When this happens, the appeal for PWDs to patronise is lost as the comfortability criteria are lost along those lines, although the transport cost per passenger remains unchanged. Taxi services were higher in cost than the other services; thus, older PWDs with higher education levels, active employment, and incomes could afford them more regularly than their counterparts.

4.2.4 Minibuses (trotro): The trotros, as shown in Figure 4.6, were dominant in the Greater Accra Region due to the high population density and the need for frequent, affordable public transport services and relatively less prevalent in the rural areas of Ejisu municipal. There was very low visibility of trotro services in rural areas of Mpatuam and Mankranso of the Ashanti Region. PWDs in Accra and Tema had access to the trotro service as part of their mobility options and regularly relied on them. The urban infrastructure of Greater Accra supports the operation of trotros, which can efficiently serve densely populated areas with numerous routes and stops. However, the state of the trotros showed a lack of accessible features and was usually not in the best shape. Despite the non-inclusive nature of the trotro service, they offered the most affordable options for transport mobility.

4.2.5 High Occupancy Buses (e.g., Metromass/Aayalolo/STC/VIP): These buses serve the intercity and intracity transport needs of PWDs. Due to the capacity of these buses and the long distance of their service, they offer some suitable and comfortable seating capacity for all passengers, with a few of them having specialised seating for PWDs. A few of the Aayalolo and Metromass buses have reserved seats and some securement devices for PWDs. The STC and VIP buses had more modern features for PWDs. The older PWDs patronised these services

more than their younger companions. These buses were occasionally used for long-distance travel. A participant narrates:

When I am going outside Accra to my village in the Bono region, I take the STC bus since it is a longer journey and I feel comfortable on their buses (A 51-year-old visually impaired man, AMA).

4.2.6 Ride-hailing Taxis: For PWDs, this mode of transport was closest to a personal vehicle that runs a specialised commercial transport service. The ride-hailing taxi, as shown in Figure 4.5, also lacks basic accessibility features but provides passengers with comfort, privacy and a sense of ownership attached to the duration of the ride. Ride-hailing services are predominantly used in Greater Accra due to the higher smartphone penetration, better internet connectivity, and greater financial capacity among residents. The main downside of this service is its availability since it is not nationwide but only in selected cities. Also, the operational and technical know-how of smartphone devices is key to using the service. As such, anyone lacking these skills was excluded from enjoying the service.

However, out of the many public transport options available to PWDs, they normally patronised the services of trotros, taxis, tricycles, and ride-hailing taxis. The lower occupancy modes were preferred to the higher ones, although the latter mode was also available for use.

These regional differences in the modal share of public transport reflect the underlying economic, infrastructural, and demographic disparities between urban and rural areas in Ghana. Understanding these variations is essential for developing targeted policies and interventions to improve public transport accessibility and inclusivity for PWDs across different regions.

The diversity of public transport options reported in this study aligns with previous research findings, indicating that PWDs have access to a variety of transportation modes, ranging from traditional taxis to ride-hailing services (Cochran & Chatman, 2021; Odame et al., 2023).

However, the level of accessibility and usability of these modes differs significantly based on the geographic location. This finding is consistent with studies conducted in other developing countries, where urban areas generally offer more transportation choices and accessibility features for PWDs compared to rural regions (Bezyak et al., 2017; Dassah et al., 2022; Hough & Taleqani, 2018; Sze & Christensen, 2017). This discrepancy between urban and rural areas is attributed to factors such as population density, infrastructure development, and economic resources (Afukaar et al., 2019; Park & Chowdhury, 2018).

The dominance of two-wheeler motorcycles (Okada) and three-wheelers (Pragya) in rural areas mirrors previous research that highlighted the preference for such modes in regions with limited access to higher occupancy vehicles in the Asian milieu (Bishop et al., 2018; Gupta et al., 2021; Shamrock et al., 2017).

For participants who owned a means of transport, it was the most preferred mode of their mobility journeys. However, the ownership of these transport means was not the panacea to their mobility challenges as the issue of operation, fuel, maintenance for the motorised vehicles, and the manpower required to paddle the non-motorised vehicles were needed to put them into use. At a point, a visually impaired participant, who owned a saloon car, had to engage the services of a driver as his wife was not always around to take him to work and back, which constrained his mobility despite his ability to own a vehicle. He narrated:



We have a family car, so if I am travelling from Tema to Accra, I go with the family car. I use the family car to work as well. In the morning, my wife or my nephew drives me to work before they take the car along to their workplaces. Because I have been closing late from work and sometimes, we go to the field to work, I have patronised the services of a taxi driver who takes me wherever I need to go since I cannot always get my wife to drive me (A 54-year-old visually impaired man, Tema).

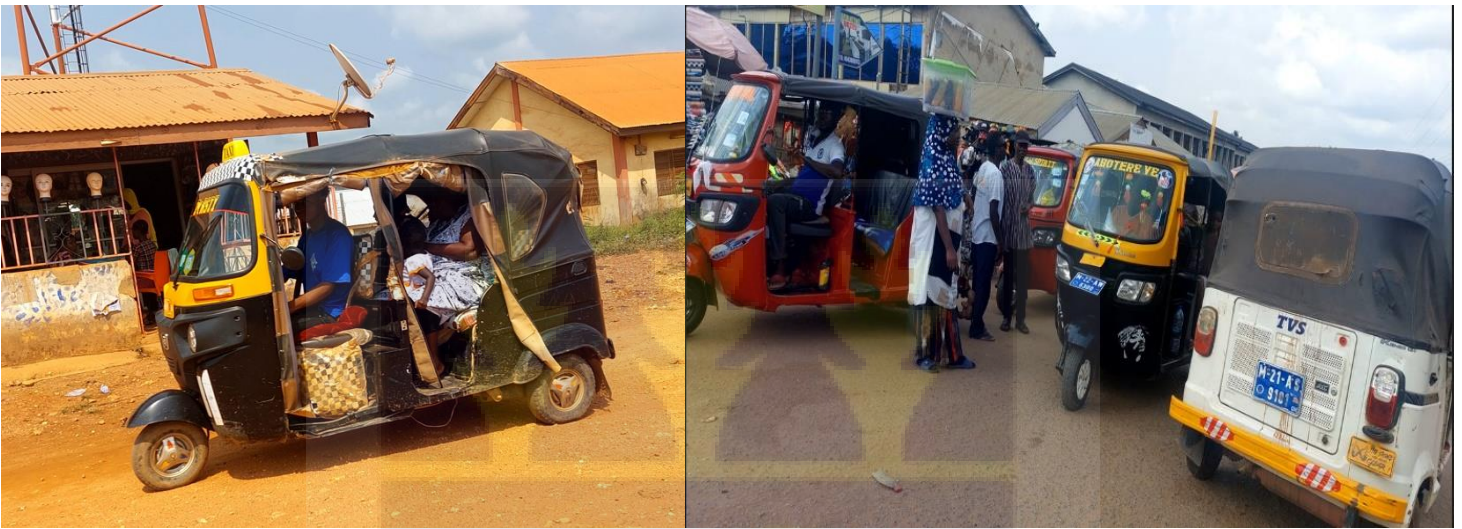


Figure 4. 2 Praga in Mpatuam and Ejisu

Source: Fieldwork, 2022





Figure 4. 3 Okada in Mpatuam

Source: Fieldwork, 2022



Figure 4. 4 Taxis in Tema Community 1

Source: Fieldwork, 2022



Figure 4. 5 Digital taxi in Kaneshie

Source: Fieldwork, 2022



Figure 4. 6 Trotro at the Kwame Nkrumah Neoplan Bus Station

Source: Fieldwork, 2022

4.3 Factors Influencing PWDs Selection of Primary Mode of Transportation

Mode choice for PWDs is an important criterion of their mobility potential as it provides insights into the considerations and unique challenges faced in accessing transport services. To elucidate more on this, the study uncovered varied reasons why PWDs preferred to use a particular mode of transport as their primary mode over other available modes. These reasons were grouped into seven broad categories as: The nature of the disability, the average cost of a trip, the purpose/destination of the trip, the duration/distance of the trip, the timeliness of the mode, the occupancy status of the mode and the ergonomic factors of the transport mode. In most situations, PWDs combine several factors to opt for a particular transport mode that satisfies their specific needs.

4.3.1 The Nature of Disability: This factor explains how PWDs assess their disability and use that as a primary reason to decide on the mode of transport most suitable. For persons with physical impairments, this factor was considered in addition to other factors in deciding their actual journey trips. In the Accra Metropolitan Area, a participant who uses a wheelchair indicated making an assessment of mode choice in this direction. He recounts:

I mostly depend on taxis and these Uber cars because, with my condition as a wheelchair user, I cannot use top-lift cars, such as the trotro, because it is quite difficult for me to be on board these trotro cars. I choose the taxi because it is lower and it is easier for me to get on board, and at times, if I'm moving with a family of two, I still have space to carry and pack my wheelchair and take it along with me. Even though their prices are costly, there is no option. So, the taxi is comfortable, and it's convenient, but it's expensive (A 47-year-old physically challenged man, AMA).

Similarly, a participant suffering from Kyphosis (hunchback) also combines a number of factors to arrive at her mode choice. She narrates:

I take trotro because I can walk a little despite my disability, which is not severe. However, taking trotro is also expensive. Even looking at my house to the junction, which is short, costs GHS 3.00. I can't be taking that every day, so I walk to the junction to pick my trotro. If I am carrying a load, I take Uber over the taxi (A 41-year-old physically challenged woman, Ga South).

These narratives show how PWDs assess their unique disability, primarily in conjunction with other factors to inform their use of public transport. From the participants, it was observed that persons with visual impairments did not dwell on the nature of their disability as a primary reason for deciding their mode of transport. However, persons with physical disability relied heavily on this factor in informing their modal choice of transport services. This goes further to buttress the points of Dodds & Palakshappa (2022), together with Holler & Ohayon (2022), that even within the disability context, each disability is unique and comes with its unique challenges, as such, requires specific interventions. Although some of their challenges may intersect at a point, they remain very distinct impairments.

4.3.2 Average Cost of Trip: Another key factor that almost all participants referred to was the cost of transport service. Generally, the cheaper option was considered in addition to other associated reasons. In this regard, the trotro was mostly chosen as a mode of transport due to its low cost, hinging on the nature of its operations, where a minimum of eleven passengers share the total cost of a journey leg as opposed to the taxi, uber, Pragya, and other low occupancy vehicles whose fewer individual passengers (maximum of 5) share a relatively higher cost for the same journey. A participant indicated using this factor to inform her mobility journeys. She intimates:

I prefer the trotro to the other ones because it is cheap. There's no other reason; it's because of how cheap it is, that's why I take it (A 51-year-old visually impaired woman, AMA).

On the other hand, few PWDs were financially capable of opting for the lower occupancy vehicles as they were either in active employment or were being taken care of by a relative or benefactor. A participant narrates:

I am able to afford taxis and Uber because I am gainfully employed (A 36-year-old visually impaired man, Tema).

In the rural areas, a participant explained how she patronised taxi services until the increases in the price of fuel and fuel products affected the cost of the service. She now relies on the auto rickshaw, commonly known as Pragma. She narrates:

The cost of the taxi was high. That is the main reason I stopped using the taxi and relied on the Pragma, which is relatively cheaper (A 59-year-old visually impaired woman, Ejisu).

These narratives indicate that the cost of transport, either solely or in conjunction with other factors, determines the mode choice of persons with disabilities. This was observed more in the rural areas than the urban areas; nevertheless, the cost of fares for public transport was a challenge for all PWDs to varying degrees. Some elderly participants recounted how PWDs were given a waiver in the 1980s during their use of government bus services such as State Transport, now STC, Omnibus Service Authority (OSA), and the City Express Services (CES). They expressed how it was a relief to have a disability card provided by the Department of Social Welfare, which had details of their peculiar disability. They presented this card at the point of ticket purchase to be allocated a waiver for themselves and their guide/aide. They claimed this intervention cushioned their travel expenses and promoted their mobility potential.

Unfortunately, this privilege was cut short after a change in the government regime at the time and has since not been re-introduced. A participant shared a disability card he acquired in 1982 from the Ashanti Region, as shown in Figure 4.7. Biographical data has been obscured to protect the PWD's identity.



Figure 4. 7 A participant's disability identity card, Ejisu-Ashanti Region

Source: Fieldwork, 2022

Generally, the cost of fares has been underscored as a crucial consideration and influencing factor for transport mode choice. Studies by Abane (1993; 2011), Agyemang (2017), and Sam et al. (2014) have all shown that people living in urban Ghana will mostly gravitate towards the mode of transport with the lowest cost. By this, the use of the trotro has become Ghana's leading mode of transport. For persons with disabilities, especially, those living in rural areas, affordability of mode plays a key influencing factor, however, the trotro was not the preferred mode of transport due to its less prevalent nature in rural areas. As a result, PWDs in rural areas preferred the motorised tricycle and motorcycle in the absence of the trotro. In this regard,

PWDs rely on these modes of transport that offer the same affordable transport service as the trotro does in urban areas, and use them as their primary transport mode.

4.3.3 Purpose/Destination of Trip: Participants' trip purpose and trip destinations were generally linked in a way where the purpose of the trip was reflected in the destination and vice versa. PWDs based their transport mode choice on the motivation behind their travel and the target or endpoint of their journey. These factors were inextricably linked and considered as a round trip, where journeys to particular locations and back usually occurred over the same route. The major trip purposes were to the market/shopping centres, workplaces, social engagements, religious fellowships and healthcare facilities. Trips to the markets/shops required some extra space on the mode of transport to keep groceries and other market products. As such, PWDs resorted to traditional taxis, digital taxis, trotros, or motor tricycles on a regular or hired service. There was no mention of using a two-wheeled motor for market/shopping purposes. A participant recounts her reason for mode choice during her market journeys:

I usually go to Accra Central to buy things and check on the prices of paper drinks, disposable cups, and other things. When I am done purchasing the items, I use Uber when I am coming back from Accra since I get to ride alone with the goods I bought (A 38-year-old physically impaired woman, AMA).

Another participant narrates how she shuffles between modes of transport for market-related trips:

When I go to the local market, I use a tricycle. But when I am going to the bigger market in Kumasi, I use the Sprinter trotro type of bus (A 43-year-old visually impaired woman, Ejisu).

Religious activities have played a central part in the lives of persons with disabilities, offering support and hope (Franssen et al., 2020; Hobbs et al., 2016); hence, religious activities are

regarded as very important for these persons. A participant explains how she combines the purpose, destination, and duration to decide on her mode of transport.

She narrates:

When I am going to church, sometimes I walk and sometimes I use the tricycle. And that is because the distance from my house to the church is not that far, so it is just about a 10 to 15-minute walk (A 46-year-old physically challenged man, Ahafo Ano South West).

Regarding trips to healthcare facilities, PWDs resorted to the lower occupancy vehicles that are easily available. A participant shared how taxis come through for her in times of medical emergencies and how she used the Pragma when there was no emergency. She said:

I use a taxi when I get sick and need to visit the hospital when there is an emergency. I remember one time, the sickness attacked me at night between the hours of 9:00 PM and 10:00 PM. So, I couldn't go anywhere, but in the morning, I called a taxi to transport myself to the hospital. I was to return to the hospital during the course of the week to check if my blood pressure had normalised. So I used the taxi again to transport myself to the hospital during the two times I went. Afterwards, I returned to using the tricycle normally again (A 48-year-old physically challenged woman, Amansie West).

4.3.4 Duration/Distance of Trip: The time taken to complete journeys was also essential in determining the mode choice of PWDs. This included trips that were short, medium, and long distance. Again, it was a major factor among other related reasons why PWDs opted for a particular mode of transport. A participant disclosed how long trips to major towns were easier and less expensive with a trotro over the taxi:

I prefer the trotro to the taxi and the Pragya because the taxi has a limitation in terms of travelling. Since I have been living in Akyawkrom, the taxi only goes as far as Ejisu, but they don't go beyond Ejisu. So, if you want to go anywhere beyond Ejisu using a taxi, you have to take it as a chartered service, which is very expensive. But the trotro goes beyond Ejisu and as far as Tech, Kumasi and other places. So, when I want to go to Kumasi, I manage to get to the main road and board one trotro. I don't need to come to Ejisu by taxi before I take another trotro to where I am going (A 45-year-old visually impaired man, Ejisu).

One concern embedded in PWDs journey length referenced some level of discomfort in changing modes at one or two journey leg points to get to their ideal destination, while they could equally get there with an alternative vehicle over one journey leg point. From the narrative, PWDs understand the fact that the duration of the trip is essential for planning and organising their travel arrangements. It helps them estimate the amount of time needed for transportation, schedule activities, and manage other aspects related to the trip, which plays a key role in shaping their access and use of public transport services.

4.3.5 Timeliness of Mode: Regarding how a particular mode of transport delivers some consistent, timely services to PWDs when needed, PWDs utilise this factor as a key indicator to inform certain journeys. By this, the journey time is embedded in the reasons PWDs use a particular mode of transport. A participant recounts instances where he considered public transport services:

You see, there are some places where I normally use taxis. When I'm going to a meeting like this and I'm in a hurry, I use a taxi. But if I'm going out, like the hospital for my eye check-up or to town, I use trotro. So, if I'm not in a

hurry, I use the trotro. But on the norm, I use the trotro (A 51-year-old visually impaired man, AMA).

Another participant recounts her experience with the unreliability of trotro services and how that influences her decision to opt for the Okada:

When I am going out to town, by the time I am ready to leave, the trotro and Pragma won't be available. This happens a lot of the time, so I am forced to make do with the Okada that is dominant here (A 31-year-old physically impaired woman, Amansie West).

A participant further states how the time taken for a vehicle to get to full capacity prior to the start of the trip influences her to choose the service:

I use taxis, but the loading ones, because the loading one does not waste time like the trotro to get full before we begin the journey (A 31-year-old physically challenged woman, Tema).

Waiting here refers to the time needed for the vehicle to reach full passenger capacity before embarking on the journey. In light of this factor being a primary reason for determining the mode choice of transport for persons with disabilities, other participants who are not hard-pressed for time prefer to wait for their regular mode of transport to arrive or wait on their mode to get to full passenger capacity to begin their journey. A participant discloses:

Although the trotro mostly delays, there are times you need to wait a bit longer before you get an available one for a ride. However, you have to be patient and wait for it. So, I wait till I get one (A 53-year-old physically challenged man, Amansie West).

Previous studies by De Vos et al. (2016) and del Castillo & Benitez (2013) have highlighted the role of transport service punctuality (timeliness) in transport mode choice decisions and overall transport mode satisfaction. Generally, the timeliness of public transport modes significantly affects service quality. As such, dwell times, which denote the time a vehicle stops at a terminal or bus stop to pick up or drop off passengers, are of key importance to planning people's mobility journeys. In view of this, reducing dwell times is often the goal of transportation agencies to improve the efficiency and timeliness of their services for all users, including PWDs who require special considerations in embarking or disembarking their services (Glick & Figliozzi, 2017; Rashidi et al., 2023).

4.3.6 Occupancy Status of Mode: Another factor influencing the mode choice of PWDs regarding transportation is the number of passengers occupying the vehicle when PWDs are about to embark on a trip. In this regard, participants who were physically challenged indicated that fewer occupants of the vehicles serve them best as they tend to have some extra room to accommodate their disability. This factor resonated more with persons with physical impairments than those with visual challenges, though the latter group also always commutes with a guide or someone in that capacity to lead them around who is also required to be present on their trips. A participant who uses crutches shares her experience when she waits for an empty tricycle before going on her trip despite the time it takes to reach one. She recounts:

As for here, when I go out, and I'm coming, I take the Pragma, and when I take it, I make sure there is no one in it so I alone occupy it, and I prepare to pay for the remaining seats but not a chartered service since that would be more costly. Due to that, it takes time for me to get one. Because I have 2 of the crutches, it turns out to become an issue when I make contact with passengers or even when my crutches merely make contact with them. The way they behave changes totally and I am tired of that treatment, so I take

the vehicles alone to avoid any issues. So, because of that, I don't even go out often (A 49-year-old physically challenged woman, Ahafo Ano South West).

The encounters of participants regarding occupancy status and its influence on their travel mode choice shows that arrangements such as carpooling, which is an innovative and more sustainable form of mobility, where a vehicle is filled up with occupants moving along a common route may not be patronised by PWDs, since they will need to have extra space while travelling. In this regard, the inadequate modes of transport in rural areas go a long way to constrain PWDs from coping with the few available modes of transport, which may further inconvenience them and their disabilities, limiting their opportunities to reach various opportunities.

4.3.7 Ergonomic Associated Factors of the Mode of Transport: Regarding the design and functionality of public transport modes, participants made their preferred choices based on criteria that included comfort, suitability, convenience, and safety. PWDs recount the ease of boarding and disembarking, well-designed seating arrangements, and adequate storage spaces as key ergonomic factors that determined their mode of travel. A participant narrates how comfort and convenience influences his modal choice:

I want to be comfortable, you see, the situation when using public transport makes me feel uncomfortable. Like when you are getting down, your movement and stuff. But with the taxi, because it has been chartered, it would take you wherever you want to go and to the exact location even without anyone's help. But with the trotro, someone needs to help you get on board and with that, you would have to pay the person's fare (A 68-year-old visually impaired man, Ga South).

The safety dimension was also discussed in the interviews with PWDs. They were interested in equally travelling on a mode of transport that was safe in order not to worsen the state of their disability through any unfortunate means. A participant narrated how a traditional taxi proved a safer travel option for him:

The aspect of safety is one of the main reasons why I take the taxi. Getting into a trotro, using my wheelchair to board, is not easy. Sometimes, you can flip and fall. So, with safety, taxis and low-level cars like the Bolt and Uber types are safer than the trotro because their height is lower (A 43-year-old physically challenged woman, AMA).

The findings from this study contrast with those of Odame et al. (2023). In Odame's research, PWDs indicated that they felt safe using trotros mainly due to the communal aspect, where many passengers riding together offered some form of group protection. However, in this study, PWDs did not perceive trotros as a safer mode of transportation. They found the features of trotros to be unfriendly and potentially harmful, leading them to prefer the saloon type of cars as a safer option.

While Okada and Pragya provide mobility options for PWDs in rural settings, their usage raises safety concerns, as evidenced by the lack of helmet usage and the potential risks for individuals with severe physical disabilities. This safety concern has lingered in the transport literature across continents for a long time, with research findings from Nepal, Brazil, and Nigeria highlighting the need for safety regulations and infrastructure improvements to ensure the safe use of motorcycle taxis (Cunto & Ferreira, 2017; Sanusi & Emmelin, 2015; Sapkota et al., 2016).

Closely related to ergonomic features lies the issue of cost, as the cost of transport plays a significant role in determining the availability and accessibility of ergonomic features. As such,

all participants who relied primarily on ergonomics to choose a mode of transport increased their travel costs significantly. The link between disability and poverty in developing countries has been well documented, where total travel cost is reported as a key deciding factor for the mode choice and mobility potential of PWDs (Asuman et al., 2020; Pinilla-Roncancio, 2018). As such, the relatively cheaper option has been economically friendlier for PWDs and older people. This narrative further indicates the reduced travel behaviour of PWDs as they make 10-30% fewer trips than persons who are not disabled (Park et al., 2023). While the comparable studies do not explicitly mention distance of journeys or trip duration as a key consideration influencing mode choice, it is worth noting that comfortable seating and adequate space become even more important for PWDs during longer journeys to ensure their safety and comfort.

Overall, the various primary reasons and associated reasons for which PWDs resort to choosing a particular mode of transport go further to determine the frequency of using that particular mode. Once a PWD gets conversant, comfortable, and feels safe with a particular mode of transport, the frequency of use becomes inextricably linked to their purchasing power or an external intervention regarding its patronage.

4.3.8 Frequency of Using Mode: The regularity of travel provides insights into the specific needs and challenges that individuals with disabilities face, as well as the types of transportation services and infrastructure required to support their travel. Participants whose occupation demanded travel to markets, stalls/stores, schools, district/ municipal assemblies, and churches experienced a higher frequency of public transport usage than those who were not engaged or whose line of work did not require frequent travel to deliver their services. The frequency of movement was observed to be higher among participants in urban areas than those in rural areas. A physically challenged female soap maker in the Ahafo Ano South West District narrates her frequent use of transport modes:

I use the tricycle when going to the market once a week. I don't regularly use a taxi, just on an occasional basis. I also use the motorcycle once in a while (A 49-year-old physically challenged woman, Mankranso).

Another retired teacher explained his infrequent use of public transport services and how it influences his modal choice:

If it is not something urgent, like I have been called to attend a meeting or an important event, I don't normally go out that much. If I am going somewhere, it means whatever I am going to do is of great importance. Within the last week, I boarded a vehicle twice (A 70-year-old physically challenged man, Ahafo Ano South West).

In the Greater Accra Region, the frequency of trips was higher among PWDs who were employed. This was mainly due to the nature of their occupation, which required them to commute every weekday or weekend to meet their work responsibilities.

A visually impaired civil servant narrates how he uses the trotro in facilitating his travel to work and back home:

I use the trotro every day, from Mondays to Fridays. As I sit here, when I am going home, I have to cross the road to the bus stop and pick up the trotro to Tema station. From there, I take the trotro to my place at Maamobi (A 58-year-old man, AMA).

Another participant recounts how he uses public transport almost daily due to his religious engagements. He intimates:

I use public transport almost the whole week, but mostly on weekends. I go to rehearsals on Tuesdays, Thursdays and Saturdays. So that one is constant.

I go to church every Sunday, too. By 5:30 am each Sunday, I have to be at church and stay in until the close of the third service, which is the final service at 12:30 pm (A 29-year-old visually impaired man, Ga South).

The mobility experiences of PWDs in both contexts show the vibrant effect of activities in the urban areas, which requires regular commuting over the somewhat less vibrant nature of activities in the rural areas. For frequent travellers, ensuring reliable, accessible, and affordable transportation options is essential for these individuals to maintain their daily routines and commitments. For those who travel less often, options for occasional transportation, such as, specialised transport services, may be more suitable since understanding their travel patterns helps tailor services to their sporadic mobility needs.

4.3.9 Household Mode of Transport: Almost all the PWDs interviewed did not live at home alone. They had other family members or access to some external person living with them to help with their daily activities where needed. In view of this, the study sought to find out about the mode of transport of these other members of the PWD's household to understand transportation dynamics within the household, explore instances of shared resources, and evaluate the impact of social support and coordination on the accessibility and use of public transport services by persons with disabilities. The study revealed that PWDs who lived with household members who did not have peculiar physical challenges used any of the dominant public transport modes available without any restriction or limitation. In this scenario, the choice of transport is not influenced by the physical challenges of other household members. However, PWDs who had a member of their household living with some physical challenges used modes of transport similar to those of the physically challenged household member. A visually impaired participant narrates how his household's mode of transport differs from his:

My family members don't have any physical challenges, so they use either trotro or taxi, depending on the convenience they want. But for me, I prefer the taxi or Uber more as it saves me the trouble of finding my seat and always coming down from the vehicle for people behind me to alight (a 42-year-old man, Tema).

In a slightly different scenario, a physically challenged participant whose spouse has the same challenge intimates:

My wife is also physically disabled and uses crutches. So, when the household is stepping out, we all have to use the chartered taxi more and less of the trotro due to our condition. I am left with no choice but to go with the transport mode chosen by my wife and the kids (A 47-year-old man, AMA).

These narratives have shown that alternative modes of public transport are available to both participants and the households they live with to aid in their mobility. Furthermore, these findings have shown that there are alternative modes of transport available to PWDs that they might not personally use or prefer but could potentially be utilised if needed. Also, the study findings provide insights into the degree of reliance PWDs have on others for transportation. Where the household mode of transport differs from that of the PWD, the PWD's level of mobility autonomy increases, but when they use the same mode of transport, it leads to a decrease in the mobility autonomy of the PWD. This situation is particularly relevant as individuals with disabilities often travel with household members, impacting their overall mobility experience.

4.4. Experience with Alternative Modes of Transport

The study sought to find out whether PWDs had experiences with modes of transport other than their primary mode to understand the availability and accessibility of alternative travel

options for them and also highlight specific barriers or facilitators they encounter. The findings reveal that study participants had some experiences on other modes of public transport other than their major travel modes. These modes include the state-owned high occupancy buses for intra and intercity travel, notably, the Metro Mass Transit Limited (MMTL) buses and the Intercity STC buses. They also travel by privately managed high occupancy buses operated by the VIP Jeoun Transport Service. In addition, they sometimes use digital taxi vehicles, which are usually hatchbacks or saloons, two-wheeled motor taxis (Okada), and three-wheeled motor taxis (Pragya).

A physically challenged woman, who served as an executive member of the Ghana Society for the Physically Disabled (GSPD) in her district, shared her first experience using the Okada to visit members of GSPD. She narrates:

On my route to visit a member, a taxi took me to Denkyira, but no taxi moved from Denkyira to my destination. Only the Okada goes there, and when you use Okada, it takes almost 45 minutes. As it was my first time, I had to hold onto the driver firmly as if I was going to fall because the road was very bumpy. What could I do? I had no option but to go (A 51-year-old woman, Ga South).

A visually impaired woman also shared her experience on a high-occupancy government bus. She explained her past experience using MMTL public buses to travel to another region and the policy in place during President Kufour's administration regarding fare exemptions for PWDs. She narrated further:

What I do know is that the modern MMTL buses still keep the seats for the disabled vacant in case one comes along. But if no one comes, they give it out to the other passengers. If an abled person has occupied the disabled

seat, and a disabled person comes aboard, that person is made to leave the seat for the disabled person. That is what I know they do. But there is nothing else like the poles that aid walking in the bus and the others (A 64-year-old woman, Ahafo Ano South West).

A physically challenged man also shared his experience in terms of comfort, independence, and accessibility in using a digital taxi. He recounts:

When it comes to comfort, none exceeds Uber at all. You are comfortable there because you are seated or standing independently, requesting a vehicle to come for you, and the vehicle will come. And you sit in your comfort. When you are alone, whether you want to sit in front or at the back, you can decide as well (A 41-year-old man, Ejisu).

Another visually impaired man also narrated his experience with transport services like Uber and Pragma in other parts of the country, besides his home region of Greater Accra. He explains:

I have taken Uber and taxis in Accra before, but for the Pragma, it is only in northern Ghana that I have used it once. They are even more than the regular taxis there. I don't like the Okada service because of the manner in which the riders speed with it, and I haven't taken it in the northern region before. Up north, I take the Pragma solely (A 58-year-old man, AMA).

From the narratives, factors such as risk, inter-regional travel, and ergonomic characteristics were major reasons participants relied on these other kinds of public transport services aside from their primary modes. It is important to note that the issue of cost did not play a key influencing factor as these mobility options were very irregular and rarely used; hence, participants did not consider financial constraints as a limitation or barrier to their access or usage.

Ride-hailing technologies have been reported as helpful for the aged and persons with disabilities. Studies by Kameswaran et al. (2018) in India and Misra et al. (2022) in the United States show that persons in this vulnerable group enjoy more independence and feel more comfortable in travelling via ride-hailing services, ultimately promoting their mobility potential.

4.5 Insights from Theories and Conceptual Framework

Theoretically, the Life Course Theory emphasises the interconnectedness of life events and experiences over a person's lifetime, recognising that socio-cultural contexts, personal choices, and structural factors influence individual development (Hendricks, 2012). For adults, who form the majority of participants, the mode choice for public transport heavily revolved around work-life balance. Transport accessibility to workplaces and the ability to safely and conveniently reach job locations can significantly impact the mode choice for individuals with disabilities in this life stage. For those who face difficulties accessing public transport to work, it led to a preference for more personalised modes, like taxis or ride-hailing services, where they were available. For PWDs who were parents or caregivers, their mode choice also considered their family members' needs. The availability of transport modes that accommodate the person with a disability and their family members was crucial in shaping their mode choice during this life stage. As individuals with disabilities age, their health and mobility needs change as well, influencing their mode choice for public transport. This propels them to seek transport modes that prioritise comfort, safety, and ease of use, making factors like ergonomic features and reliable services more important considerations. The life course theory, thus, helps us understand that mode choice for PWDs is not fixed but evolves over time, influenced by life events, changing needs, and shifting priorities.

The Critical Disability Theory, on the other hand, offers valuable insights into how societal structures, power dynamics, and the broader context of disability oppression and discrimination

influence mode choice for public transport (van Holstein et al., 2022). This theoretical framework sheds light on the complex interactions between persons with disabilities, public transport systems, and the social environment. Accessibility and inclusion are deeply entrenched in the study findings as transport options that prioritise accessibility, such as low-floor buses or ramps for easy entry, convenient seating and wheelchair-accessible taxis, are more likely to be preferred by PWDs as they offer greater independence and dignity in their travel. With very few of the transport options in the study providing these services, it proves that the societal commitment towards making transport spaces inclusive to accommodate PWDs is rather low and below the expected standards. Modes of transport that are perceived as more inclusive and respectful of PWD rights are likely to be favoured by persons with disabilities, while those that perpetuate stigma or fail to accommodate their needs may be avoided. The study brought to light some instances of stigmatisation and discrimination faced by PWDs, causing them to look forward to travelling alone or avoiding travel on the whole. The issue of disability rights comes in to explain what ought to be the status quo against the prevailing conditions, which paints a picture that falls short of being commendable. The study underscores the significance of addressing environmental barriers that obstruct accessibility, aligning with the principles of the Critical Disability Theory. These barriers include physical obstacles like the lack of ramps or inaccessible bus stops and terminals. As such, transport modes that actively address and remove environmental barriers are more likely to be chosen by PWDs as they offer greater ease of use and independent mobility, which becomes transformative initiatives toward inclusion. The Critical Disability Theory reveals that mode choice for public transport for PWDs goes beyond individual preferences and is deeply intertwined with broader societal structures, power dynamics, and discriminatory practices. In a nutshell, the social model of disability, the approach based on rights and the transformative policies elements of the Critical Disability Theory play an essential role in elucidating more on

the findings of this study within the context of public transport mobility options and mode choice.

The conceptual framework's depiction of various transport services is explained in the study's findings, where a diverse range of public transport options was available for use by PWDs, including minibuses, taxis, ride-hailing services, and mass transit buses to reach various engagements. As such, identifying and considering these transport options align with the framework's emphasis on the urban and rural spaces traversed by PWDs in their mobility journeys. Also, the conceptual framework highlights the socioeconomic influences faced by PWDs in their mobility journeys. Key among them is the issue of transport costs, which influence the affordability of transport. This factor plays a major role in choosing transport options for PWDs, thereby affecting their mobility potential.

The findings discuss the availability and use of various public transport options for PWDs in both rural and urban areas. They highlight differences in transportation options between regions, such as the prevalence of certain modes like Pragma in rural areas and trotros in urban areas. This confirms the study's proposition, stated in Chapter One, that the experiences of PWDs in accessing and using public transport vary between rural and urban contexts. On the other hand, the findings discuss how different demographic and socioeconomic factors, such as age, employment status, and education level, influence the mode choice and accessibility of transportation for PWDs. For example, younger PWDs were more open to using certain modes like Okada, while older PWDs preferred traditional taxi services. This confirms the study's proposition that the experiences of PWDs in accessing and using public transport differ across various life courses and demographic characteristics.

4.6 Chapter Summary

This chapter discussed the sociodemographic composition of PWDs in the Greater Accra and Ashanti Regions of Ghana. It then identified the mobility options of PWDs in these two regions. The study revealed that various mobility options were available to PWDs, such as Okada, Pragma, personal cars, traditional taxis, trotro, Metromass and VIP buses, and digital taxis. The study revealed the pertinent reasons behind PWD's choice of transport. These reasons were broadly grouped into seven, namely, the nature of the disability, the average cost of the trip, the purpose/destination of the trip, the duration/distance of the trip, the availability and timeliness of mode, the occupancy status of mode, and the ergonomic factors of the mode of transport. In addition to the frequency of using the modes, these factors coalesced to explain the travel behaviour of PWDs and provided reasons for their travel predictabilities and limitations. These meanings and understandings provide further insights into the whole concept of utility, usability, and accessibility and how they shape the public transport experiences of commuters who are PWDs. In conclusion, a public transport system that is both usable and accessible enhances the overall utility of public transport, making it more convenient, efficient, and inclusive for all individuals, regardless of their abilities or limitations.

The next chapter explores PWDs' coping strategies for the various public transport services they use. It will delve into PWD mechanisms such as trip planning and preparation, trip assistance and support, and their use of personal mobility aids to help reveal the deep-seated meanings of their public transport experiences.

CHAPTER FIVE

COPING STRATEGIES ADOPTED BY PERSONS WITH DISABILITIES IN THEIR MOBILITY JOURNEYS

5.0 Introduction

Chapter Four discussed the sociodemographic characteristics of the study participants, the various public transport options they access and highlighted the factors influencing their mode choice. It emphasised the several factors that influence PWDs' decision to choose a particular mode of transport. The transport options available and the options used were not the same for reasons such as the nature of disability, trip purpose, trip costs, trip duration, timeliness of mode, and ergonomic factors. This chapter discusses evidence of strategies and techniques that PWDs adopt to facilitate their travel via public transport. These strategies cut across trip planning and preparation, onboarding and disembarking vehicles, assistance and support, personal mobility aids, and alternative transport modes. Exploring these strategies is likely to uncover key aspects related to how PWDs navigate challenges, barriers, adversity, and resilience in their travels, as well as help inform policy regarding specific needs towards targeted interventions and promoting inclusion. The chapter then presents the impacts of transport options on the participants' disabilities. Here, a positive-to-challenging narrative is used to emphasise the strengths and agency of PWDs before delving into the systemic issues that need addressing and policy intervention. This approach aligns with the broader goals of promoting inclusivity and advocating for improvements in the public transport system for PWDs in Ghana.

5.1 Coping Strategies of PWDS

Coping strategies employed by persons with disabilities refer to the techniques, approaches, or behaviours they employ to overcome challenges or barriers they may encounter during their

mobility journeys. These strategies vary based on individual needs, abilities, and the specific barriers they face. In this study, these strategies have been grouped into five: trip planning and preparation, onboarding and disembarking vehicles, assistance and support, personal mobility aids, and use of alternative transport modes. These strategies are visually depicted in Figure 5.1

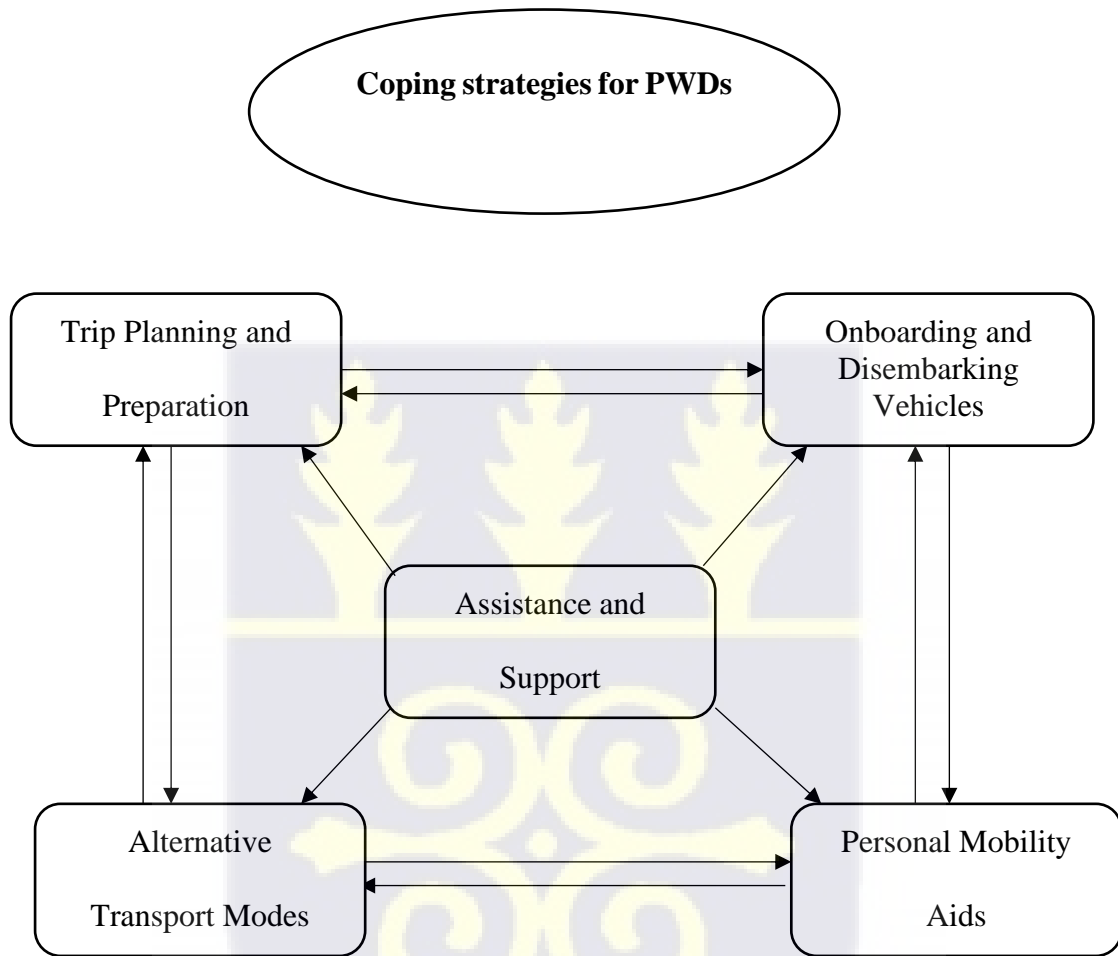


Figure 5. 1 Coping strategies for PWDs in their mobility journeys.

Source: Author's construct (2023)

The coping strategies for PWDs form an intricate web of interconnected elements that collectively enhance the accessibility and inclusivity of their transportation experiences. At this framework's core is the meticulous Trip Planning and Preparation process, serving as the

foundation that informs subsequent actions. As PWDs embark on their journeys, the seamless execution of Onboarding and Disembarking Vehicles is paramount, directly influenced by the efficacy of prior planning. The utilisation of Personal Mobility Aids is interwoven with both planning and onboarding, acting as essential tools throughout the journey. Simultaneously, the provision of Assistance and Support becomes a thread that binds each stage, offering a safety net and addressing unforeseen challenges. Furthermore, the strategic use of Alternative Transport Modes emerges as a flexible strand, adapting to the evolving needs and circumstances encountered during the journey. This interconnected approach envisions a holistic and empowering experience for PWDs, emphasising the synergy between each coping strategy in fostering accessible and dignified transportation.

5.1.1 Planning and Preparation of Trips: This involves carefully considering various factors before embarking on journeys. This mechanism precedes the others because it was an activity PWDs did before their trips began. This strategy cuts across checking the availability of the transport mode, costs, road/route assessment, and travel duration and time. The study revealed that trip planning and preparation were done more carefully by participants in the urban areas than their counterparts in the rural areas. This was due to the complex urban transport network and infrastructure, where the availability of multiple modes, traffic, congestion and travel safety were key to having a well-thought-through journey.

A visually impaired participant explains how she investigates the destination of travel, the availability of the host at the destination, the transport fare, and the estimated time of arrival so as to guide her in preparing adequately for the trip. She recounts:

As for me, before I step out with my guide, I ask her if she is familiar with the place we are going. So, I know how long we are likely to spend on the route. Then I ask her how much the fare is, so I prepare because I am the

one paying for both of us. It is not easy with the fare increases. Then we call the person we are going to and inform them that we are on our way. We do so even before we leave the house because we cannot waste our money to go, and she/he will not be available (A 51-year-old woman, Ga South).

Participants also shared how they managed the availability of modes to get to their travel destinations via some advanced booking from potential vehicle owners and drivers. A physically challenged participant narrates:

Previously, I used crutches to go to work because getting a trotro from my area to the workplace was not difficult. But now I'm unemployed so I use the wheelchair when I am going around my neighbourhood. I have the phone numbers of most of the taxi drivers, so I call them in advance to see who is around. So when I get to the junction, I wait for him to pick me up and drop me at my destination (A 47-year-old man, Accra).

In the rural areas of the Ashanti Region, it was revealed that PWDs did not meticulously plan their trips as their counterparts in the urban areas of the Greater Accra Region. This was due to the nature of the public transport system in those areas, where particular transport modes were limited to distinct areas with one or two alternatives, hence, PWDs had to adapt to such instances regardless of their preferences. A participant indicated how the deteriorated road in his neighbourhood attracts only the Pragma and Okada to operate, with no other options where she lives. She elaborates:

Because of our bad roads, there are only Pragma and Okada in this village, so I rely on these two for my travels. They pass by my house a lot, so when I am ready to step out, I just come outside and wait for one. But when I go to

a bigger town like Kumasi, I use the Pragma to the station before boarding a sprinter trotro (A 47-year-old physically challenged woman, Mpatuam).

At Ejisu-Akyawkrom, a participant indicated that because of where her house is located, she has to send her daughter to the roadside to check for an oncoming tricycle and direct the rider to the house to pick her up.

She explains:

You see, where I am living is in the forest a bit, so we are not able to get a tricycle passing by. So, before I go out, I dress up and prepare before sending my daughter to the roadside to check for oncoming tricycles. She then pleads with the riders to come and pick me up from home before I am able to go to the community centre or the assembly (A 53-year-old physically challenged man, Akyawkrom).

The strategy of advanced planning of trips by PWDs helps them to have more definite travels, use the most efficient transport options available, allocate time and monetary resources towards travel, and travel with greater independence. Advance trip planning has been found to be an essential process for all travellers. The act of pre-trip planning has been documented as a means of improving the travel experience for PWDs (Schlingensiepen et al., 2015). Sze and Christensen (2017) also confirm that pre-trip planning enhances the service PWDs enjoy on transport services by providing broader travel information, increasing their level of independence and activity engagement during journeys. These findings have shown that participants in urban areas were observed to plan their trips more meticulously due to the complex urban transport network and infrastructure, while those in rural areas adapted to limited transport options without extensive planning. This confirms the research proposition

that the experiences of PWDs in accessing and using public transport vary between rural and urban contexts.

5.1.2 Onboarding and Deboarding Vehicles: The study set out to discover PWDs' experiences regarding entering and exiting various modes of transportation in a safe, comfortable, and accessible manner. Participants narrated how they entered their transport mode by indicating the particular mode, the safety precautions around it, the entry strategy, and how they settled in the vehicle. These entry strategies involved physically holding on to the doors of the vehicles, holding the door and the seat closest to the entrance as support, entering the vehicle facing backwards, and raising legs to a particular height, among others.

A physically challenged woman describes how she utilises her hands to help her get on board the transport vehicles. She narrates:

With the trotro, when you are entering, you might fall down if you aren't careful. So, I use my right hand to support the door and raise my body before entering. And then, I find a seat behind the driver, which is easy for me to get down (A 51-year-old woman, Korle-Bu).

A visually impaired man illustrates how he uses his auditory sense as a strategy to find out exactly where Uber drivers park their cars to pick him up. He explains:

When I request the Uber cars, I am alert for their call. So when they arrive, I walk to my gate and call out, "Driver, where are you?" to gauge the direction he has parked, and then I move there. I ask him about the location of the front or back seat in terms of steps. In response, he instructs me to take two or three steps forward or backward. Then I just stretch my hands to touch the car and navigate my way to open the front door, and I get into the car (A 52-year-old man, Tema).

In the rural areas, participants had become accustomed to strategies of boarding vehicles to the point that it came to them quite easily than their counterparts in the urban areas. Visually impaired participants explained how they had a good measure of the tricycles and trotros' floor height and adjusted to their vehicle floor heights. A participant recounts:

I have become used to their Pragma, so when I stand by the roadside with my guide and we stop one of them, I know how to raise my legs to enter while holding on to the vehicle strongly. Formerly, I always hit my leg against the entrance until I got it. As for the trotro, they are all high, so I raise my leg very high when boarding. When I enter the trotro, we look for any seat close to the driver or the entrance to make it easy for me to alight at the destination (A 59-year-old woman, Ejisu).

The use of strength to uplift oneself onto the vehicles ran across most participants who did not have help at the time of entry. When there was a guide or a concerned passenger, driver or bus conductor, they offered the necessary support, which was supplemented by PWDs effort. From all the interviews with PWDs, it was revealed that they do not encounter ramps, steps, or lifts except in one instance at Mankranso in the Ahafo Ano South-West District of the Ashanti Region, where the trotro station had a step-like device placed at the entrance of the bus to bridge the height gap between the vehicle and the ground (see Figure 5.2). From the interview, the researcher visited the terminal to ascertain the narrative earlier disclosed. Aside from this intervention, no other intervention was encountered throughout the study in all the six locations visited, showing that the successful/unsuccessful manoeuvring into and out of vehicles was solely left to the fate of PWDs.



Figure 5. 2 Pictorial view of the assistive onboarding device

Source: Fieldwork, 2022

The introduction of this intervention in a rural environment resonates significantly as it recognises the intersectionality of disability within the social context of a rural area. It acknowledges that people with disabilities in rural settings face unique challenges relating to transportation. As such, by providing a ramp-like device, the intervention demonstrates some consideration when it comes to the interplay between disability and rural transport and living

conditions. This sole action challenges the social norms, advocates for inclusion, and promotes structural changes that recognise and respect the rights and dignity of persons with disabilities. Previous studies have highlighted the challenging transport infrastructure for PWDs. In this regard, studies in Libya by Aljanzouri et al. (2014) and in Kenya by Nyangueso (2006) found that high and stepped entrance, which makes it difficult for PWDs to get on buses and other vehicles, lack of place to put mobility aids, lack of devices to hear or see location information, etc., are some of physical constraints of using public transport. Despite these challenges, some PWDs have managed to overcome them in order to exercise their mobility.

5.1.3 Assistance and Support: When people with disabilities receive assistance and support, it plays an essential role in breaking down physical and social barriers and allows them to enjoy the benefits of public transport services while contributing to inclusive communities. From the study, this support came in the form of physical assistance, guidance and navigation, communication, and, in some cases, financial support.

Participants indicate that they get physical assistance from fellow passengers, the drivers or the bus conductors during boarding and deboarding their vehicles. This help comes without asking most of the times, however, when passengers or the vehicle operators do not notice the presence of PWDs, they are alerted to help them. A physically impaired participant narrates:

When I am getting into the car, some of the taxi drivers and trotro mates help me when they notice that I have a problem with my leg. Some help me without me asking. There are others that I ask before they help (A 51-year-old woman, Tema).

Another participant narrates his encounter:

We mostly get help from people, but sometimes they don't even pay attention to us. Some of them are very caring, and others, not so much. There was a

time when I asked for help from some people at the station, and they didn't pay attention to me. The person might tell you they are going to do something, so they would not be able to help you. Sometimes, they can also call someone else to assist you (A 62-year-old physically challenged man, Ahafo Ano South West).

In contrast with this finding, Alayi et al. (2020) show that the lack of assistance to visually and physically challenged persons on public transport services in Oyo State, Nigeria, was the second-highest ranked constraint that PWDs encountered in their mobility journeys. PWDs indicated that people were not willing to assist in getting on/off the vehicles, which poses consequences for their mobility demands.

On the other hand, almost all the participants with visual impairments either had a designated person serving as a guide or a family relation who provided them with assistance and support by helping them navigate their surroundings, avoid obstacles and travel safely. Also, these guides assist blind and partially sighted people in crossing streets, navigating crowded areas, and providing them with verbal descriptions of the environments. Participants explain the help they get from their guides below:

I am always with my guide whenever I am going out. He helps me to the trotro station to get a car, in the market and also takes charge when we are crossing the roads in town (A 59-year-old woman, Ejisu).

Another participant recounts:

When I am going to work at times to supervise or organise programmes in another school, I ask my guide to quickly book a Bolt or Uber for us to go because the trotro will delay our time to get there. When the car is here, my

guide directs me to the vehicle. He shows me where we will alight and tells me about our destination's environment (A 54-year-old man, Tema).

For participants who had a guide, it came with some extra financial responsibility as they had to foot the cost of their transport, feeding, and sometimes accommodation in situations where the guides were required to live with them. From the study, none of the participants in the Greater Accra and the Ashanti Regions employed the use of guide dogs as commonly found in the advanced countries due to cultural dimensions, infrastructural adjustments, training and resources, awareness and education, and the legal and regulatory frameworks policing their use.

For persons with disabilities, receiving financial assistance on public transport services involved getting monetary support and waivers to cover the costs associated with their transportation needs. These came in the form of fare and luggage payments by passengers, where the payments sometimes come from passengers of the opposite sex. Similarly, the transport operators waived fare and luggage costs, and, in other instances, these fares were discounted at some length to cushion the financial burden on persons with disabilities.

A physically challenged participant narrates:

Sometimes, when I board a trotro or the loading taxi, some passengers pay for me. It has happened on several occasions. I do not ask them, but they offer to make the payment, and most of the time, it's the men, so I think I benefit from that a lot (A 43-year-old woman, Korle-Bu).

A visually challenged participant explains:

When I get to the bus stop, some of the nurses going to work or women there ask where I am going. They alert me when a car arrives and help me board

the vehicle. At times, they even pay for me, especially the women. The nurses and teachers at the station are good, they ask where I am going, so I board a car to go to my destination and not get lost (A 58-year-old man, Kaneshie).

These narratives reveal insights into the challenges PWDs face and the potential for positive change toward the overall state of accessibility within the public transport system. The human dimension here exhibits awareness and sensitivity to the needs of people with disabilities as it shows that some community members (passengers and vehicle operators) are attuned to the challenges faced by people who require support.

5.1.4 Personal Mobility Aids: Personal mobility aids for disabled persons play a critical role in enhancing their independence, accessibility and overall mobility. These aids enable PWDs to navigate their surroundings and use public transport more effectively and independently. This coping strategy varied depending on the individual needs, the type of aid, and the specific challenge they faced.

For persons with visual impairments, the white cane was used as a primary mobility aid, which helps them detect obstacles and changes in terrain, ensure safe navigation, communication, advocacy and awareness and promote their independence. A participant explained how she uses her white cane to navigate around various public transport terminals and also in vehicles. She recounts:

Even though I have someone to move around with, I often use my white cane.

It helps me to avoid obstacles on my way, such as steps, stairs on cars and other stuff at transport terminals, bus stops and other places. I do this by sweeping the cane from side to side, so once it is clear, I move confidently.

In the vehicles, due to limited space, I am limited, but I still use it to know

which seats are unoccupied and adjust myself before sitting down (A 31-year-old woman, Tema).

Another participant expounds on how she relies on her white cane to cross the road and communicate with oncoming cars to enable her to cross the roads. She narrates:

When I need to cross the roads here, before I step onto the road, I extend the white cane in the roadway to check if any vehicles are there and also to signal to oncoming cars my intention to cross with which they stop for me to cross. I listen attentively to hear that their engines come to a halt, and they sometimes honk for me to cross (A 64-year-old woman, Accra).

The white cane was also used by participants as a tool for advocacy and awareness and as a warning signal to promote their safety. Here, the mere visibility of the white cane was an indicator of their disability, raising awareness among the public and transportation providers about the presence of someone with special needs worthy of their attention and consideration. The tapping and sweeping motion of the white cane also informs motorists and pedestrians of their presence, which demands greater care and caution. A participant illustrates how signs and gestures from his white cane usually get positive feedback from motorists that allows him to use the roads confidently. He intimates:

As for that, they always stop. Some of the drivers respect the white cane. At times, if I'm going to cross the road, I raise the white cane and at times, some people hold my hand to cross, and when the driver sees me, they stop for us to cross. But some, too, don't respect the white cane (A 45-year-old man, Ejisu).

For persons with physical impairments, using crutches, wheelchairs, callipers, and motorised and unmotorised mobility scooters was essential in helping them navigate public transport

services. A participant explains how he uses his crutches to manoeuvre his way around when walking and getting into a vehicle. He narrates as follows:

I use my crutches to stabilise and balance myself when walking. When I'm boarding a car, I sometimes use one side to support myself, then I position myself to ascend the steps. I normally prefer sitting in the front seat so I do not have to move out when someone is alighting. If I don't get the front seat, I won't like to board it because it is uncomfortable. If the front seat had already been occupied, I would wait for the next bus. Because this can lead to lateness, I usually go to the bus stop 30 minutes earlier (A 47-year-old man, Tema).

A participant shares his experience using quite a number of these personal mobility aids, all of which have not provided the most satisfaction. He explains:

I used to use the motor scooter (tricycle) often, except when I was moving outside Accra. So, the motor was the one I was often using until it broke down and I started depending partly on the trotro and taxi. So, whenever I go to work without the motor, I am forced to take a trotro or taxi. Before starting that job, I used crutches to get by, which was also challenging. It was quite recently that I started using the wheelchair, which has become my main mobility aid (A 52-year-old man, Accra).

Previous studies have similarly pointed to the use of mobility aids by PWDs to promote their mobility potential. Park and Chowdhury (2018) show that PWDs use walkers, crutches, white canes, and guide dogs to navigate their ways in New Zealand's largest and most cosmopolitan city, Auckland. Other studies by Pyer & Tucker (2017) show the use of wheelchairs, while

Unsworth et al. (2019) indicate that PWDs use two or more mobility aids, including powered wheelchairs, scooters and walking frames.

It is important to note that due to the unique needs of people with disabilities, their choice of mobility aids varies based on individual circumstances and preferences. Ultimately, these aids empower individuals to overcome barriers and challenges associated with various modes of transportation.

5.1.5 Use of Alternative Transport Modes: Relying on alternative transport includes the practice of exploring and utilising different means of transportation beyond their traditional options to overcome accessibility challenges while promoting their mobility. The study's participants opted for traditional taxis, ride-hailing taxis, private vehicles, tricycles/motorbikes, and the Metro Mass Transit buses in these situations. PWDs indicated that they had to rely on modes of transport other than their main modes due to reasons associated with their primary mode of transport, such as the service's unreliability, congestion and delays, unpredictable weather conditions, limited accessibility in certain areas, and budget constraints.

A physically challenged participant recounts his experience with the Okada in specific situations, despite its associated risks. He explains:

The only times I joined an Okada in town were when the trotros were scarce and there was heavy traffic in town. I remember I had to go to an important program one day, so I took the risk. When I took it, I wasn't comfortable using it. My leg won't allow me to be comfortable on it and it might be hanging from the sides throughout the ride, but it takes me to the venue on time, avoiding traffic despite the risks (A 52-year-old man, Accra).

Another participant narrates her case of using a taxi during periods of adverse weather conditions, despite the additional cost implications it comes along with. She explains:

I usually use the Pragma here in Akyawkrom-Ejisu, however, when the clouds become dark, and I know it is about to rain and I have to go to town, I will never pick the Pragma. I will wait for a taxi by all means because I cannot stand to be beaten by the rain. So, getting one may delay, but I will wait for the taxi. I do not use tricycles during rainy weather, but I am confident about being in a taxi even though it will cost more (A 37-year-old physically challenged woman, Ejisu).

A participant explains how he switched to the trotro and tricycle when his budget was inadequate for his usual chartered taxi services:

I had a dedicated taxi driver who used to pick me up when I called him about my journeys. It was manageable back then because I was working in the town of Mankranso. But after Covid-19 spoilt the business, I rely on trotro now. That is what I manage with because there is no money and one starts to think about things like feeding at home before taking a taxi (A 54-year-old physically challenged man, Ahafo Ano South West).

These coping strategies of PWDs contribute to a web of barriers they face in accessing and using transport services. However, these individuals' agency has enabled them to surmount some of these barriers, although not entirely, to have the capacity to commute and facilitate their various engagements surrounding their social and economic livelihoods. Studies by Odame et al. (2023) explore alternative travel mode choices among persons with disabilities in Accra, Ghana. The study found that PWDs prefer Uber services due to the ease, convenience, exclusive services, and friendly reception they get from drivers over traditional taxis. So, PWDs opt for these alternative modes primarily because they offer better service quality,

convenience, and a higher level of personal attention compared to traditional public transport services like trotros.

The broader discussion of concepts of environment and agency is embedded here, where although the existing transport system coupled with its infrastructure and governance may not seem conducive towards PWDs, the agency of PWDs comes up with strategies to surmount these barriers and ensure mobility. Scholars have highlighted the importance of considering both the environment and agency in transport systems. Jokanović and Pavić (2022) and Sagaris (2022) emphasise the need for integrated transport networks that consider the environmental impact of transport systems and the role of agency expressed in the decisions in mode choice, route selection, ridesharing or carpooling, use of public transport, and use of active transport in addressing challenges in the transport sector. When PWDs toe this line, they shove off the deterministic characteristic of the public transport system while critically exposing areas for improvement through the various coping strategies being adopted.

5.2 Impact of Transport Mode on Disability

The study sought to gather information about the effects of public transport options on the nature of disabilities of the participants. The findings show that, with the exception of a few physical and mental strains experienced by participants during the course of their commutes, the transport mode has not directly impacted the state of their disability. The participants who had some impact on the state of their disability included pains in their thighs from using a particular mode for a long period, the effect of moving air into the eyes of the visually impaired in a particular mode, and discomfort.

A participant with visual impairment discloses:

Whenever I sit anywhere in the trotro or taxi with a lot of wind, I feel discomfort when the air touches my eyes. When this happens, I alert the

conductor, driver or fellow passengers and make sure they close the windows. They do not heed my call all the times I make the demands, so I am cautious of where I sit in any vehicle before boarding (A 59-year-old woman, Ejisu).

A former employee at the toll booth who was unemployed at the time of the study explained some of the impacts of using a personal mode of transport. He narrates:

I sometimes ride my motor tricycle nonstop for 45 to 50 minutes to work unless there is traffic. From the Dodowa toll booth, I was posted to the Tema toll booth, where the problem started. Not long after it started, the toll booth was closed down and I stayed home a lot and that was when I started developing some more pains in my leg. A major one occurred at Tema when I once went for duty. I visited the washroom, lost my balance, and then fell and broke one of my crutches, affecting it the more (A 47-year-old physically challenged man, AMA).

A visually impaired man also recounts how he was being driven at top speed, which nearly caused him to fall. He explains:

I nearly fell off a motorbike last Sunday. There was a pit at the junction leading to our house, and I think the motor rider on top speed did not see it on time, so he passed on it. When he saw it, it was too late, so he intended to jump off the pit, and he landed somewhere. I saw myself almost falling from the motor. I miraculously landed back on it and I said, "Thank you, Jesus, for not letting the enemy get us" (A 46-year-old man, Amansie West).

Another visually impaired woman shared her story on the popular trotro service that has caused her some musculoskeletal pains when she patronises the service. She narrates:

As for the trotro, some of the seats are not good. By the time I get home, I feel pain. Even some of the seats are low and are in such a way that when you sit, you cannot sit straight. Even if you manage to sit straight, you will feel some back pains. Sometimes, when I am not holding anything, I still feel the pain. You, however, must take it like that. If we have money, we will be taking chartered taxis here and there (A 51-year-old woman, GA South).

Also, a woman with a physical disability shares her experience of how she has to resort to some medicines to deal with the pains associated with her mobility vehicle on bumpy roads in her community. She intimates:

When I take the vehicles in my area, it affects me in the leg. I had to take medication till I got better. Sometimes, I couldn't even sleep because of the pain. It happens because of the road's bumpy nature and the vehicle's erratic movements (A 37-year-old woman, Ejisu).

These narratives show that participants assess their public transport options based on their experiences with the pains and discomfort they face due to their disability. Beyond these physical strains that some public transport modes impose on PWDs, they also convey a mental disposition. The mental strains also go a long way to shape participants' view of barriers and accessibility on those public transport options that have harmed them in any way. As such, some participants who experienced these impacts would no longer consider a particular mode of transport unless at the point of emergency, thus, excluding them from the service and limiting their participation in socioeconomic and other essential related activities in society. From the narrations, it is also evident that efforts towards disability-inclusive accommodations, support, or adaptations are not in place to mitigate any negative effects and ensure a safe and comfortable travel experience for all persons, specifically persons with disabilities.

5.3 Insights from Theories and Conceptual Framework

The Life Course Theory suggests that life events and transitions influence the coping strategies of PWDs when it comes to public transport accessibility and use. Early access and exposure to trip planning and preparations, boarding and disembarking vehicles, soliciting support and assistance, using personal mobility aids and falling on alternative transport modes can lead to greater independence and inclusion later in life. It was evident that most of the study participants, who were young, middle and older adults, were conversant with the various coping strategies identified as they had a wealth of experience from using them for years. This is also highlighted in the conceptual framework for the study, where coping strategies play out in the various socio-spatial demographic characteristics of PWDs.

On the other hand, the Critical Disability Theory (CDT) underscores that societal barriers contribute to the need for coping strategies. The Social Model of Disability involves shaping the social and environmental barriers to meet the needs of persons with disabilities. This was, however, not the case in this study, as accessible infrastructure such as ramps, tactile markers, audio announcements at public transport stations and vehicles were mostly absent. Attitudinal change, expressed through cultural and traditional etiquettes, was another factor experienced by PWDs in their coping strategies. Here, passengers, transport drivers and bus conductors were more likely to offer help and support to persons with disabilities. This helps drive societal attitudes, reduce stigma, and improve interactions between PWDs, transport providers, and their fellow passengers. The CDT's approach based on rights calls for the advocacy and assertiveness of PWDs. Findings from this chapter demonstrate this experience as PWDs communicated their needs and called out persons who did not respect their rights to do so. Regarding transformative policies towards creating a more equitable and inclusive society, the cost of transport services becomes a key factor for persons with disabilities to consider. From the findings, when passengers and transport providers sometimes paid and waived off transport

costs totally/partially for PWDs, it indicates a possible consideration that could be regularised to cover all PWDs to meet their needs of ensuring economic and physical access to transport services. As such, rather than being an occasional or sporadic act, such support could see the light of a policy provision and implementation as previously done in the past. The goal is to ensure that all PWDs have consistent access to transportation services in terms of affordability and physical accessibility. By establishing these regular support mechanisms, society commits to addressing the economic and physical barriers many PWDs encounter when using public transport, making transportation services more inclusive and affordable.

The findings illustrate how PWDs employ various coping strategies and support mechanisms in different life courses. For example, older PWDs rely more on assistance from fellow passengers or vehicle operators during boarding and deboarding, while younger PWDs may be more independent in their travel. This also confirms the proposition that the experiences of PWDs in accessing and using public transport differ across various life courses and demographic characteristics.

The study findings, thus, align with these theories, contributing to a broader comprehension of the current state of transport inclusion of PWDs and a possible avenue to create a more inclusive, accessible, and dignified experience for persons with disabilities (PWDs) when utilising public transportation.

5.4 Chapter Summary

This chapter delved into the mechanisms and techniques adopted by PWDs towards facilitating their public transport journeys. The study revealed five major coping strategies that were adopted by PWDs. These were trip preparations and planning, onboarding and deboarding vehicles, assistance and support, the use of personal mobility aids, and relying on alternative modes of transport. These strategies were deemed necessary, and in some cases, the only way

out to cope with the challenges and stumbling blocks that PWDs face regarding using public transport services. The rural and urban dimension of coping strategies was brought to the fore, where PWDs in the urban regions were exposed to more strategies than those in the rural areas. These go a long way to buttress the nuanced experiences of PWDs in their mobility journeys. The next chapter explains the factors influencing public transport operators' and users' knowledge of transport options for PWDs in Ghana. It brings aspects of the codified rights of PWDs and presents them to transport operators and users to gauge their knowledge level. The knowledge level is examined quantitatively via logistic regression analysis of critical factors.



CHAPTER SIX

FACTORS INFLUENCING PUBLIC TRANSPORT OPERATORS' AND USERS' KNOWLEDGE OF TRANSPORT OPTIONS FOR PERSONS WITH DISABILITIES IN GHANA

6.0 Introduction

The sequential exploratory mixed methodology, which began with the qualitative phase of the data collection and analysis, played a crucial role in informing and guiding the execution of the quantitative aspect of the study. This aided in the development of the research instruments, such as the survey questionnaire. This chapter presents data gathered from questionnaire surveys and discusses the factors that influence the knowledge of public transport operators and users regarding transport options for persons with disabilities. Knowledge of transport options for PWDs was identified with indicators from the Persons with Disability Act 715 (2006). Questions on selected sections of the Act on the rights of PWDs as pedestrians, their use of public parking places, their seat reservation on public transport vehicles and their ownership of driving licenses were culled, adapted, and posed to transport operators and users. These indicators also emerged from the in-depth interviews with PWDs and were further buttressed with subsection 23-30 of the PWD Act 715 (2006).

6.1 Factors Influencing Public Transport Operators' Knowledge of Transport Options for Persons with Disabilities in Ghana.

6.1.1 Sociodemographic Characteristics of Public Transport Operators

A total of 200 public transport operators in the selected rural and urban communities in the Greater Accra and Ashanti Regions of Ghana fulfilled the inclusion criteria and completed the questionnaire, making a response rate of 100%. Table 6.1 summarises the sociodemographic characteristics of the public transport operators. The sociodemographic characteristics of the

public transport operators in the study were gender, age, highest level of education, marital status, religion, monthly income, and years of working experience.

The majority (94.5%) of the public transport operators were males. The median age of the public transport users was 37 (IQR=32-46.5) years, with a minimum age of 19 and a maximum of 68 years. More than one-fourth (30.0%) of the public transport operators were 18-29 years old. While the first age category (18-29 years) spans a 12-year interval, the subsequent two age categories (30-39 years; 40-49 years) follow a 10-year interval until the final age category, which extends from 50 years onward. This is because, since the study includes participants starting at age 18, it was intended to create an initial broad category to ensure that all newly eligible participants are adequately represented. This broader interval helps capture a diverse range of experiences within the young adult population, who might be at different stages of their education and early employment. Also, a broader age category for 18-29 ensures sufficient data points for robust descriptive and inferential statistical analysis. This can enhance the reliability of findings related to young adults, who might have diverse transport needs and behaviours due to varying life circumstances.

In addition, more than one-third (35.5%) of the respondents had completed secondary school, over one-half (61.0%) were married, three-fourths (75.0%) were Christians, more than one-third received a monthly income of >GhS1000, and more than one-third (45.5%) had >5 years of working experience.

Generally, males have dominated the transport operator space over the years, with females coming on board to join their counterparts. The study findings indicate that a little over 5% of the total population were females working as public transport operators in the digital taxi (Uber, Bolt, and Yango) services in the urban areas and the Pragma services in the rural areas as against the 94.5% recorded for males in the public transport operator sector. This finding contrasts

with studies by Amoako-Sakyi (2017) and Odame et al. (2023) on gender mainstreaming in transport and the state of public transport services to Ghana's disabled population. From Odame et al.'s (2023) findings, all 24 public transport operators interviewed were males. Despite this distinguishing factor, it is imperative to bring in the context and setting of his study. Odame's study focused on public transport operators from 3 major transport terminals in Accra, where the trotro was the dominating vehicle for work. This study, on the other hand, reveals that the eleven female transport operators were engaged in the lower occupancy vehicle space of saloon cars and hatchbacks for digital taxis and the tricycle business, popularly called Pragma, showing a perspective that explains the difference in findings from both studies and the value of a diverse and spatial lens in examining transport service operations in Ghana.



Table 6. 1: Sociodemographic characteristics of public transport operators

Characteristics	Frequency (N=200)	Percentage (%)
Gender		
Female	11	5.5
Male	189	94.5
Age, years (Median, IQR) (38.5, 28-51.5)		
18-29	60	30.0
30-39	43	21.5
40-49	44	22.0
50 and above	53	26.5
Highest Level of Education		
No Education	41	20.5
Primary	71	35.5
JHS/JSS	39	19.5
Secondary (SHS/SSS/Vocational/Technical/Middle School)	31	15.5
Tertiary	18	9.0
Marital Status		
Unmarried (Single, Divorced, Widowed)	78	39.0
Married	122	61.0
Religion		
No religion	22	11.0
Christianity	150	75.0
Islam	28	14.0
Monthly Income		
<Ghc500	53	26.5
Ghc500-Ghc1000	62	31.0
>Ghc1000	85	42.5
Years of Working Experience		
< 1	55	27.5
1-5	54	27.0
>5	91	45.5

Note: JHS=Junior High School, JSS=Junior Secondary School, SHS=Senior High School, SSS=Senior Secondary School.

Source: Fieldwork, 2022

6.1.2 Vehicle-related Characteristics of Transport Operators

Table 6.2 shows the vehicle-related factors of the public transport operators. The vehicle-related factors of the public transport operators used in the study were the type of vehicle, wheelchair-accessible entry or a ramp in the vehicle, a vehicle having a specialised seat for

PWDs, and the type of insurance cover held by the operator. From Table 6.2, over one-half (26.5%) of the public transport operators drove digital taxis, more than three-fourths (97.0%) of the public transport operators do not have wheel-chair accessible entry or a ramp in the vehicle, over three-fourths (87.5%) of the public transport operators do not have vehicle specialised seat for PWDs, and more than two-thirds (62.5%) of the public transport operators use third party insurance cover for the vehicle. From the study findings, only the medium to high occupancy buses from the Intercity STC Coaches, Metro Mass Transit, and the V.I.P Jeoun Transport Services had provisions for wheelchair-accessible entry and specialised seating. Regarding vehicle insurance coverage, most of the comprehensive vehicle operators were under the digital taxi services. Within the digital taxi space, companies such as Uber and Bolt make it compulsory for their partner drivers to have comprehensive insurance to qualify to work under their ride-hailing platform. Some of the Okada and Pragma operators did not have insurance coverage, which poses a significant risk to all transport service users.

Table 6. 2 Vehicle-related characteristics of public transport operators

Characteristics	Frequency	Percentage (%)
Type of Vehicle		
Okada	24	12
Trotro	41	20.5
Traditional Taxi	50	25.0
Digital Taxi	53	26.5
Tricycle (Pragma)	12	6.0
Bus	20	10.0
Wheelchair-accessible entry or a ramp in the vehicle		
No	138	93.0
Yes	14	7.0
The vehicle has a specialised seat for PWDs		
No	175	87.5
Yes	25	12.5
Type of insurance cover for vehicle		
Third-party	125	62.5
Comprehensive	57	28.5
None	18	9.0

Source: Fieldwork, 2022

6.1.3 Knowledge of Transport Options for PWDs among Transport Operators

Table 6.3 shows the summary statistics of the knowledge of transportation options for PWDs among public transport operators in the selected rural and urban communities in the Greater Accra and Ashanti Regions of Ghana. These questions were culled from the PWD Act 715 (2006); hence, an affirmative response aligns with the law, hereby showing knowledge of PWDs in transport. From Table 6.3, 181 (90.5%) of the public transport operators know that drivers are supposed to stop for PWDs to cross the road at zebra crossings and other designated stops. Also, 175 (87.5%) of the public transport operators know that PWDs have the right to access all public services and places in Ghana. However, 167 (83.5%) of the public transport operators do not know that people with hearing disabilities have the right to be licensed drivers in Ghana. Moreover, 143 (71.5%) of the public transport operators do not know that public transport vehicles are to reserve a seat for PWDs at all times. But if there are no PWDs to board the vehicle, then the seats could be given to the other passengers. Also, 128 (64.0%) of the public transport operators do not know that public places for parking vehicles are to have a clearly demarcated area for the exclusive use of persons with disabilities. Finally, 152 (76.0%) of the public transport operators do not know about the National Transport Policy, which ensures that transport facilities must be user-friendly for PWDs and grant them access to all modes of transport.

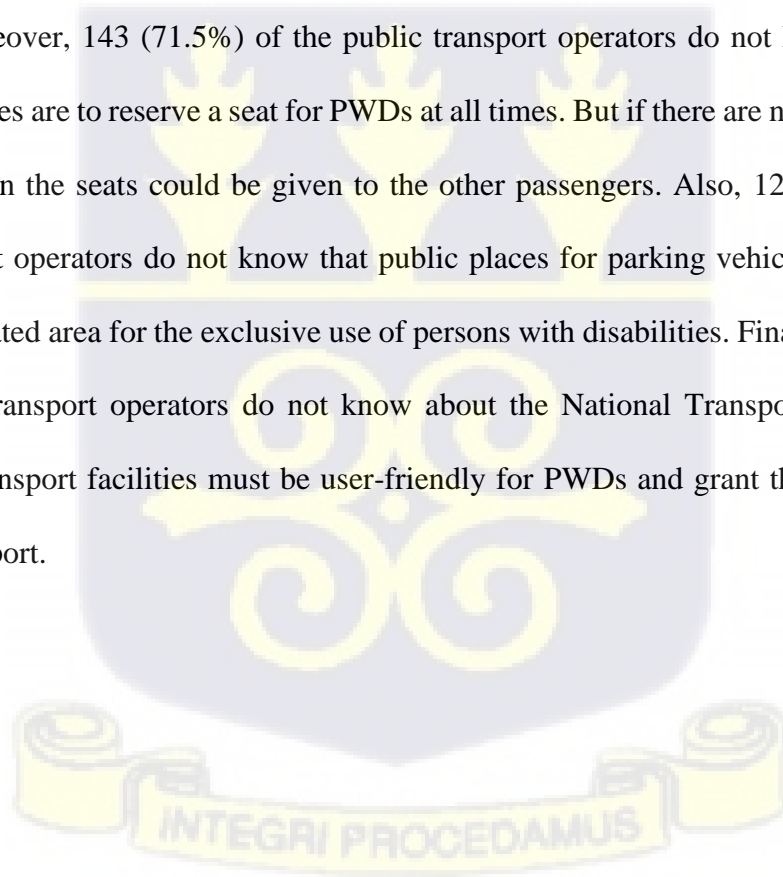


Table 6. 3 Knowledge of transport options for PWDs among transport operators

Attributes	No	Yes
	N (%)	N (%)
Drivers are supposed to stop for PWDs to cross the road at zebra crossings and other designated stops	19 (9.5)	181 (90.5)
PWDs have the right to access all public services and places in Ghana	25 (12.5)	175 (87.5)
People with hearing disabilities have the right to be licensed drivers in Ghana	167 (83.5)	33 (16.5)
Public transport vehicles are to reserve a seat for PWDs at all times unless there are no PWDs to board the vehicle	143 (71.5)	57 (28.5)
Public place for parking vehicles is to have a clearly demarcated area for the exclusive use of persons with disability	128 (64.0)	72 (36.0)
The National Transport Policy ensures that transport facilities must be user-friendly for PWDs and grant them access to all modes of transport	152 (76.0)	48 (24.0)
Total	634(52.8)	566(47.2)

Source: Fieldwork, 2022

The proportion of public transport operators who had knowledge of transport options for PWDs is shown in Figure 6.1. Out of 200 public transport operators, 94 (47.2%) of them have good knowledge of PWDs in transport.



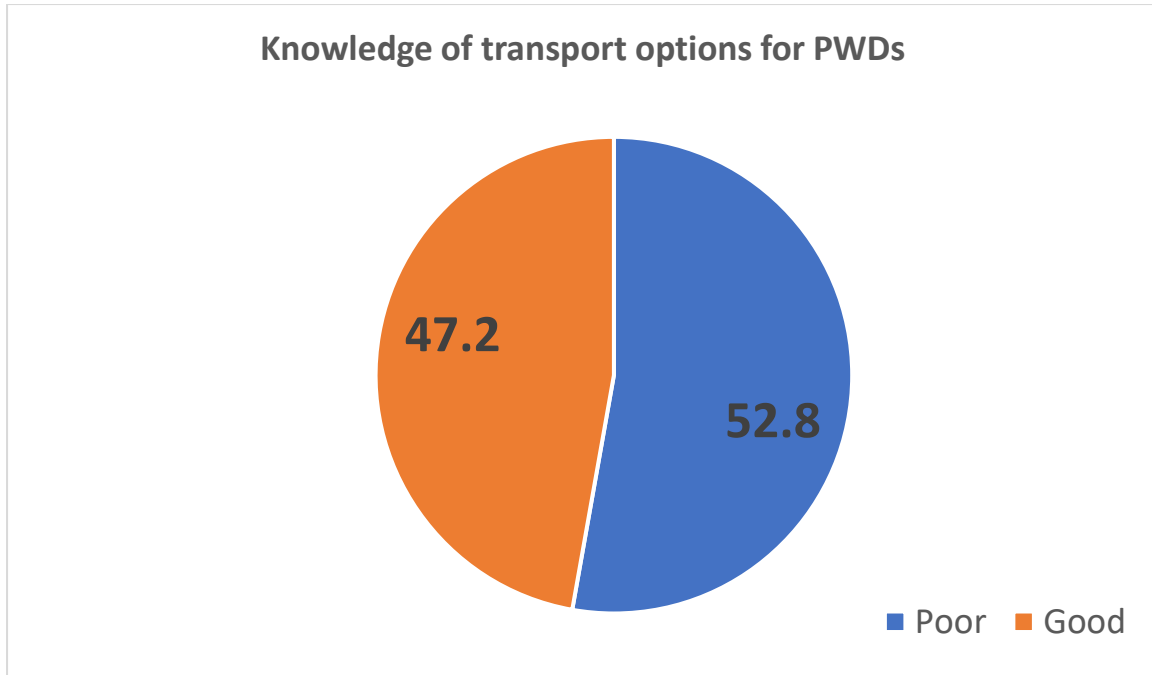


Figure 6. 1 Proportion of public transport operators in selected communities in Greater Accra and Ashanti Regions who had knowledge of transport options for PWDs.

Source: Fieldwork, 2022

Previous studies have shown that public transport operators have varying levels of knowledge and awareness of PWDs in their transport services. A study in Germany by Tillmann et al. (2013) shows that knowledge about intellectual disability (ID) among bus drivers was found to be moderate, with varying levels of knowledge on specific items such as, having a high knowledge of special schools for persons with intellectual disabilities and low knowledge of behavioural problems faced by persons with intellectual disabilities. In that study, the majority (74.8%) of bus drivers indicated that they had not received any training in managing persons with intellectual disabilities. Of those who had not been trained, 33.3% wished to be trained in managing persons with intellectual disabilities and elderly people. Despite the low knowledge shown by the operators, there was some resolve to learn and be sensitised to manage PWDs on their transport services better.

From Odame et al.'s (2023) study on public transport operators in Accra, none of the operators had knowledge of Ghana's Disability Act 715 (2006) and its transport provisions. This lack of knowledge, thus, affects their ability to provide disability-friendly services. Similarly, a Latvian study by Yatskiv et al. (2018) indicates that transport operators within the industry category rated their knowledge of transport governance below average but recognised the importance of these areas for carrier development.

These findings are inconsistent with the findings of this study, where transport operators demonstrated some level of knowledge of PWD mobility needs in Ghana. Overall, almost half of the transport operators (47.2%) have knowledge of transport options for PWDs regarding selected criteria from the disability legislation.

6.1.4 Sociodemographic Characteristics of Public Transport Operators and Their Knowledge of Transport Options for PWDs

The study further ascertained the sociodemographic characteristics of public transport operators and their knowledge of transport options for PWDs. From Table 6.4, the age group of the public transport operators was significantly related to knowledge of PWDs in transport among public transport operators ($p=0.016$). That is, good knowledge of PWDs in transport was highest (29.9%) and lowest (21.4%) among public transport operators aged 50 and above years and 18-29 years, respectively, as shown in Table 6.4. The highest level of education of public transport operators was significantly related to knowledge of transport options for PWDs among public transport operators ($p=0.002$). That is, good knowledge of transport options for PWDs was the highest (43.6%) among transport operators and the lowest (10.2%) for public transport operators who have completed primary and tertiary education, respectively, as shown in Table 6.4. The marital status of public transport operators was significantly related to knowledge of transport options for PWDs among public transport operators ($p<0.001$). That is,

the proportion of public transport operators who had good knowledge of transport options for PWDs was 76.1% among those who were married compared to 23.9% who were unmarried.

The monthly income of public transport operators was significantly related to knowledge of transport options for PWDs among public transport operators ($p < 0.001$). That is, good knowledge of transport options for PWDs was highest (44.4%) and lowest (13.7%) among public transport operators who have monthly income of $> \text{Ghc}1000$ and $< \text{Ghc}500$, respectively, as shown in Table 6.4. The years of working experience of public transport operators were significantly related to knowledge of transport options for PWDs among public transport operators ($p = 0.001$). That is, good knowledge of transport options for PWDs was highest (53.8%) and lowest (18.0%) among public transport operators who have working experience of > 5 years and < 1 year, respectively, as shown in Table 6.4.

These findings, however, disagree with Tillmann et al.'s (2013) study of 139 drivers in Germany, where results indicate no associations ($p < 0.05$) between knowledge about Intellectual Disability needs and sex or age using the index of Intellectual disability knowledge. Also, knowledge about Intellectual Disability did not differ with respect to duration of employment/years of driving experience as it is significantly related in this study. Although demographic factors were considered, they did not show any significant associations with knowledge about intellectual disability needs.

The findings of public transport operators' knowledge level and its indicators on transport options for PWDs have implications on how they accept, assist or discriminate against PWDs in their transport services. The study findings show that almost half of the transport operators have knowledge about the transport options for PWDs; this is reflected in the narratives of the PWDs when they shared their experiences on the coping strategies they adopted on their mobility journeys. A case in point is the theme on assistance and support that PWDs receive

on their mobility journeys via public transport (see page 152). A physically challenged woman indicated how some taxi drivers and the bus conductors of the trotro came to her aid in getting aboard their vehicles. She narrates:

When I am getting into the car, some of the taxi drivers and trotro mates help me when they notice that I have a problem with my leg. Some help me without me asking. There are others that I ask before they help (A fifty-one-year-old woman, Tema).

It thus can be inferred that when transport operators have a higher level of knowledge regarding the transport mobility options of PWDs, they tend to gravitate towards assisting them and helping them settle in properly in their vehicles. On the other hand, it can be deduced that transport operators with a lower level of knowledge of transport mobility options for PWDs are likely to discriminate against PWDs who encounter them in their mobility journeys.

With this premise, the level of knowledge of transport options for PWDs among transport operators is a key factor in promoting transport inclusion. The scenarios also align strongly with the social model of disability (see Bunbury, 2019; Oliver, 2013; Shakespeare, 2006), emphasising that discrimination against PWDs is not solely due to their impairments but is influenced by social factors, in this case, the knowledge levels of transport operators.



Table 6. 4 Relationship between sociodemographic characteristics of public transport operators and knowledge of transport options for PWDs

Characteristics	Knowledge of PWDs in transport			Chi-square	P-value
	Poor N (%)	Good N (%)	Total N (%)		
Gender				0.8160	0.366 ^a
Female	6 (7.2)	5 (4.3)	11 (5.5)		
Male	77 (92.8)	112 (95.7)	189 (94.5)		
Age, years				10.2684	0.016^{a**}
18-29	35 (42.1)	25 (21.4)	60 (30.0)		
30-39	16 (19.3)	27 (23.1)	43 (21.5)		
40-49	14 (16.9)	30 (25.6)	44 (22.0)		
50 and above	18 (21.7)	35 (29.9)	53 (26.5)		
Highest Level of Education				16.7594	0.002^{a**}
No Education	25 (30.1)	16 (13.7)	41 (20.5)		
Primary	20 (24.1)	51 (43.6)	71 (35.5)		
JHS/JSS	22 (26.5)	17 (14.5)	39 (19.5)		
Secondary	10 (12.1)	21 (18.0)	31 (15.5)		
Tertiary	6 (7.2)	12 (10.2)	18 (9.0)		
Marital Status				26.9077	<0.001^{a**}
Unmarried	50 (60.2)	28 (23.9)	78 (39.0)		
Married	33 (39.8)	89 (76.1)	122 (61.0)		
Religion				0.7542	0.686 ^a
No religion	11 (13.3)	11 (9.4)	22 (11.0)		
Christianity	61 (73.4)	89 (76.1)	150 (75.0)		
Islam	11 (13.3)	17 (14.5)	28 (14.0)		
Monthly Income				28.5151	<0.001^{a**}
<Ghc500	37 (44.5)	16 (13.7)	53 (26.5)		
Ghc500-Ghc1000	13 (15.7)	49 (41.9)	62 (31.0)		
>Ghc1000	33 (39.8)	52 (44.4)	85 (42.5)		
Years of Working Experience				13.8203	0.001^{a**}
< 1	34 (41.0)	21 (18.0)	55 (27.5)		
1-5	21 (25.3)	33 (28.2)	54 (27.0)		
>5	28 (33.7)	63 (53.8)	91 (45.5)		

Note: JHS=Junior High School, JSS=Junior Secondary School, a= Pearson Chi-square test,

b=Fisher Exact test, p**<0.05.

Source: Fieldwork, 2022

6.1.5 Vehicle-related Factors of Public Transport Operators and Knowledge of Transport Options for PWDs

Table 6.5 shows the relationship between vehicle-related factors of public transport operators and their knowledge of transport options for PWDs. The wheelchair-accessible entry or a ramp in a vehicle was significantly related to knowledge of PWDs in transport among public transport operators ($p=0.007$). That is, the proportion of public transport operators who had good knowledge of PWDs in transport was 38.5% among those who have wheelchair-accessible entry or a ramp in their vehicle, compared to 61.5% among those who do not have wheelchair-accessible entry or a ramp in their vehicle as shown in Table 6.5. Again, vehicles having a specialised seat for PWDs were significantly related to knowledge of transport options for PWDs among public transport operators ($p=0.020$). That is, the proportion of public transport operators who had good knowledge of transport options for PWDs was 17.1% among those whose vehicles have a specialised seat for PWDs compared to 82.9% among those whose vehicles do not have a specialised seat for PWDs, as shown in Table 6.5.

These findings are important to understand the impact that accessibility features in transport operators' vehicles have on their knowledge level of transport options for PWDs. Another case in point is the coping strategy of boarding and disembarking the vehicles adopted by PWDs, as noted in Mankranso (see pages 150-151). The step-like feature was placed at the entrance of the trotro to bridge the gap between the height of the vehicle and the ground, making it easier for all passengers to get aboard the vehicle. In view of this, the study findings suggest that incorporating and prioritising accessibility features in public transport service planning can positively influence the operators' awareness and knowledge of transport mobility options for PWDs. Also, ensuring inclusive design and features in public transport vehicles resonates very much with Story and Mueller's (2001) second, third, and sixth principles of universal design, which contribute to the inclusion of PWDs in the transportation system. This then emphasises

the fact that structural barriers, including features in vehicles, can influence societal attitudes and understanding of the transport needs of individuals with disabilities.

Table 6. 5. Relationship between vehicle-related factors of public transport operators and knowledge of transport options of PWDs

Characteristics	Knowledge of PWDs in transport			Pearson Chi-square	P-value
	Poor N (%)	Good N (%)	Total N (%)		
Type of Vehicle				1.8002	0.876
Okada	8 (9.7)	16 (13.7)	24 (12.0)		
Trotro	19 (22.8)	22 (18.8)	41 (20.5)		
Traditional Taxi	23 (27.7)	27 (23.1)	50 (25.0)		
Digital Taxi	20 (24.1)	33 (28.2)	53 (26.5)		
Tricycle (Pragya)	5 (6.0)	7 (6.0)	12 (6.0)		
Bus	8 (9.7)	12 (10.2)	20 (10.0)		
Wheelchair-accessible entry or a ramp in the vehicle				7.3381	0.007**
No	66 (79.5)	72 (61.5)	138 (69.0)		
Yes	17 (20.5)	45 (38.5)	62 (31.0)		
The vehicle has a specialised seat for PWDs				5.4401	0.020**
No	78 (94.0)	97 (82.9)	175 (87.5)		
Yes	5 (6.0)	20 (17.1)	25 (12.5)		
Type of insurance cover for vehicle				0.0986	0.753
Third-party	55 (66.3)	80 (68.4)	135 (67.5)		
Comprehensive	28 (33.7)	37 (31.6)	65 (32.5)		

p**<0.05.

Source: Fieldwork, 2022

6.1.6 Multiple Logistic Regression Analysis of Factors Associated with Knowledge of Transport Options for PWDs among Public Transport Operators.

Table 6.6 shows the results of the crude odds ratio of the sociodemographic characteristics and vehicle-related factors that were statistically significantly associated with knowledge of transport options for PWDs among public transport operators during bivariate analysis using the Chi-square test. All the variables showed a statistically significant association with

knowledge of transport options for PWDs among public transport operators at the crude level. Table 6.6 shows the multivariable logistic regression analysis of the factors associated with knowledge of PWDs in transport among public transport operators in the selected rural and urban communities in the Greater Accra and Ashanti Regions of Ghana. The Wald Chi-square value of 86.41 with $p < 0.05$ showed the overall significance of the multivariable logistic regression model that was used to explain the factors that influence knowledge of transport options for PWDs among public transport operators. Hence, the multiple logistic regression model is appropriate.

The multiple logistic regression analysis showed that age, the highest level of education, marital status, monthly income, years of working experience, wheelchair-accessible entry or a ramp in the vehicle, and the vehicle having a specialised seat for PWDs had a statistically significant association with knowledge of transport options for PWDs among public transport operators. The odds of good knowledge of transport options for PWDs among public transport operators who belonged to the age group 40-49 years were 3.5 times (aOR = 3.5, 95% CI = 1.3 – 9.3, $p = 0.014$) higher than those who belonged to the age group 18-29 years. Also, the odds of good knowledge of transport options for PWDs among public transport operators who belonged to the age group 50 years and above were 3.7 times (aOR = 3.7, 95% CI = 1.3 – 10.6, $p = 0.015$) higher than those who belonged to the age group 18-29 years.

Furthermore, the odds of good knowledge of PWDs in transport among public transport operators who had completed primary education were 4.2 times (aOR = 4.2, 95% CI = 1.5 – 12.0, $p = 0.007$) higher than those who had no education. Moreover, the odds of good knowledge of PWDs in transport among public transport operators who had completed secondary education were 9.1 times (aOR = 9.1, 95% CI = 2.4 – 35.0, $p = 0.001$) higher than those who had no education. The odds of good knowledge of transport options for PWDs

among public transport operators who had completed tertiary education were 6.4 times (aOR = 6.4, 95% CI = 1.3 – 30.5, p = 0.020) higher than those who had no education.

The odds of good knowledge of transport options for PWDs among public transport operators who are married were 3.7 times (aOR = 3.7, 95% CI = 1.1 – 12.3, p = 0.031) higher than those who are unmarried. The odds of good knowledge of transport options for PWDs among public transport operators who had received a monthly income of Ghc500-Ghc1000 were 5.8 times (aOR = 5.8, 95% CI = 1.5 – 22.9, p = 0.012) higher than those who had received a monthly income of <Ghc500.

The odds of good knowledge of transport options for PWDs among public transport operators who had working experience of >5 years were 3.1 times (aOR = 3.1, 95% CI = 1.2 – 7.8, p = 0.020) higher than those who had working experience of <1 year. The odds of good knowledge of transport options for PWDs among public transport operators who had wheelchair-accessible entry or a ramp in the vehicle were 3.1 times (aOR = 3.1, 95% CI = 1.3 – 7.3, p = 0.012) higher than those who had no wheelchair-accessible entry or a ramp in the vehicle. Finally, the odds of good knowledge of transport options for PWDs among public transport operators whose vehicles had a specialised seat for PWDs were 5.4 times (aOR = 5.4, 95% CI = 1.3 – 22.3, p = 0.020) higher than those whose vehicles had no specialised seat for PWDs.



Table 6. 6 Multiple logistic regression analysis of factors associated with knowledge of transport options for PWDs among public transport operators.

Characteristics	Crude Odds Ratio			Adjusted Odds Ratio		
	OR	p-value	95% CI	OR	p-value	95% CI
Age, years						
18-29	Ref			Ref		
30-39	2.4	0.036*	1.1-5.3	2.1	0.159	0.7-5.8
40-49	3.0	0.008*	1.3-6.8	3.5	0.014*	1.3-9.3
50 and above	2.7	0.010*	1.3-5.9	3.7	0.015*	1.3-10.6
Highest Level of Education						
No Education	Ref			Ref		
Primary	4.0	0.001*	1.8-9.0	4.2	0.007*	1.5-12.0
JHS/JSS	1.2	0.679	0.5-2.9	1.7	0.368	0.5-5.6
Secondary	3.3	0.018*	1.2-8.7	9.1	0.001*	2.4-35.0
Tertiary	3.1	0.055	0.9-10.0	6.4	0.020*	1.3-30.5
Marital Status						
Unmarried	Ref			Ref		
Married	4.8	<0.001*	2.6-8.9	3.7	0.031*	1.1-12.3
Monthly Income						
<Ghc500	Ref			Ref		
Ghc500-Ghc1000	8.7	<0.001*	3.7-20.3	5.8	0.012*	1.5-22.9
>Ghc1000	3.6	0.001*	1.8-7.6	1.5	0.592	0.3-6.3
Years of Working Experience						
< 1	Ref			Ref		
1-5	2.5	0.018*	1.2-5.5	2.3	0.117	0.8-6.6
>5	3.6	<0.001*	1.8-7.4	3.1	0.020*	1.2-7.8
Wheelchair-accessible entry or a ramp in the vehicle						
No	Ref			Ref		
Yes	2.4	0.008*	1.3-4.6	3.1	0.012*	1.3-7.3
The vehicle has a specialised seat for PWDs						
No	Ref			Ref		
Yes	3.2	0.025*	1.2-9.0	5.4	0.020*	1.3-22.3

Note: JHS=Junior High School, JSS=Junior Secondary School, p**<0.05

Source: Fieldwork, 2022

6.2. Factors Influencing Public Transport Users' Knowledge of Transport Options for Persons with Disabilities in Ghana.

6.2.1. Sociodemographic Characteristics of Public Transport Users

A total of 200 public transport users in the selected rural and urban communities in the Greater Accra and Ashanti Regions of Ghana fulfilled the inclusion criteria and completed the questionnaire, achieving a response rate of 100%. Table 6.7 shows the summary of the sociodemographic characteristics of public transport users. The sociodemographic characteristics of the public transport users used in the study were gender, age, highest level of education, marital status, employment status, and religion.

Table 6. 7 Sociodemographic characteristics of public transport users

Characteristics	Frequency	Percentage (%)
Gender		
Female	141	70.5
Male	59	29.5
Age, years		
18-29	27	13.5
30-39	95	47.5
40-49	34	17.0
50 and above	44	22.0
Highest Level of Education		
No Education	47	23.5
Primary	39	19.5
JHS/JSS	26	13.0
Secondary (SHS/SSS/Vocational/Technical/Middle School)	64	32.0
Tertiary	24	12.0
Employment Status		
Unemployed	94	47.0
Employed	106	53.0
Marital Status		
Unmarried (Single, Divorced, Widowed)	84	42.0
Married	116	58.0
Religion		
No religion	11	5.5
Christianity	158	79.0
Islam	31	15.5

Note: JHS=Junior High School, JSS=Junior Secondary School, SHS=Senior High School,

SSS=Senior Secondary School.

Source: Fieldwork, 2022

The majority (70.5%) of the public transport users were females. The median age of the public transport users was 37 (IQR=32-46.5) years, with a minimum age of 19 and a maximum age of 74. In addition, more than one-third (47.5%) of the respondents belonged to the age group 30-39 years, more than one-fourth (32.0%) of the respondents had completed secondary school, more than one-half (53.0%) of the respondents were employed, over one-half (58.0%) of the respondents were married, and more than three-fourth (79.0%) of the respondents were Christians.

6.2.2. Vehicle-related Factors of Public Transport Users

Table 6.8 shows the vehicle-related factors of the public transport users. The vehicle-related factors of the public transport users used in the study were the mode of transport and the purpose of the trip. From Table 6.8, more than one-fourth (26.5%) of the public transport users used digital taxis, and more than three-fourths (37.5%) of the public transport users had boarded the vehicle to/from work.

Table 6. 8. Vehicle-related factors of public transport users

Characteristics	Frequency	Percentage (%)
Mode of transport		
Okada	24	12.0
Trotro	41	20.5
Traditional Taxi	50	25.0
Digital Taxi	53	26.5
Tricycle (Pragya)	12	6.0
Bus	20	10.0
Purpose of trip		
To/from work	75	37.5
To/from social	41	20.5
To/from shopping	47	23.5
To/from the health centre	28	14.0
To/from school	7	3.5
To/from recreation	2	1.0

Source: Fieldwork, 2022

6.2.3 Knowledge of Transport Options for PWDs among Public Transport Users

Table 6.9 shows the summary statistics of the knowledge of PWDs in transport among public transport users in the selected rural and urban communities in the Greater Accra and Ashanti Regions of Ghana. Similar to that of the transport operators, these questions were culled from the PWD Act 715 (2006), hence, an affirmative response aligns with the law, hereby showing knowledge of PWDs in transport. From Table 6.9, all the 200 public transport users (100%) know that drivers are supposed to stop for PWDs to cross the road at zebra crossings and other designated stops. Also, 150 (75.0%) of the public transport users know that PWDs have the right to access all public services and places in Ghana. Moreover, 155 (77.5%) of the public transport users know that public transport vehicles are to reserve a seat for PWDs at all times unless there are no PWDs to board the vehicle and 159 (79.5%) of the public transport users know that public places for parking vehicles are to have clearly demarcated areas for the exclusive use of persons with disability. However, 182 (91.0%) of the public transport users do not know that people with hearing disabilities have the right to be licensed drivers in Ghana. Similarly, 117 (58.5%) of the public transport users do not know about the National Transport Policy, which ensures that transport facilities must be user-friendly for PWDs and grant them access to all modes of transport.

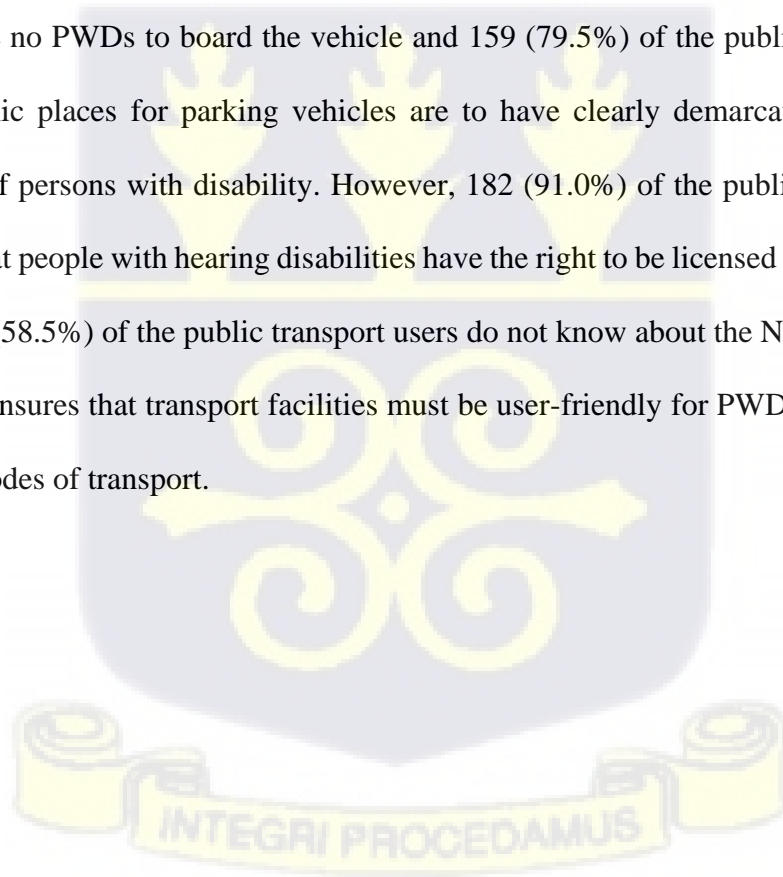


Table 6. 9 Knowledge of transport options for PWDs among public transport users

Statement	No	Yes
	N (%)	N (%)
Drivers are supposed to stop for PWDs to cross the road at zebra crossings and other designated stops.	0 (0.0)	200 (100.0)
PWDs have the right to access all public services and places in Ghana.	50 (25.0)	150 (75.0)
People with hearing disability have the right to be licensed drivers in Ghana.	182 (91.0)	18 (9.0)
Public transport vehicles are to reserve a seat for PWDs at all times unless there are no PWDs to board the vehicle.	45 (22.5)	155 (77.5)
A public place for parking vehicles is to have a clearly demarcated area for the exclusive use of persons with disabilities.	41 (20.5)	159 (79.5)
The National Transport Policy ensures that transport facilities are user-friendly for PWDs and grants them access to all modes of transport.	117 (58.5)	83 (41.5)
Total	435 (36.3)	765 (63.7)

Source: Fieldwork, 2022

The proportion of public transport users who had knowledge of PWDs in transport is shown in Figure 6.2. Out of 200 public transport users, 127 (63.7%) of them have good knowledge of transport options for PWDs. Previous research conducted in Great Britain suggests that public transport users generally have a good knowledge of their public transport services (Redman et al., 2013; Yeboah et al., 2019). It is, therefore, imperative for public transport users to have a good knowledge base to ensure the provision of accessible, safe, and reliable services to all commuters.

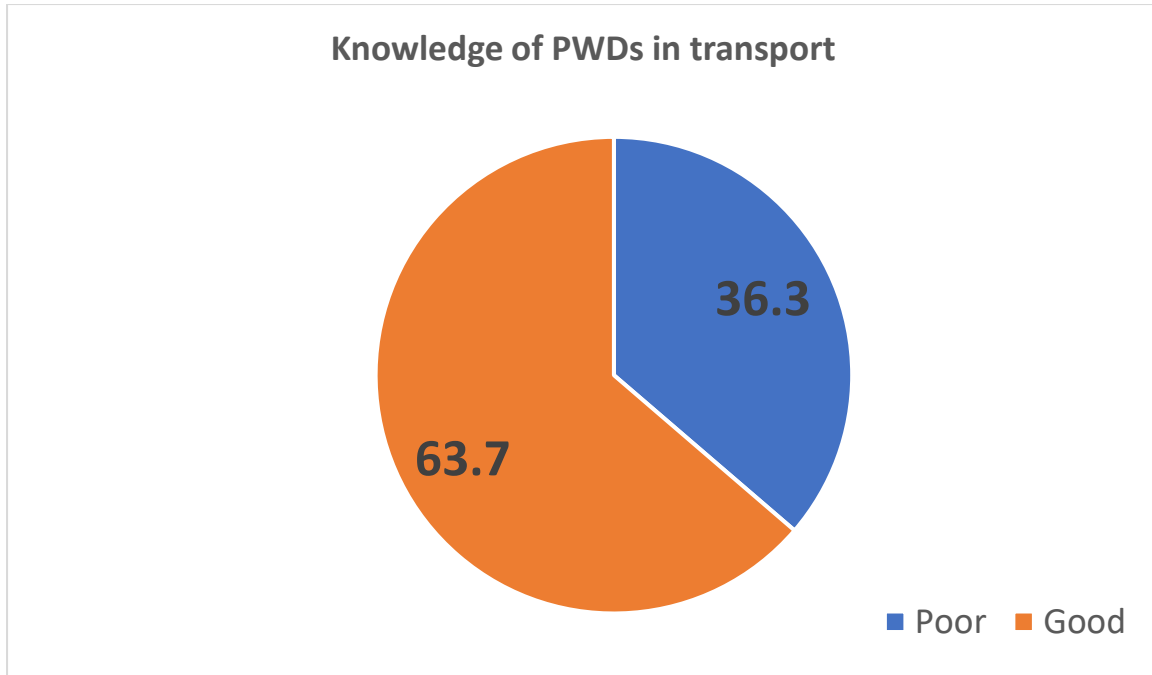


Figure 6. 2. Proportion of public transport users in selected communities in Greater Accra and Ashanti Regions who had knowledge of PWDs in transport.

Source: Fieldwork, 2022

6.2.4 Relationship between Sociodemographic Characteristics and Knowledge of Transport Options for PWDs among Public Transport Users

Table 6.10 shows the relationship between sociodemographic characteristics and knowledge of transport options for PWDs among public transport users. In the analysis of transport users' knowledge regarding mobility options for persons with disabilities, it was found that there was no statistically significant difference between male and female participants. The variables of sex did not yield meaningful distinctions in terms of awareness or familiarity with these options. In contrast, other demographic factors such as age, marital status, educational level, and occupation demonstrated statistically significant associations with participants' knowledge levels. The age group of the respondents was significantly related to their knowledge of transport options for PWDs ($p=0.016$). That is, good knowledge of transport options for PWDs was the highest (50.4%) and lowest (8.5%) among public transport users aged 30-39 years and

18-29 years, respectively. The highest level of education of public transport users was significantly related to their knowledge of transport options for PWDs ($p=0.008$). That is, good knowledge of transport options for PWDs was highest (34.8%) and lowest (12.0%) among public transport users who have completed secondary education and JSS/JHS, respectively, as shown in Table 6.10. The employment status of respondents was significantly related to their knowledge of transport options for PWDs ($p=0.010$). That is, the proportion of interviewees who had good knowledge of transport options for PWDs was 58.9% among those who were employed, compared to 41.1% among the unemployed.

The marital status of interviewees was significantly related to their knowledge of transport options for PWDs ($p=0.010$). That is, the proportion of public transport users who had good knowledge of transport options for PWDs was 63.8% among those who were married, compared to 36.2% among the unmarried.

The findings from this study are in contrast to a study in Norway by Øksenholt & Aarhaug (2016), which explored reasons why individuals with impairments who have accessible public transport options still avoid using them. Findings from that study imply that the perceptions and attitudes of transport users contributed to the challenges faced by PWDs. For instance, a lack of awareness or understanding among regular transport users about the specific needs and challenges faced by PWDs indirectly contributed to an environment where PWDs felt insecure and as such, anticipated problems when using public transport, hence, their refusal to commute via that service. Empirical findings from the Ashanti Region study also point to the fact that due to the behaviour of transport users, PWDs sometimes decide to ride alone on transport services to avoid the unwelcoming attitude of commuters. Though this arrangement is coupled with some financial implications, PWDs opt for unoccupied vehicles, which forms part of the factors influencing their mode of transport and also use it as a coping mechanism to deal with the attitude of transport users.

Table 6. 10 Sociodemographic characteristics of public transport users and knowledge of public transport options for PWDs

Characteristics	Knowledge of PWDs in transport			Chi-square	P-value
	Poor N (%)	Good N (%)	Total N (%)		
Gender				2.2431	0.134 ^a
Female	46 (78.0)	95 (67.4)	141 (70.5)		
Male	13 (22.0)	46 (32.6)	59 (29.5)		
Age, years				10.3212	0.016^{a**}
18-29	15 (25.4)	12 (8.5)	27 (13.5)		
30-39	24 (40.7)	71 (50.4)	95 (47.5)		
40-49	8 (13.6)	26 (18.4)	34 (17.0)		
50 and above	12 (20.3)	32 (22.7)	44 (22.0)		
Highest Level of Education				14.1039	0.008^{b**}
No Education	23 (39.0)	24 (17.0)	47 (23.5)		
Primary	9 (15.3)	30 (21.3)	39 (19.5)		
JHS/JSS	9 (15.3)	17 (12.0)	26 (13.0)		
Secondary	15 (25.4)	49 (34.8)	64 (32.0)		
Tertiary	3 (5.0)	21 (14.9)	24 (12.0)		
Employment Status				6.6008	0.010^{a**}
Unemployed	36 (61.0)	58 (41.1)	94 (47.0)		
Employed	23 (39.0)	83 (58.9)	106 (53.0)		
Marital Status				6.6685	0.010^{a**}
Unmarried	33 (55.9)	51 (36.2)	84 (42.0)		
Married	26 (44.1)	90 (63.8)	116 (58.0)		
Religion				1.0547	0.590
No religion	2 (3.4)	9 (6.4)	11 (5.5)		
Christianity	49 (83.0)	109 (77.3)	158 (79.0)		
Islam	8 (13.6)	23 (16.3)	31 (15.5)		

Note: JHS=Junior High School, JSS=Junior Secondary School, a= Pearson Chi-square test,

b=Fisher Exact test, p**<0.05.

Source: Fieldwork, 2022

6.2.5 Vehicle-related Factors of Public Transport Users and Knowledge of Transport Options for PWDs

Table 6.11 shows the relationship between vehicle-related factors and public transport users' knowledge of transport options for PWDs. The mode of transport of the public transport users was not significantly related to knowledge of PWDs in transport among public transport users

($p=0.579$). Also, the purpose of the trip of the public transport users was not significantly related to knowledge of PWDs in transport among public transport users ($p=0.192$).

Table 6. 11 Relationship between vehicle-related factors and knowledge of transport options for PWDs public transport users.

Characteristics	Knowledge of PWDs in transport			Chi-square (Fisher Exact)	P-value
	Poor N (%)	Good N (%)	Total N (%)		
Mode of transport				3.7591	0.579
Okada	5 (8.5)	19 (13.5)	24 (12.0)		
Trotro	14 (23.7)	27 (19.1)	41 (20.5)		
Traditional Taxi	11 (18.6)	39 (27.7)	50 (25.0)		
Digital Taxi	19 (32.2)	34 (24.1)	53 (26.5)		
Tricycle (Pragya)	4 (6.8)	8 (5.7)	12 (6.0)		
Bus	6 (10.2)	14 (9.9)	20 (10.0)		
Purpose of trip				7.4403	0.192
To/from work	28 (47.4)	47 (33.3)	75 (37.5)		
To/from social event	7 (11.9)	34 (24.1)	41 (20.5)		
To/from shopping	16 (27.1)	31 (22.0)	47 (23.5)		
To/from health centre	6 (10.2)	22 (15.6)	28 (14.0)		
To/from school	2 (3.4)	5 (3.6)	7 (3.5)		
To/from recreation	0 (0.0)	2 (1.4)	2 (1.0)		

$p^{**}<0.05$.

Source: Fieldwork, 2022

6.2.6 Multiple Logistic Regression Analysis of Factors Associated with Knowledge of Transport Options for PWDs among Public Transport Users.

Table 6.12 shows the results of the crude odds ratio of the sociodemographic characteristics of the public transport users that was statistically significantly associated with knowledge of transport options for PWDs during bivariate analysis using the Chi-square test. All the variables showed a statistically significant association with knowledge of transport options for PWDs among public transport users at the crude level. Table 6.12 shows the multiple logistic regression analysis of the factors associated with knowledge of transport options for PWDs among public transport users in the selected rural and urban communities in the Greater Accra and Ashanti Regions of Ghana. The Wald Chi-square value of 30.94 with $p<0.05$ showed the

overall significance of the multiple logistic regression model that was used to explain the factors that influence knowledge of transport options for PWDs among public transport users. Hence, the multiple logistic regression model is appropriate.

The multiple logistic regression analysis showed that age, the highest level of education, and marital status had a statistically significant association with knowledge of transport options for PWDs among public transport users. However, employment status was not statistically significantly associated with public transport users' knowledge of transport options for PWDs. The odds of good knowledge of transport options for PWDs among public transport users who belonged to the age group 30-39 years were 4.1 times (aOR = 4.1, 95% CI = 1.5 – 10.9, $p = 0.005$) higher than those who belonged to the age group 18-29 years.

Also, the odds of good knowledge of transport options for PWDs among public transport users who belonged to the age group 40-49 years were 3.8 times (aOR = 3.8, 95% CI = 1.2 – 12.2, $p = 0.027$) higher than those who belonged to the age group 18-29 years. Furthermore, the odds of good knowledge of transport options for PWDs among public transport users who belonged to the age group 50 years and above were 3.6 times (aOR = 3.6, 95% CI = 1.2 – 10.7, $p = 0.023$) higher than those who belonged to the age group 18-29 years.

Moreover, the odds of good knowledge of transport options for PWDs among public transport users who had completed secondary education were 2.7 times (aOR = 2.7, 95% CI = 1.1 – 6.3, $p = 0.026$) higher than those who had no education. The odds of good knowledge of transport options for PWDs among public transport users who had completed tertiary education were 4.7 times (aOR = 4.7, 95% CI = 1.2 – 18.6, $p = 0.029$) higher than those who had no education. Finally, the odds of good knowledge of transport options for PWDs among public transport users who are married were 2.2 times (aOR = 2.2, 95% CI = 1.1 – 4.3, $p = 0.026$) higher than those who are unmarried.

Table 6. 12 Multiple logistic regression analysis of factors associated with knowledge of transport options for PWDs among public transport users.

Characteristics	Crude Odds Ratio			Adjusted Odds Ratio		
	OR	p-value	95% CI	OR	p-value	95% CI
Age, years						
18-29	Ref			Ref		
30-39	3.7	0.004*	1.5-9.0	4.1	0.005*	1.5-10.9
40-49	4.1	0.012*	1.4-12.2	3.8	0.027*	1.2-12.2
50 and above	3.3	0.019*	1.2-9.1	3.6	0.023*	1.2-10.7
Highest Level of Education						
No Education	Ref			Ref		
Primary	3.2	0.015*	1.2-8.2	2.7	0.052	0.9-7.4
JHS/JSS	1.8	0.240	0.7-4.9	1.6	0.392	0.6-4.5
Secondary	3.1	0.006*	1.4-7.1	2.7	0.026*	1.1-6.3
Tertiary	6.7	0.005*	1.8-25.6	4.7	0.029*	1.2-18.6
Employment Status						
Unemployed	Ref			Ref		
Employed	2.2	0.011*	1.2-4.2	1.7	0.106	0.9-3.4
Marital Status						
Unmarried	Ref			Ref		
Married	2.2	0.011*	1.2-4.1	2.2	0.026*	1.1-4.3

Note: JHS=Junior High School, JSS=Junior Secondary School, p**<0.05

Source: Fieldwork, 2022

6.3 Life Course Theory (LCT) and Knowledge of Transport Options for PWDs

The Life Course Theory is a foundational framework that explores how individuals' experiences, transitions, and trajectories evolve over the course of their lives (Elder et al., 2003). In the context of this study on accessibility and use of public transport services by persons with visual and physical disabilities in Ghana, the Life Course Theory provides a lens through which an understanding of how the knowledge, experiences, and attitudes of transport operators and users are influenced by their life histories, transitions, and the evolving socio-

historical context of disability rights in Ghana. The findings are explained by some key components of the theory.

Individual Experiences Over Time: The Life Course Theory emphasises how individual experiences evolve and change over a person's life. From the findings, the knowledge levels of both transport operators and users about mobility options for PWDs reflect their life course experiences. For example, older, married, educated transport operators and users are likely to have more exposure to disability rights and regulations during their life course, which could influence their level of knowledge.

Transitions and Turning Points: The LCT also underscores transitions and turning points in life. Certain life events, such as, achieving a higher level of education or getting married, may have influenced the knowledge levels of transport operators and users. For example, those with higher education have a higher propensity to be more exposed to disability rights and inclusivity concepts, culminating in a higher level of knowledge of mobility options for PWDs.

Historical and Socioeconomic Context: The Life Course Theory acknowledges that historical and socioeconomic contexts shape individual experiences. From the findings, socioeconomic factors like employment status impacted knowledge levels. Individuals with stable employment also had better access to education and information about disability rights and their mobility options.

6.4 Understanding Transportation Options for PWDs through the Lens of Critical Disability Theory

The Critical Disability Theory, on the other hand, offers a critical and transformative perspective on disability. It encompasses three selected key elements: the social model of disability, the rights-based approach, and transformative policies. This theory challenges traditional medical models of disability, emphasising that disability is not an individual deficit

but a result of societal barriers and prejudices. It asserts that persons with disabilities have inherent rights to full social inclusion. In this study, the Critical Disability Theory guides an understanding of the power dynamics, the need for advocacy, and the transformative policies required to dismantle barriers and promote awareness, inclusivity, and the rights of persons with disabilities. It calls for a fundamental shift in societal attitudes and approaches to create a more inclusive and accessible transport system for all. Some key components of the CDT explain the findings.

The Social Model of Disability: The social model of disability posits that disability is not an inherent individual trait but rather a result of social, environmental, and attitudinal barriers. The study findings show that the knowledge disparities among transport operators and users regarding mobility options for PWDs align with the principles of the social model of disability. The variation in knowledge levels can be attributed to social factors, including education, awareness, and societal attitudes. The theory calls for the need to shift the focus from PWDs' limitations to the barriers and prejudices that limit their full participation when it comes to public transportation. It is, therefore, crucial to highlight that improving knowledge and awareness is not solely the responsibility of PWDs but also of society (stakeholders) as a whole.

The Approach Based on Rights: The approach based on rights centres on recognising the inherent rights of PWDs to full inclusion and participation in society. The study findings indicate that while some knowledge exists about specific rights, there are significant gaps, especially, regarding the right of persons with hearing disabilities to obtain driver's licenses and the need for reserved seating in public transport vehicles. The study underscores the fact that improving knowledge about these rights is not just a matter of awareness but a fundamental obligation of all commuters, hence, the call for the active promotion of the rights of PWDs through education and advocacy. This approach places the responsibility on society and stakeholders to ensure these rights are upheld fully.

Transformative Policies: Transformative policies are essential for dismantling structural barriers and achieving true inclusivity for PWDs. The study findings indicate that the disparities in knowledge levels among transport operators and users reflect the need for transformative policies that actively address these disparities. As such, policies should not merely aim for awareness but for a fundamental transformation in how society perceives and accommodates PWDs. The study findings call for increased advocacy on specific actions to bridge the knowledge gaps between public transport operators and users alike. This could include the development of educational programs for transport operators, the incorporation of disability rights awareness into driver training and the implementation of policies that actively promote the rights of PWDs to own driver's licenses and reserved seating on public transport services.

6.6 Insights from Conceptual Framework

The conceptual framework for the study also emphasises and explains study outcomes from transport operators and users. The findings show that while many transport operators are aware of certain rights and requirements for PWDs, there are gaps in their knowledge, particularly regarding specific details such as, the licensing rights of people with hearing disabilities and the obligation to reserve seats for PWDs. These gaps can be attributed to sociodemographic factors such as, education, marital status, income, and years of experience. This, therefore, reinforces the role of socio-spatial demographic characteristics, as outlined in the conceptual framework. Such characteristics, including the educational background and years of experience of transport operators, go a long way to influencing their understanding of mobility options for PWDs. On the other hand, transport users, in general, exhibit a better understanding of mobility options for PWDs than transport operators. However, both transport operators and users show associations between sociodemographic factors and knowledge levels. The findings emphasise the influence of factors like education, marital status, and age. The life course perspective

within the conceptual framework is relevant here, as different life stages and transitions impact knowledge levels among transport operators and users.

In this study, the application of the Life Course Theory and the Critical Disability Theory has provided valuable perspectives for understanding the knowledge disparities and factors influencing awareness of mobility options for persons with disabilities in Ghana's public transport sector. Together, these two theories have guided our understanding of the multifaceted dynamics at play in the transport sector. They emphasise the need for a paradigm shift from individual limitations to societal barriers and from passive awareness to active promotion of disability rights.

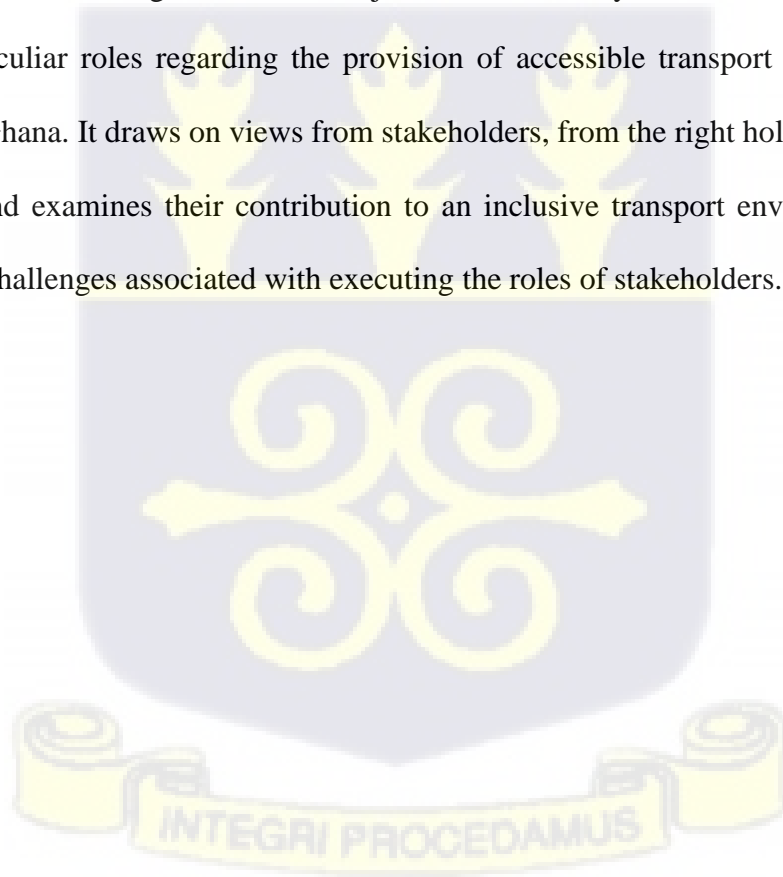
6.7 Chapter Summary

This chapter has presented and discussed findings on the various factors that influence transport operators' and users' knowledge of the transport mobility options for persons with disabilities. This chapter represents the sole quantitative aspect of this research. It employs the survey technique to solicit information from transport operators and users from the selected districts in Ghana's Greater Accra and Ashanti Regions. The findings reveal a general low to moderate level of knowledge among transport operators and users. However, the latter group understands mobility options for PWDs slightly above their counterparts. Also, sociodemographic factors such as marital status, income level, and education level, other than occupation, influence the knowledge level of transport operators and users.

The Life Course Theory has illuminated how individual experiences, transitions, and socioeconomic factors shape the knowledge levels of both transport operators and users. It highlights the dynamic nature of life events and their influence on awareness, emphasising that historical and personal contexts play a pivotal role in shaping perceptions of disability rights and accessibility in the transport system. On the other hand, the Critical Disability Theory, with

its three key elements- the social model of disability, the rights-based approach, and transformative policies- offers a critical lens through which we can perceive the knowledge gaps among participants. It underscores that disability is not an individual deficit but a result of societal barriers and prejudices, calling for transformative policies and advocacy to promote awareness, inclusivity, and the inherent rights of persons with disabilities. This theory asserts that it is society's responsibility to ensure these rights are upheld.

In conclusion, the study findings indicate that bridging the knowledge gaps and promoting accessibility in the public transport sector requires a holistic approach that considers both individual life experiences and the transformation of societal attitudes and policies. The next chapter presents the findings on the last objective of the study. It delves into stakeholders' general and peculiar roles regarding the provision of accessible transport for persons with disabilities in Ghana. It draws on views from stakeholders, from the right holders and the duty bearer front, and examines their contribution to an inclusive transport environment. It also highlights the challenges associated with executing the roles of stakeholders.



CHAPTER SEVEN

THE ROLE OF STAKEHOLDERS IN THE PROVISION OF ACCESSIBLE PUBLIC TRANSPORT SERVICES FOR PERSONS WITH DISABILITIES

7.0 Introduction

In the previous chapter, the knowledge level of public transport operators and users was explored in relation to transport mobility options for persons with disabilities. The sole quantitative aspect of this research was the analysis of survey data in descriptives and inferential statistics to understand factors influencing the knowledge of operators and users of public transport. The results show a generally lower to moderate level of knowledge concerning the mobility options and rights of persons with disabilities regarding transportation among transport operators than users. This chapter focuses on the role of selected stakeholders in the provision of accessible and inclusive public transport services for persons with disabilities. It will answer the questions relating to the extent to which stakeholders facilitate the mobility of PWDs and explain how stakeholders work with existing policies, enforcement and compliance to provide accessible transport for PWDs. The chapter analyses stakeholders from the transport governance sector: the Ministry of Transport (MOT), Driver and Vehicle Licensing Authority (DVLA), Motor Traffic and Transport Department (MTTD) of the Ghana Police, National Road Safety Authority (NRSA), the disability governance sector: Ghana Federation of Disability Organisations (GFD), Ghana Blind Union (GBU), Ghana Society for the Physically Disabled (GSPD) and the transport service providers: Metro Mass Transit Limited (MMTL), Intercity STC Coaches (ISTC), V.I.P Jeoun Transport Service, Yango Ghana (Digital Taxi) to gain an understanding of their collective roles in providing accessible transportation for PWDs.

The list of stakeholders is presented in Table 7.1, and the key role of each of them, gleaned from their official websites and institutional documents, is presented in Section 7.1.

Table 7. 1 Stakeholders engaged in the study

Transport Governance	Disability Governance	Transport Service Providers
Ministry of Transport (MOT)	Ghana Federation of Disability Organisations (GFD)	Metro Mass Transit Limited (MMTL)
Driver and Vehicle Licensing Authority (DVLA)	Ghana Blind Union (GBU)	Intercity STC Coaches (ISTC)
Motor Traffic and Transport Department (MTTD) of the Ghana Police	Ghana Society for the Physically Disabled (GSPD)	V.I.P Jeoun Transport Service
National Road Safety Authority (NRSA)		Ghana Private Road Transport Union (G.P.R.T.U)
		Yango Ghana (Digital Taxi)

Source: Fieldwork, 2022

7.1 Key Roles of Stakeholders

To understand the provision of accessible and inclusive public transport services for Persons with Disabilities (PWDs), it is essential to examine the roles of key stakeholders involved in the process. These stakeholders, broadly categorised into three main areas: Transport Governance, Disability Governance, and Transport Service Providers, will be discussed briefly as each category plays a critical role in shaping the accessibility, regulation, and delivery of transport services that accommodate the needs of PWDs.

7.1.1 Transport Governance

Transport Governance encompasses the governmental and regulatory agencies responsible for overseeing, planning, and regulating public transport systems. These stakeholders include the Ministry of Transport (MOT), the Driver and Vehicle Licensing Authority (DVLA), the Motor

Traffic and Transport Department (MTTD) of the Ghana Police, and the National Road Safety Authority (NRSA).

- **Ministry of Transport (MOT):** The MOT is tasked with developing and implementing transport policies that ensure a safe, efficient, and accessible transport system for all citizens, including PWDs. The MOT's role includes coordinating with other government agencies and stakeholders to promote the integration of accessibility standards into public transport projects and policies.
- **Driver and Vehicle Licensing Authority (DVLA):** The DVLA is responsible for regulating and ensuring the roadworthiness of vehicles, as well as licensing drivers. The DVLA's role is crucial in enforcing standards that ensure vehicles are accessible to all persons and that drivers are adequately trained to cater to passengers' needs. The collaboration between the DVLA and MTTD in inspecting drivers' licenses and vehicle roadworthiness directly impacts the safety and accessibility of public transport for all who patronise the service.
- **Motor Traffic and Transport Department (MTTD) of the Ghana Police:** The MTTD plays a key role in enforcing traffic laws and ensuring the safety of road users. The MTTD's collaboration with other agencies, such as the National Road Safety Authority (NRSA), in conducting road safety campaigns and enforcing regulations, is vital in creating a transport environment that is safe and accessible for all, especially PWDs.
- **National Road Safety Authority (NRSA):** The NRSA is responsible for promoting road safety in Ghana. Its role includes implementing road safety campaigns, collaborating with other agencies like the MTTD to enforce safety standards, and ensuring that road infrastructure and policies consider the needs of PWDs.

7.1.2 Disability Governance

Disability Governance refers to the institutions and organisations that advocate for the rights of PWDs and ensure that their needs are integrated into public policies, including transport services. Key organisations within this category include the Ghana Federation of Disability Organisations (GFD), the Ghana Blind Union (GBU), and the Ghana Society for the Physically Disabled (GSPD).

- **Ghana Federation of Disability Organisations (GFD):** The GFD is a coalition of various disability advocacy groups in Ghana and serves as the voice of PWDs in policy discussions. The GFD's role includes advocating for the inclusion of PWDs policy formulation, monitoring the implementation of disability-friendly policies, and ensuring that the rights of PWDs are protected in all sectors. The GFD also collaborates with other stakeholders to promote awareness and education on the importance of accessible infrastructure.
- **Ghana Blind Union (GBU):** The GBU specifically advocates for the rights and needs of individuals with visual impairments. Its role includes working to ensure that public transport services are accessible to the visually impaired, promoting the use of assistive technologies, and engaging in public awareness campaigns to sensitise the public about the needs of blind individuals.
- **Ghana Society for the Physically Disabled (GSPD):** The GSPD focuses on advocating for individuals with physical disabilities. They work to protect the welfare of persons with Physical Disabilities (PWDs) through advocacy, awareness raising, mobilisation and livelihood support to ensure equal rights and full inclusion at all levels of society.

7.1.3 Transport Service Providers

Transport Service Providers include both public and private entities responsible for delivering transport services to the public. Key players in this category are Metro Mass Transit Limited (MMTL), Intercity STC Coaches (ISTC), V.I.P Jeoun Transport Service, Ghana Private Road Transport Union (GPRTU), and Yango Ghana.

- **Metro Mass Transit Limited (MMTL):** MMTL is a public transport service provider tasked with providing reliable and affordable means of transport for commuters within villages, towns, and cities and providing intercity movement. MMT also aims to introduce the Bus Rapid Transit System into Ghana.
- **Intercity STC Coaches (ISTC):** ISTC is another key public transport provider that offers intercity bus services. ISTC aims to consistently and profitably deliver the safest, most comfortable, and most reliable road transport and allied services using a highly motivated and competent workforce and state-of-the-art facilities to meet the aspirations of all stakeholders.
- **V.I.P Jeoun Transport Service:** V.I.P Jeoun is a major private transport operator in Ghana. Its role includes providing long-distance transport services across the country. The company aims to continuously provide the safest, most reliable, efficient bus services in Ghana using modern technology to improve our services.
- **Ghana Private Road Transport Union (GPRTU):** The GPRTU represents the interests of private road transport operators in Ghana. The GPRTU's role involves negotiating with the government on behalf of its members, setting fare prices, and ensuring that its members adhere to regulations. The GPRTU's collaboration with the Ministry of Transport (MOT) in reviewing public transport charges and its efforts to include PWDs in their service delivery are critical to making transport more accessible.

- **Yango Ghana:** Yango is a digital ride-hailing service operating in Ghana. Its role includes providing flexible and on-demand transport and package delivery services, which can be a valuable option for PWDs. Yango is responsible for providing efficient and safe ride-hailing services, contributing to society's development, prioritising safety, and fostering collaborations for growth and expansion.

7.2. Stakeholder Roles from the Study

The role of stakeholders, gatekeepers and duty bearers within the disability and transport milieu provides a comprehensive understanding of the dynamics, responsibilities and challenges related to making transportation services more inclusive for persons with disabilities. The study findings categorised these roles into five main themes: Awareness and Knowledge, Policy and Regulation, Collaboration and Coordination, Infrastructure and Facilities, Training and Sensitisation. The element of funding these roles played a pivotal role, and discussions surrounding it are presented to offer a comprehensive context for the findings.

7.2.1. Awareness and Knowledge

The study sought to identify and understand the extent to which stakeholders made efforts to educate, inform, and raise awareness about the various aspects of mobility options for PWDs in public transportation. These efforts cut across stakeholders from the transport governance sector, the transport service provider's sector and the central disability organisational front. There was no specific and targeted awareness campaign from the transport governance sector at PWDs or for the public on PWDs regarding their rights and needs and, more specifically, public transport mobility options. The Driver Vehicle and Licensing Authority (DVLA) indicated that they engage the public through workshops, symposia, etc., to create awareness when a new policy on licensing is introduced. At the time of the interview, they were discussing a new policy to enable PWDs to qualify for vehicle licensing with the disability organisations. The National Road Safety Authority (NRSA), formerly the National Road Safety Commission

(NRSC), was the only stakeholder that went to length in their public awareness campaigns to basic schools, churches, mosques, and the like on road safety for all motorists and pedestrians. The institutions they visited were dominated by those in the urban areas of the Greater Accra Region, with fewer or no interactions with rural areas outside of the Greater Accra Region. Areas that have benefited from these interactions include Accra, Teshie, Korle-Bu, Ashaiman, and Tema in the Greater Accra Region and Suhum, Bechem and Nkwanta in the Ahafo region. However, NRSA indicated there was no provision for a targeted campaign to the public on PWD's mobility options and needs nor an awareness plan for the PWDs on road safety. The team, however, plans to begin targeted interventions to promote total inclusion for all.

A representative from NRSA narrates:

Regarding our awareness programmes, we work with Civil Society Organisations (CSOs) more than specific disability organisations. We work with CSOs like the Road Safety Advocates Ghana (RoSAG), an organisation focused on promoting road safety through various initiatives, among others. Engagement with PWDs themselves in this regard has been lacking on the national front. This is something we will aim to do in due course (A female representative of NRSA, Accra).

The Ministry of Transport (MOT), which all other major transport sectors fall under, was culpable in the lack of sensitisation activities to the public and the PWD community. On their part, they proposed that the sensitisation activities ought to be a two-way affair, where the disability organisations will liaise with them to expose their members to transportation issues to enhance their mobility potential. A senior officer at the Ministry intimated:

We, as MOT, do general sensitisation on transport programs and projects but not explicitly for PWDs alone. As such, we urge the PWD organisations

to connect with us and also engage their members to be aware of these programs geared towards improving their mobility potentials to be able to push for their rights (A male representative of MOT, Accra).

The Motor Traffic and Transport Department (MTTD) of the Ghana Police Service also provided similar narratives but highlighted a one-off engagement at the Accra Rehabilitation Centre, where they engaged the disability organisation and their members on road safety and traffic regulations. This is a commendable activity. However, its isolated occurrence may not be well-suited for providing the needed exposition to the mobility needs of PWDs. The representative at MTTD indicated that their department will make it a periodic activity.

Representatives from the disability organisations were not forthcoming with spearheading engagements with transport stakeholders or their members regarding mobility options for PWDs. However, when the transport stakeholders reach out to engage their members, they willingly cooperate to make it successful. They corroborated the one-time engagement with the MTTD on traffic safety at the head office of the Ghana Federations of Disability Organisations (GFD) while they encouraged stakeholders to come up with such engagement initiatives.

On the other hand, the transport service providers indicated not doing much in providing awareness to the disability community and the general public on transport mobility options for PWDs. The state's Intercity STC Coaches (ISTC), from the late 1980s to the early 1990s, used to have a free waybill system for PWDs who use their services. The free waybill refers to a document that outlines the details of a trip, such as the route, schedule, and relevant information, but it does not involve any payment or fare. As such, the initiative enabled PWDs to travel on the ISTC service without payment of transport fares, and it was made known to PWDs who patronised their services at the time. According to a management staff member of ISTC, some PWDs abused these privileges, which led to the removal of the free waybill system.

Also, the company sold a majority of its shares to profit-oriented private entities and could not grant free passes to passengers who were PWDs. In their regular driver training programs, ISTC includes training modules that incorporate aspects of courteous treatment for passengers with disabilities, integrating these considerations into the skills taught to drivers. Also, about 30% of their total fleet is disability friendly, which demonstrates a commitment to inclusive transportation. Another state transport institution, the Metro Mass Transit Limited (MMTL), recalled a recent engagement with the disability organisations regarding their services that could benefit them. According to the resource person from MMTL, this was their only interaction in a very long time. As such, they plan to have it more often as part of their company's inclusion responsibilities. Narratives from the V.I.P Jeon Transport Service, a private intercity transport company, the Ghana Private Road Transport Union (GPRTU), and Yango Ghana, a digital taxi service provider, indicated no awareness projects or campaigns towards disabled passengers or the general public on mobility options for PWDs. The knowledge level of these stakeholders concerning transport mobility options and their commitment to ensuring them was also not encouraging. They, however, agreed to develop such a program to make mobility issues of PWDs known to their drivers, staff, and passengers, as well as their services towards the total inclusion of PWDs. A senior representative with Yango shared his views on the company's policy regarding disability information and future aspirations toward sensitisation and awareness:

Our app does not take information on passengers' disability status. It rather has a section for the drivers to indicate if they have a disability. This is due to the non-disclosure agreement (NDA) policy of their contract with passengers so as not to obtain some information from customers. For the driver's side, we check for their ability status, the safety of their seats, child access, etc., on the car, but there is nothing on disability access. It is an area

we ought to relook in the future (A male representative, Yango Ghana-Accra).

It is important to note that within these stakeholders' general low level of awareness, there was the resolve and commitment to do better after interacting with the members of their leadership concerning this study and its focus. Also, conducting the study provided the researcher with an opportunity to champion the cause of disability inclusion in transportation and to highlight its importance. A cursory comparison between the knowledge and public awareness level of the Transport Governance Stakeholders and the Transport Service Providers' knowledge on mobility options for PWDs reveals that the former institutions had higher knowledge and engaged more in public awareness than the latter. However, it did not reflect actionable approaches and mechanisms to ensure the inclusion of PWDs in their services.

A notable example of stakeholders creating awareness in this regard is The United States Department of Transportation's (USDOT's) Accessible Transportation Technologies Research Initiative (ATTRI) Program, which has demonstrated proactive engagement through targeted awareness campaigns (Sundararajan et al., 2019). These campaigns, through research conferences and online sensitisation drives, centred around the universal design methodology, specifically targeting automatic vehicle designers and application developers. By raising awareness of disability needs and challenges within these crucial sectors, the ATTRI Program has catalysed a positive transformative experience within the disability society in the United States. The impact of these efforts has led to solutions for wayfinding and navigation, safe intersection crossing, pre-trip concierge and virtualisation for PWDs. In another space, the use of photovoice in research has created awareness of PWDs mobility concerns, as studied by Sitter and Mitchell (2020). These campaigns extend beyond awareness to tangible improvements in accessibility, exemplifying the essential role that stakeholders play in shaping an inclusive transportation landscape for all.

7.2.2 Policy and Regulation

This theme of the study findings involves developing, implementing and enforcing policies, laws and regulations governing the various aspects of accessibility, mobility and transportation options for PWDs. The primary stakeholder that is mandated to formulate broad transport policies in Ghana is the Ministry of Transport (MOT). After the formulation of these policies, the MOT has another duty to exercise oversight responsibilities on the implementation of these policies by its subsidiary agencies such as the DVLA, NRSA, MMTL, ISTC, etc. The GPRTU also works with the Ministry of Transport and the Ghana Road Transport Coordinating Council (GTRCC) to set public transport fares and ensure its members adhere to regulations. A major transport policy formulated by the MOT is the National Transport Policy (NTP), 2008, revised in 2020. This comprehensive policy outlines the country's goals and strategies related to transportation. The NTP is aligned to various sustainable development objectives and international agreements as it dedicates a section to disability and development, where it seeks to promote full participation of PWDs in all transport services, making accessibility a key to their active and unrestricted access to the benefits of Ghanaian citizenship.

Some achievements of the NTP were disclosed by a management member at the MOT, saying:

The NTP has led to the modifications of existing, current and future transport infrastructure in the city. Notables include the pedestrian access design, from staircases to a sloping section for wheelchair users, among others. So, because the policy is in place, every new transport infrastructure is legally bound to meet the standards in the document. Its full implementation has been a challenge (A male representative, MOT).

The DVLA, an agency under the MOT, has also formulated a policy that would allow physically challenged and hearing-impaired persons to drive automobiles across the country.

This policy, named “Policy for Training and Testing of Drivers with Disabilities”, provides that some category of persons with disability (PWDs) be issued a driver’s license upon passing training, testing, and satisfying conditions prescribed by the Driver and Vehicle Licensing Authority (DVLA), in line with the PWD Act, 2006 (Act 715) and other international treaties that promote the rights and inclusion of PWDs in transportation. This policy, thus, eliminates discrimination in the acquisition of driving licenses by persons with disabilities. The DVLA indicates that other standards will be rolled out to enable access to PWDs to enjoy or partake in the various opportunities in the transportation sectors. As of the time of the interview, there were no codified standards on physical infrastructure (e.g., bus stops, transport terminals, vehicles), information dissemination (e.g., accessible schedules), and service quality (e.g., assistance for persons with disabilities) in the country. However, the MOT and DVLA agreed it was an area they would pursue in the future. The Disability Umbrella Organisation, the Ghana Federation of Disability Organisations (GFD) and the Ghana Society for the Physically Disabled (GSPD) commended the DVLA for an initiative like the Policy for Training and Testing of Drivers with Disabilities. GFD was hopeful that more policies like this would be formulated to ensure that commercial vehicles have some accessible features, among other benefits, for PWDs to enjoy on their commute via public transport services. They also indicated their intention to contribute to reviewing the PWD ACT 715 (2006) with key stakeholders. The review they seek will make clearer provisions in healthcare and employment and have a section for children and women with disabilities, humanitarian services, and political participation, among a host of others. A senior representative at the Federation disclosed that:

The need for the review is to highlight serious concerns about the fact that the country’s Disability Act has no provisions for children and women with a disability, humanitarian services, and political participation, among others. GFD has, as part of this process, submitted a gap analysis report to

the Ministry of Gender, Children and Social Protection to speed up the review process of the Act, but to date, nothing concrete had been done about it. We hope to see it come to light soon (A male representative, GFD-Accra).

The NRSA's role in formulating its policy is guided by the national transport goals enshrined in the NTP. In light of this, the NRSA has developed road safety policies for the country. These include the National Road Safety Strategy (NRSS I) 2000-2005, (NRSS II) 2006-2010, and (NRSS III) 2011-2020, with the latter being in accordance with requirements of the UN Decade of Action for Road Safety 2011-2020. The NRSA representative indicated that:

In all our NRSS documents, we conduct a gap analysis of road safety installations and other safe road components on major roads by user type, i.e., for pedestrians, drivers, motorcyclists, and persons with disabilities. So, we also consider these vulnerable groups in our policies (A female representative, NRSA-Accra).

The MMTL, on their part, indicated that their free bus rides for basic school kids in uniforms policy is still running. The policy, piloted nationwide in January 2006 for kindergarten and junior secondary school pupils in private and public schools, has since not been scrapped by the management of MMTL. For people aged 65 years and above who wish to ride with MMTL, there is a 50% discount on all transport fares once they show a special identity card known as the “Eban” card (to wit, to cushion/take care of you). Here again, this policy does not specifically target persons with disabilities. However, should PWDs fall within these categories, they benefit from the policy. MMTL again indicates that in their sourcing for buses, they make it a point to import buses designed with door openings and platforms suitable for easy access for PWDs. However, these standards and guidelines have not been developed as part of the company’s policy.

Similarly, ISTC ran a free waybill policy in the late 1980s, which enabled PWDs to use the bus service without paying for fares. This was later phased out in the early 1990s. The V.I.P Jeoun Transport Service, Yango and the GPRTU did not have any codified policy regarding accessibility standards, discrimination, or inclusive transport features for their transport services for PWDs. However, they all indicate that they extend some of these courtesies to PWDs when they arrive to use their services, which is very infrequent.

The level of policy formulation, implementation and enforcement among the stakeholders indicates that the agencies in the transport governance sector have made some progress in highlighting the issue of PWDs in transportation. The transport service providers from the state umbrella also contributed to their role, albeit not significantly. The private transport providers were the least contributors to policy development, implementation, and enforcement for PWDs in transport. Overall, the study finds that some forceful policies have been enacted. However, the enforcement and implementation challenges among the transport divide leave much to be desired. Also, a few gaps were identified in the policies, where agencies responsible for implementing them were conflicted about whose role it was to ensure particular compliance with laws and regulations. A typical scenario was with the provision in the PWD Act subsection 27 that enables persons with hearing impairments the opportunity to own a driving license upon satisfying conditions set by the DVLA. Since 2006, when the law and this provision were promulgated, the requirements and benchmarks from DVLA were developed and outdoored in February 2023, seventeen years after the law was enacted. This meant that prior to the development of this “Policy for Training and Testing of Drivers with Disabilities”, licensing of PWDs was merely through the examiner's discretion. These findings resonate with studies in other African countries, where transport stakeholders have not formulated requisite policies and translated the policies into actionable goals (see Duri & Luke, 2022; Lang et al., 2019; Vanderschuren & Nnene, 2021).

7.2.3 Collaboration and Coordination

The study findings highlight how stakeholders foster partnerships, teamwork, and effective communication among partner stakeholders to collectively address accessibility challenges and improve mobility options for individuals with disabilities. Among the various stakeholders, there were some instances of collaboration to achieve various goals, and in some cases, limited collaboration hampered output and expected results in that regard. The collaborations were mainly between the transport governance and transport service providers who were government-owned, with minimal or no collaboration from the private transport service providers and the disability organisations. As such, the Ministry of Transport, under which the DVLA, ISTC, MMTL, and NRSA fall, revealed various collaborations in promoting transport accessibility and use in general. Similarly, the GPRTU works with the Ministry of Transport and the Ghana Road Transport Coordinating Council (GTRCC) to set public transport fares and ensure its members adhere to regulations. However, targeted collaborations towards inclusive transportation and coordination with disability organisations have not matched up in that regard, although efforts have been made. The Ministry of Transport, on its part in formulating the National Transport Policy, engages all the relevant stakeholders, including disability organisations. The MOT indicates that they reached out to the PWD organisations in various sessions in the revision of the transport policy. A senior representative of MOT intimates that:

Due to the nature of the national transport policy, it is important that we extend engagement to all and sundry that matter in the use of transport services. So yes, we reached out to the GFD, which is the umbrella organisation of the PWDs, in a series of sessions to get their input into the policy (A male representative, MOT-Accra).

The DVLA indicates it liaises with the Ghana National Association of the Deaf (GNAD) specifically to assess the severity of deafness among its members in order to establish guidelines that determine the circumstances under which GNAD members may be eligible for driving privileges. Again, the DVLA collaborates with the Ghana Optometry Association (GOA) to recommend the vision level in one-eyed and low-vision PWDs. As such, GOA now performs eye tests for prospective drivers and uploads the results to DVLA directly to continue with the licensing process. Within the same trajectory, DVLA also engages the Ghana Medical Association to prescribe conditions or requirements needed to meet eligibility for driving. In this regard, they collaborate with these institutions so as to help them come up with benchmarks, standards, and policies that guide them in the determination of the eligibility of PWDs in the licensing of drivers and vehicles specified for use by all people, including persons with disabilities. A major outcome of these collaborative efforts is the “Policy for Training and Testing of Drivers with Disabilities”.

The MMTL, on their part, indicates that they have been in talks with the Ministry of Transport in a bid to bring in PWD-friendly buses and retrofit some of their existing fleets to meet PWD needs. Also, they had their foremost engagement with the PWDs in 2022, and from that forum, MMTL is considering a training module for their drivers and bus conductors on disability inclusion in transportation. A representative discloses the nature of buses at MMTL and future plans regarding disability-inclusive training:

As we speak, we have received some 45 buses from the Ministry of Transport to augment our fleet, but unfortunately, they came without consideration for PWDs. We are expecting the next batch of 55 buses to have these PWD-friendly features. We made that clear in the request to the Ministry. We also collaborated with the disability organisations at a maiden engagement with them. Plans are advanced to train our drivers and bus conductors on basic

sign language and interpretation to better assist PWDs who use our services

(A male representative, MMTL-Accra).

The NRSA, on its part, is in the process of developing a sensitisation framework for each group of vulnerable road users, encapsulating pedestrians, passengers, PWDs, children, and the aged. They plan to roll this out with the aid of the Ghana Education Service (GES) and utilise school environments as a central outreach point for these road users. The nationwide coverage of GES poses a great asset to be leveraged in this collaborative project. Also, NRSA partners with the Motor Traffic and Transport Department (MTTD) of the Ghana Police in safety education and enforcement. In line with NRSA's objective to reduce traffic crashes in the country, they collaborate with the Driver and Vehicle Licensing Authority, the Ghana National Fire Service and the National Ambulance Service to educate road users and ensure the roadworthiness of vehicles, to manage and prevent undesired fires that may emanate from road crashes and to provide pre-hospital emergency and medical care services that result from road crashes.

Regarding the Disability organisations, it was only the Ghana National Association of the Deaf (GNAD) that demonstrated collaboration with the DVLA to formulate the "Policy for Training and Testing of Drivers with Disabilities". Besides GNAD, there were no collaborations on the part of the other disability organisations in relation to inclusive transportation with other transport institutions for their members and the sensitisation of the general public. However, the disability organisations collaborate among themselves in seeking support from government and non-governmental agencies regarding assistive devices such as, wheelchairs and white canes. The V.I.P. Jeoun Transport Company, Intercity STC Coaches, Yango Ghana, and the G.P.R.T.U reported similar instances of non-collaboration on disability-inclusive transport. Within the rural-urban mix, most of the collaborations discussed were done predominantly within the urban centres, leaving the rural areas and peripheries lagging in this regard.

7.2.4 Infrastructure and Facilities

This section explores the planning, development and maintenance of physical structures, equipment and amenities that directly impact public transport accessibility of PWDs. This role relates to both government and non-governmental stakeholders on policy and service provision. From the government quarters, the MOT is in the process of developing standards for public transport vehicles. Since there has not been any standardised document guiding public transport operations, the MOT attempts to bridge this lacuna in a number of ways.

A senior management staff indicates:

What we do is that when we procure buses into the country, we make sure that these buses are disabled-people friendly and not necessarily follow laid-down accessibility standards. We are expecting to prepare these standards as soon as possible. Also, the government controls just about 5% of the public transport space, with the private sector having the largest share (95%). Hence, coming up with a policy must resonate well with the private sector heads, or else we cannot enforce it efficiently (A male representative, MOT-Accra).

Although the DVLA does not manufacture vehicles, it advocates for car manufacturers to put in some considerations for PWDs to serve them better than retrofitting, which may alter and temper the original design, engineering and safety standards of the vehicles. The NRSA, on its part, is in the process of developing safety standards for public transport vehicles, where, as part of the standards, there will be considerations for PWDs on board. MMTL, as an organisation, has demonstrated a commitment to providing inclusive transportation infrastructure for PWDs. As far back as 2006, their services began with the double-decker buses with special seats for PWDs behind the driver. These buses also had a low ground

clearance, enabling wheelchair users to board easily. An official of MMTL narrates the organisation's policy of reserving the first two seats behind the driver for PWDs and elderly passengers, emphasising the prioritisation of their needs for seating comfort and accessibility, although challenges persist. He recounts:

The main challenge is that our city-based fleet is being depleted and there are not as many as there ought to be to carry more of the vulnerable. At our terminals, we also use destination boards, with names of the communities the buses are moving towards, to help the deaf navigate. We also have some public addressing systems, and our conductors verbally announce the destinations and various stops to aid the visually impaired in knowing where they are going (A male representative, MMTL-Accra).

ISTC, on its part, went a notch above what the MOT and MMTL do by defining and designing their buses for the manufacturers to incorporate in the final output. The major ISTC terminals also make use of public addressing systems and destination tags on the buses to the benefit of PWDs. A senior official explains their approach to the design of buses and how inclusive their services are:

Before we procure any new fleet, we send specifications to manufacturers and inspect the manufacturing site to confirm adherence to these specifications. So, our head of technical and some managers of ISTC travel to Brazil, the headquarters of Marcopolo buses, to check all these. Within this process, considerations for PWDs are added, such as specialised seats, securement devices and the ability of the car to lower down to the ground level for wheelchair users to ride into. These buses also have public addressing systems coupled with digital screens to announce information in

the buses for passengers, which the visually and hearing-impaired benefit from (a male representative, ISTC-Accra).

The VIP Jeon Transport services also procure advanced fleets with features for PWDs. However, this is not deliberately requested but comes with the advanced fleet package. The GPRTU follows the trajectory of MMTL, ISTC, and VIP, where their bus terminals use public address systems that help them navigate. These are mostly found in major bus terminals in urban areas rather than rural ones. However, almost all their terminals have name tags showing origin destinations on wooden boards placed on the loading vehicles or printed and posted behind and in front of the vehicles. This practice is done in both urban and rural areas. The disability organisations, GFD, GBU, and GSPD, in their roles, liaise with organisations and donor agencies to provide them with assistive mobility equipment such as white canes, wheelchairs, crutches, prosthetic devices, and hearing aids, among others. Some organisations that provide these devices include the Danish Association of the Blind (DAB), the World Bank, and a U.S.-based organisation called the Free Wheelchair Mission.

Studies by Danso et al. (2019) showed that considerations for PWDs were not prioritised by the Ministry for Roads and Highways in the construction of the Sofoline Interchange Project in Kumasi. The Sofoline interchange, a crucial flyover, connects major towns within the Kumasi enclave, such as Abuakwa, Tanoso, Tech, and Kejetia. By this, a neglect of the transportation needs of PWDs in the construction of an essential transport infrastructure excludes PWDs from participating in mobility activities along these lines.

7.2.5 Training and Sensitisation

This role of stakeholders involved the level of educational and awareness-building efforts aimed at transportation staff, service providers, the general public, and persons with disabilities on inclusive transportation. This cuts across transport governance, disability governance, and

transport service providers. Regarding training for transportation staff, the transport service providers of MMTL and ISTC incorporate snippets of instructional education in their driving schools for the training of their professional drivers. These include, courtesy for older passengers and persons with disabilities, such as, assisting them to get on board, helping them to use the washrooms on board the buses with such facilities, and confirming their destination locations so they can alight at the right places. The ride-hailing company, Yango, does not have specific guidelines for drivers regarding managing passengers who may be PWDs. However, their policy is to treat all passengers with utmost respect and ensure that their drivers offer help and support to PWDs requesting their service. At the time of the interview, the DVLA did not have a manual on driver training, specifically on PWDs in transportation. However, the "Drivers and Vehicle Licensing Authority's (DVLA) Policy for Training and Testing of Drivers with Disabilities", launched in February 2023, is a great asset for PWDs who wish to acquire driving licenses. It is important to note that this training manual was not available to the public as of the end of 2023, which means that access to this training has been rather limited. The DVLA indicates that plans were far advanced in incorporating aspects of the general driver training program to include considerations for PWDs. A senior official at DVLA indicates:

What we do now at DVLA is to outsource the driver training to certified private driving schools dotted all over the country for new drivers to attend. This training is done with Ghana's Road Traffic (Amendment) Act 2020 (Act 1054) and the Road Traffic Act 2004 (Act 683). The Road Traffic (Amendment) Act 2008 (Act 761) and The Road Traffic Regulations, 2012 (L.I.2180). These laws collectively form the legal framework for road traffic management in Ghana, addressing issues related to road safety, driver conduct, and traffic violations. So, once we add that aspect for PWDs, it will be incorporated at all driver training schools (DVLA-Accra).

The disability organisations, on their part, occasionally do their internal sensitisation of members regarding safe transport. The NRSA embarks on its road safety for all outreach and sensitisation drives without specifically targeting inclusive transport safety for PWDs. The Ministry of Transport, in the lead-up to the finalisation of the National Transport Policy Document, met the key transport stakeholders to discuss efficient policies and management of the country's transport sector. In this regard, there were no specific training or sensitisation drives on inclusive transportation for PWDs. From this theme, there is a generally low level of sensitisation directed toward the general public and PWDs education on accessible and inclusive transport. Most of these training and sensitisation drives have been focused on urban areas rather than rural areas, which places public transport drivers and commuters in rural areas a bit handicapped in inclusive transport education.

7.3 Stakeholders' Challenges

The quest for equitable access and inclusion in public transportation for PWDs in Ghana is an essential goal for all transport and disability stakeholders. In this regard, there is a need to ensure that the transportation needs of PWDs are not only recognised but also effectively met to enable them to take part actively in socioeconomic activities and live their full potential. In examining stakeholder mandates, several challenges were revealed, which hindered the effective execution of their designated roles towards accessible transport for PWDs. These hurdles include inadequate funding, the absence of inclusive policies and regulations, and the crucial need for awareness and sensitisation among stakeholders and the broader public.

7.3.1 Funding Constraints

A major barrier to carrying out the roles of stakeholders was that of funding. This cuts across all three major stakeholder sectors. Transport governance institutions such as DVLA, MOT, NRSA, and MTTD indicated limited funding to explore fully and provide the needed regulatory

education, policy formulation, dissemination, and enforcement. The provision of accessible infrastructure was also a challenge as it required some special inputs and accessibility infrastructure around transport vehicles and transport terminals, as well as the road infrastructure as a whole. Similarly, the transport service providers required more of the vehicles with disability considerations. These configurations could be included at the manufacturing or post-manufacturing stages as a retrofitted alternative, all at some cost to the transport service provider. The disability institutions relied heavily on funds to provide assistive devices for their members to aid them in their mobility journeys. Hence, in the absence or reduction in the inflow of funding, these devices may not be procured, nor the existing ones repaired for use by PWDs, which limits their mobility potential. It is noteworthy to state that although funding is very limited on all fronts, there is this overreliance on external funding sources other than innovative sources of funding or internally generated funds to spearhead inclusive and accessible transport infrastructure and education. Previous studies have buttressed the bane that financial constraints play in inclusive transport goals. Earlier studies by Roberts et al. (2004) and Venter et al. (2003) indicate how inadequate funding and the lack of it in developing countries work against meeting disability-friendly transport infrastructure standards. Other studies, such as, Bjerkan & Øvstedal (2020) and Deng et al. (2016), suggest that the financial capacity of transport stakeholders and governments hinders the implementation of measures to improve public transport for all and satisfy the needs of PWDs. They highlight the essential role of funding in addressing the infrastructural and financial barriers to achieving socially inclusive public transport.

7.3.2 Inadequate Policies and Regulations

A greater number of the regulatory frameworks do not have specific provisions for accessibility, which hinders the compliance initiatives and drives. As such, stakeholders struggle to enforce accessibility standards and guidelines effectively. Currently, it is only the

"Drivers and Vehicle Licensing Authority's (DVLA) Policy for Training and Testing of Drivers with Disabilities" that is a complete document stating the specific guidelines for PWDs in acquiring a driving license. Besides this document, which was not available to the public at the time of this research, there is no standard document on vehicle specifications for public transport. The commitment of the stakeholders in this regard has rather been lacklustre. Prior research has demonstrated that the lack of requisite policy and the inefficient implementation of existing guidelines in African countries leads to social isolation and reduced trip-making for PWDs (Vanderschuren & Nnene, 2021) and constrained mobility for women with disabilities in Southeast Asian countries (Sil et al., 2023).

7.3.3 Awareness and Sensitisation

Sensitisation drives have also not been fully explored, and this is partly due to funding constraints. In view of this, rural and remote areas suffer from participation as most of the reach of these awareness campaigns will be centred around the cities and urban areas. Also, ensuring the appropriate training for transport operators to assist PWDs and using accessible equipment training was challenging. Resources for skilled personnel to organise, lead, and demonstrate with assistive devices during these training sessions are limited, hence, the low level of knowledge and capacity of transport operators on mobility options for PWDs. In this same vein, the attitudes and behaviours of staff and the general public towards PWDs were a persistent challenge. Prejudiced and negative attitudes of the general public toward PWDs work against inclusion and the provision of adequate assistance for PWDs on public transport services. From a legislative standpoint, the general commentary on accessibility of the UNCRPD makes a clarion call for awareness creation among the transportation and disability stakeholders to improve understanding of the existing needs and promote inclusion for all (United Nations, 2014).

7.3.4 Coordination and Collaboration

Due to the various priorities and goals of these organisations, their coordinated goals are not aligned collectively. Due to this, a situation occurs where the NRSA embarks on road safety sensitisation in a peri-urban area to manage the spate of road accidents, but the disability organisations are not informed nor well-resourced to join in to maximise the effect of the sensitisation program. Such a platform will be a good one for incorporating the issue of PWDs and the inclusion criteria for the general public and PWDs in the selected areas.

7.3.5 Infrastructure Barriers

Finally, the infrastructure challenges in both urban and rural areas generally do not reflect considerations of PWDs. The lack of disability-friendly infrastructure for people with disabilities has been reported as a major barrier to creating an accessible environment (Timakova & Iliukhina, 2022). Also, inadequate pedestrian infrastructure and universal design facilities on major roads have been documented to restrict the mobility of PWDs further, leading to their exclusion from the transport environments (Nwachi et al., 2023). These findings coalesce to emphasise the importance of addressing infrastructure barriers to ensure inclusive transport for all individuals.

7.4 Stakeholder Roles, Life Course Theory and the Critical Disability Theory in Transport Inclusivity

In the realm of accessible transportation for persons with disabilities (PWDs) in Ghana, the successful execution of stakeholder roles in this study is explained by the Life Course Theory and the Critical Disability Theory. These theoretical perspectives provide essential insights into how stakeholders engage with the evolving needs of PWDs and the societal dynamics that shape accessible transport. The study, thus, delves into how these theories guide and inform the actions and challenges faced by stakeholders, shedding light on the path toward a more inclusive and equitable transportation landscape for PWDs in Ghana's urban and rural areas.

Understanding the Life Course of PWDs: In the context of accessible transportation, the Life Course Theory recognises that PWDs' needs evolve over time. Children, working-age adults, and seniors with disabilities all have distinct transportation requirements. As such, stakeholders' adaptation of policies and services accordingly to cater to PWDs within these different life stages, as their needs differ at each life course stage, is imperative. From the findings of this study, stakeholders have not done enough to provide accessible transport for these various categories of PWD commuters. There has not been specific intervention for aged persons, women and men, the youth, and children with disabilities when it comes to public transport use and accessibility in Ghana. As a result, the understanding of PWDs' life course in relation to transportation needs remains vague.

Anticipating Critical Transitions and Planning: The need to anticipate critical life transitions for PWDs, such as, transitions from school to work or from independent living to assisted living, is a key aspect of the LCT. In this regard, stakeholder abilities to pre-empt these transitions to ensure that accessible transportation services are available and well-coordinated to provide the necessary support that may be needed for transition are necessary for inclusive transport service provision. From the findings, in anticipating the need for PWDs to travel independently, the DVLA, out of the major stakeholders, has come out with a policy that will enable PWDs to get licensed to drive vehicles to facilitate their various engagements. This initiative ties in with proactive planning and is necessary for PWDs who may be transitioning into the world of work and, as such, may require regular transport to and from their work locations.

Recognising the Social Model of Disability: Applying the Critical Disability Theory's key element to the social model of disability, the study reveals that disability is not solely a result of an individual's impairment but is also influenced by societal barriers and attitudes. The findings suggest that accessible and inaccessible transportation systems are partly a result of

societal norms and infrastructural shortcomings. The attitudes of transport operators in terms of helping PWDs get on board and disembark their vehicles, giving PWDs full or partial fare waivers on the service, and reserving seats for PWDs constitute the progressive social norms surrounding accessibility of transport services for PWDs. When these positive actions are exhibited within the transport system, they promote and enhance the mobility potential of PWDs, other than the negative connotations that inhibit their potential. Consequently, it becomes essential for stakeholders to acknowledge the role of societal factors in shaping transportation accessibility for PWDs.

The Approach Based on Rights: Drawing from the Critical Disability Theory (CDT), the study emphasises the importance of recognising the rights of Persons with Disabilities (PWDs) to fully participate in society, particularly, in the context of accessible transportation. This theoretical framework underscores the need for stakeholders to adopt a rights-based approach, advocating for and implementing policies and legislation that ensure the rights of PWDs to accessible transportation. A notable application of this approach is evident in the DVLA's policy on the 'Training and Testing of Drivers with Disabilities.' This policy showcases the practical implementation of a rights-based perspective within the realm of accessible transportation. By examining such instances, the study sheds light on the potential impact of incorporating a rights-based approach into policies related to PWDs. This perspective offers valuable insights into the intersection of theoretical frameworks and the practical implications for promoting the rights of PWDs in the realm of transportation.

Transformative Policies: Transformative policies aim to bring about systemic change by challenging and transforming existing structures and practices. From the findings, stakeholders have contributed to this transformation by advocating for policy reforms that prioritise accessibility and inclusivity in transportation planning and development. The ongoing review of the PWD ACT 715 (2006) by the disability organisations and other key stakeholders to

reflect current challenges and concerns is commendable. However, the findings illuminate aspects where major stakeholders might face challenges in asserting transformative roles. This observation invites a nuanced exploration of the dynamics between theoretical expectations and practical realities within the transportation sector. Additionally, the study underscores the importance of exploring innovative solutions that surpass conventional accessibility standards, fostering an environment conducive to true inclusivity. By delving into these insights, the study navigates the intersection of transformative policies and the intricate landscape of practical considerations within the transportation sector.

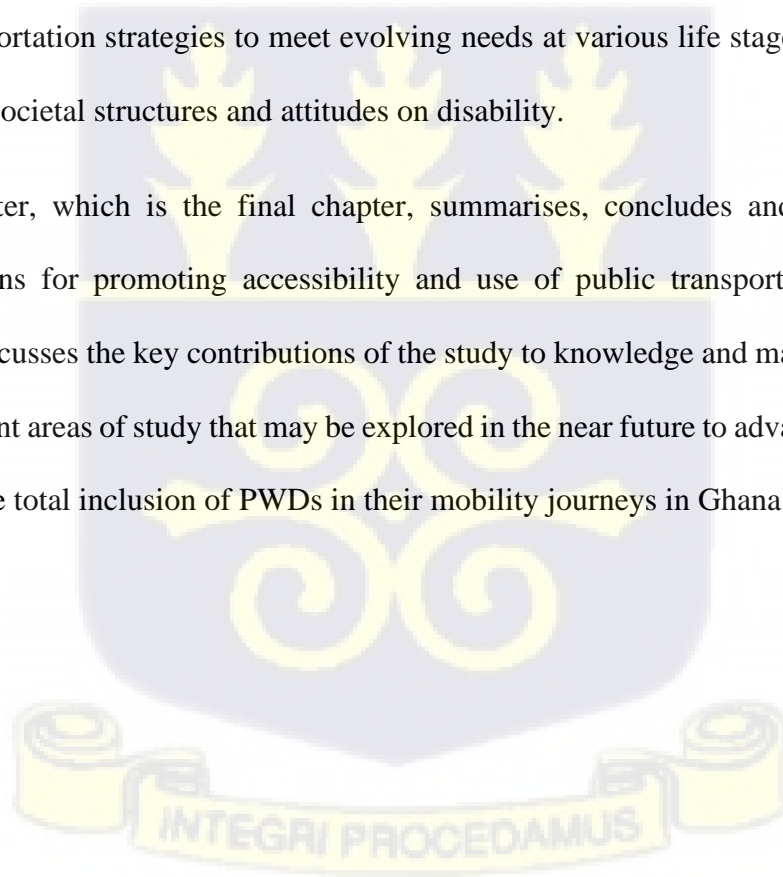
In conclusion, the application of the Life Course Theory highlights the necessity of adapting transportation strategies to meet the evolving needs of Persons with Disabilities (PWDs) across different life stages. Similarly, the Critical Disability Theory emphasises the impact of societal structures and attitudes on disability, urging stakeholders to critically assess and address these factors towards social inclusion in transportation planning. Integrating these theories into stakeholder roles and initiatives offers a valuable framework for understanding the complex interplay between individual needs, societal structures, and the quest for more accessible and inclusive transportation systems for PWDs in Ghana.

7.5 Chapter Summary

This chapter discussed the findings from stakeholders' roles in the provision of accessible transportation for PWDs. The study engaged stakeholders from three major sectors of interest: Transport governance, Transport service providers, and the Disability governance sectors. An overview of the major roles of these stakeholders was presented to put into context the mandates of stakeholders vis a vis their activities on the ground. The study, thus, revealed five major roles that the stakeholders who were included in the study played and the extent to which they facilitated the mobility of PWDs. These roles centred on themes of Awareness and Knowledge, Policy and Regulation, Collaboration and Coordination, Infrastructure and

Facilities, Training and Sensitisation. Although there was some commitment on the part of stakeholders in the execution of their roles in providing accessible transportation for PWDs, these efforts were below expectations. Most stakeholders were hopeful of committing more focus, resources, and attention to futuristic considerations of PWDs in transport. Worthy of note is the DVLA's Policy for Training and Testing of Drivers with Disabilities, a policy document that sets the pace in this endeavour. On the other hand, the execution of stakeholder roles faced various challenges, with funding emerging as the indispensable limiting factor. Embedded in other barriers were the absence of inclusive policies and regulations and the crucial need for awareness and sensitisation among stakeholders and the broader public. Theoretically, the Life Course Theory and the Critical Disability Theory both emphasise adapting transportation strategies to meet evolving needs at various life stages for PWDs and the impacts of societal structures and attitudes on disability.

The next chapter, which is the final chapter, summarises, concludes and provides some recommendations for promoting accessibility and use of public transport by PWDs. The chapter also discusses the key contributions of the study to knowledge and makes propositions towards pertinent areas of study that may be explored in the near future to advance and enhance the quest for the total inclusion of PWDs in their mobility journeys in Ghana and beyond.



CHAPTER EIGHT

SUMMARY OF KEY FINDINGS, CONCLUSIONS AND POLICY IMPLICATIONS

8.0 Introduction

The study has examined the accessibility and use of public transport services by persons with disabilities (PWDs) in Ghana's Greater Accra and Ashanti Regions. The study sought to contribute to existing scholarship on access to transport by PWDs by analysing perspectives from a spatial context. As such, the two administrative regions of Ghana were purposively selected to provide an urban and rural narrative of the experiences of PWDs, transport operators, users and stakeholders, a phenomenon lacking in existing literature. In doing this, the study has given an overview of the various transport services available to PWDs in these two regions coupled with the reasons PWDs attach to utilising them. The study expands the current understanding of the coping strategies of PWDs in using public transport services, highlighting their agency and other support avenues along their mobility journeys. It further elaborates on the knowledge of transport operators and users on mobility options of PWDs as a key indicator to inclusive and accessible transport for all. The study brings to the fore how relevant stakeholders in the transport and disability milieu provide accessible transport for PWDs.

The research objectives were achieved through a sequential exploratory mixed methods design involving qualitative and quantitative methods. The qualitative research comprised a total of 54 in-depth interviews, where 42 were with PWDs from both regions and 12 were with selected transport and disability stakeholders. The quantitative research entailed a total of 400 questionnaire-based surveys, where 200 were administered to public transport operators and

the remaining 200 were administered to public transport users in both Greater Accra and Ashanti Regions.

Secondary data sources on disability, transport, inclusive transport, and livelihoods from national policy documents and legal instruments were considered valuable in achieving the research objectives. The Life Course Theory and the Critical Disability Theory were adopted to ground the study by providing a theoretical framework that guided the design and methodology and helped to understand and explain how PWDs access and use public transport. These theories also provided a basis for data analysis and interpretation. This has shown that PWDs' experiences from various sociodemographic characteristics, although differing at many times, converge in some ways in their quest for mobility.

This chapter consolidates the key study findings and highlights empirical and conceptual contributions. This concluding chapter is divided into nine sections addressing the research questions, recommendations and possibilities for further research. Section 8.1 presents the contributions of the study to the current understanding of the mobility options of PWDs and the various reasons behind such options. Section 8.2 highlights how the study has enhanced understanding of the coping strategies adopted by PWDs in accessing and using public transport in urban and rural Ghana. Section 8.3 sheds light on the knowledge levels of transport operators and users regarding the mobility options of PWDs. Section 8.4 outlines the role of stakeholders in providing accessible transport for PWDs. Section 8.5 provides the overall conclusions of the study based on the findings. Section 8.6 discusses the study's key policy recommendations. Section 8.7 summarises the study's main contributions to knowledge. Finally, Section 8.8 presents the potential areas for future studies within the context of transport and disability, and Section 8.9 provides a concluding statement of the study.

8.1 Public Transport Options for PWDs in Ghana

Knowledge about the public transport mobility options for PWDs in Ghana is crucial for advancing inclusivity, promoting social equity and improving the overall quality of life of PWDs. Consequently, transport mode choice has been an essential part of all persons' travel behaviour, including PWDs. This study, thus, fills a significant gap by discovering the major and minor public transport options available for PWDs in rural and urban Ghana. Again, the study ties the various reasons PWDs choose any of these transport modes to their rural and urban setting in a bid to provide a full picture of accessibility, utility, and the overall travel behaviour of PWDs in Ghana. The study discovers that transport options with lower occupancy capacities, such as, ride-hailing taxis, traditional taxis and Okada, as well as high occupancy vehicles like the STC, VIP, and MMTL services, were more available and accessible to PWDs in the urban areas of Greater Accra Region than the rural areas of the Ashanti Region. In the Ashanti Region, available modes were dominated by the Pragma, Okada and trotro. The nature of these transport modes in urban and rural Ghana illustrates the spatio-temporal features of mobility that PWDs experience in their quest to reach services and opportunities. The findings show that men with disabilities had more transport options available to them than women. However, the women tend to be more mobile than the men as almost all the women with disabilities engaged in some form of economic activity, while the men were unable to keep up with such economic activities. The study also establishes the various reasons PWDs attach to making these transport mode choices. The reasons for mode choice related to the nature of the disability, the average cost of a trip, the purpose/destination of the trip, the duration/distance of the trip, the timeliness of the mode, the occupancy status of the mode, and the ergonomic factors of the transport mode. These seven categories of determinants further explain the travel behaviour of PWDs. The study presents these in context, where PWDs with advanced age, higher education level, employed, married, or with severe disabilities tend to opt for a safer

and comfortable transport mode over the others. These decisions are also influenced by the mode of transport used by the household, where they obtain support and assistance. The study also presents findings that expand knowledge on alternative transport modes for PWDS, where PWDS revert to other transport modes to gain mobility potential in the absence of regular transport modes.

The two major theories employed in this study proffer explanations that clarify the behaviour of PWDS in their quest for access and use of public transport services. The Life Course Theory advances knowledge in modal choice by explaining the dependence of PWDS of varied ages, educational levels, occupations and marital status on peculiar transport modes that respond best to their needs. As such, the Life Course Theory expands understanding by proving that mode choice for PWDS is not fixed but evolves over time, influenced by life events, changing needs, and shifting priorities. The Critical Disability Theory also explains the complex interactions between PWDS, the public transport system and the social environment. By this understanding, lower occupancy vehicles, vehicles with low floor heights, and convenient seating were preferred over the others due to their level of accessibility. For this reason, the CDT provides insights as mode choice for public transport for PWDS extends beyond personal preferences and is intricately connected to larger societal frameworks, power relationships, and discriminatory practices. Drawing on participants' narratives, this study emphasises the whole concept of utility, usability, accessibility, and power, as well as how they shape the public transport experiences of PWDS.

8.2 Coping Strategies of PWDS in Using Public Transport Services

The study explored the strategies, mechanisms and techniques adopted by PWDS in navigating their mobility journeys via public transport. Five main coping strategies were identified and discussed based on the individual PWD needs and abilities vis a vis the peculiar barriers they faced. These strategies covered planning and preparation, onboarding and disembarking,

assistance and support, personal mobility aids, and the use of alternative transport modes. Trip planning and preparation were done more carefully among PWDs in the urban area than their rural counterparts. Onboarding and disembarking vehicle strategies cut across both the urban and the rural divide. However, a notable intervention of an entrance device to aid PWDs board vehicles at a rural transport terminal provided a glimmer of hope of a possible inclusive transport system from the doors of the transport service providers. Support and assistance that PWDs receive as a coping strategy play a key role in breaking the physical and social barriers and driving them towards more inclusive transport environments. In the context of this coping strategy, it became evident that women with disabilities received greater support and assistance compared to their male counterparts. This support included financial aid, waived transport fares, and assistance during boarding and disembarking from vehicles. Personal mobility aids of PWDs offered them the opportunity to move around more independently and overcome mobility barriers entrenched in the transport system. Relying on alternative transport modes other than their primary modes in unusual times made it possible for PWDs to reach various activities and opportunities despite the looming challenges.

The study findings contribute to the broader discussion on environment and agency, where, although the existing transport system coupled with its infrastructure and governance may not seem conducive towards PWDs, the agency of PWDs comes up with strategies to surmount these barriers and ensure mobility. This shoves off the deterministic characteristic of the public transport system while critically exposing areas for improvement through the various coping strategies PWDs adopt. The Life Course Theory explains that early exposure to these coping strategies by PWDs leads to greater independence and inclusion later in life as they cope better as the years go by. The Critical Disability Theory underscores the need for advocacy and assertiveness of PWDs to ensure that all PWDs have consistent access to transportation services in terms of affordability and physical accessibility.

8.3 Knowledge of Public Transport Operators and Users on PWDs Mobility Options

The study contributes to a deeper understanding of the factors that shape transport operators' and users' knowledge of transportation options for PWDs. Drawn from a quantitative survey, the indicators aligned with the PWD Act 715 (2006) sub-section 23-30. These sections pertain to the rights of people with disabilities concerning pedestrian access, public parking facilities, seat reservations on public transportation, and the issuance of driving licenses for individuals with disabilities. The findings show that most public transport operators know the requirement for drivers to stop for PWDs to cross the road at zebra crossings and other designated stopping points. Additionally, these operators understand that PWDs have the right to access all public services and locations in Ghana. However, a considerable number of public transport operators are unaware that people with hearing disabilities have the right to obtain driver's licenses in Ghana. Moreover, many public transport operators lack knowledge regarding the obligation for public transport vehicles to reserve seats for PWDs at all times, except when no PWDs are boarding the vehicle.

Furthermore, a significant portion of public transport operators are uninformed about the requirement for public parking facilities to have clearly demarcated areas exclusively designated for persons with disabilities. On another tangent, sociodemographic factors such as education level, marital status, income level, and years of working other than the age of transport operators influenced the knowledge level of mobility options for PWDs. Although these predictors of knowledge level were positive, they showed a generally lower knowledge level of mobility options for PWDs on the part of public transport operators.

For public transport users, the findings indicate overwhelmingly that vehicles stopping for PWDs to cross the roads at zebra crossings and other designated stops are a non-negotiable duty of drivers and a right of PWDs to be respected at all times. Also, the majority of commuters were aware of the reservation of seats for PWDs on commercial vehicles prior to

take-off. Unlike public transport operators, a significant number of passengers know that public places for parking vehicles must have a clearly demarcated area for the exclusive use of persons with disabilities. Finally, a clear consensus of passengers did not know nor agreed that persons with hearing impairment and other forms of disabilities had the right to be licensed drivers in Ghana after meeting the requirements set by the DVLA. In examining knowledge of transport mobility options for persons with disabilities, no statistically significant differences were observed between male and female participants. Furthermore, the findings showed that sociodemographic characteristics such as, age, the highest level of education, marital status and employment status, other than sex and religion had a statistically significant association with knowledge of PWDs in transport among public transport users. In comparison, it was evident that the commuters were slightly more knowledgeable of mobility options for PWDs than the transport operators, although, these levels of knowledge needed improvement.

The Life Course Theory has highlighted how individual experiences, life transitions, and socioeconomic factors shape the knowledge levels of both transport operators and users. It emphasises the ever-changing nature of life events and their role in shaping awareness, underscoring the pivotal role of historical and personal contexts in influencing perspectives on disability rights and accessibility in the transport system. On the other hand, the Critical Disability Theory explains and offers a critical lens through which knowledge and knowledge gaps are perceived among transport operators and users. It underscores that disability is not a reflection of personal inadequacies but rather a product of societal obstacles and biases, making it imperative to adopt transformative policies and engage in advocacy to promote awareness, inclusivity, and the inherent rights of individuals with disabilities.

8.4 Stakeholder Roles in the Provision of Accessible Transport for PWDs

Knowledge of stakeholders' roles is essential for achieving the overall goal of inclusivity and accessibility in the transportation environment. This goes a long way in informing policy,

advocacy, collaboration, and resource allocation, ultimately leading to a more equitable and accessible transport network. The study findings indicate that stakeholders from the transport governance, disability governance, and the transport service provider front undertake five major roles in facilitating the mobility of PWDs in Ghana. These roles are predominantly about Awareness and Knowledge, Policy and Regulation, Collaboration and Coordination, Infrastructure and Facilities, and Training and Sensitisation. Among these roles, the transport governance agencies such as, the Ministry of Transport (MOT), the Driver and Vehicle Licensing Authority (DVLA), the Motor Traffic and Transport Department (MTTD) and the National Road Safety Authority (NRSA) were in a position to ensure the provision of accessible transport for PWDs. However, this was not fully realised on their part.

Nonetheless, the revised 2020 National Transport Policy by the Ministry of Transport and the 2023 "Drivers and Vehicle Licensing Authority's (DVLA) Policy for Training and Testing of Drivers with Disabilities" were key highlights that spurred commitment to their goals. The disability organisations included the Ghana Federation of Disability Organisations (GFD), the Ghana Blind Union (GBU) and the Ghana Society for the Physically Disabled (GSPD), who, on their part, liaised with the transport governance and transport service providers when called upon, to advance the inclusion and accessibility of transport mobility for PWDs. They also liaise with organisations and donor agencies to provide their members with assistive mobility equipment such as, white canes, wheelchairs, crutches, prosthetic devices, and hearing aids. The transport service providers such as, the Metro Mass Transit Limited (MMTL), the Intercity STC Coaches (ISTC), the V.I.P Jeon Transport Service, the Ghana Private Road Transport Union (G.P.R.T.U.) incorporate some consideration for PWDs on their service, although these considerations are inadequate and in some instances an afterthought. Some of their fleet of vehicles have components of disability-inclusive features such as, the ability to lower down to receive wheelchair users, specialised seats for PWDs and handrails. Also, the terminals of the

transport service providers adopted some disability-inclusive practices like public addressing systems and destination boards/tags to provide information in rural and urban areas. The study reports major constraints to the discharge of the requisite roles of stakeholders, of which funding was an overarching concern. Funding limitations led to reduced sensitisation and awareness, and drove and hampered the acquisition and distribution of mobility assistive devices for PWDs. It also led to low enforcement of policy and other regulatory conventions around the provision of accessible transportation.

The Life Course Theory (LCT) and the Critical Disability Theory adopted help to make sense of the study's findings to draw conclusions therein. Within the Life Course Theory framework, it is acknowledged that the demands for transportation among people with disabilities undergo transformations as they progress through diverse life phases. These shifts are evident among children, working-age adults, and seniors with disabilities, all of whom present particular transportation prerequisites. Thus, it is incumbent upon stakeholders to tailor their policies and services to suit these varying life stages and attend to the individualised needs of people with disabilities at different junctures in their lives. The Critical Disability Theory (CDT), on the other hand, explains the role of stakeholders in advocating for accessible infrastructure and services that address societal barriers and not just individual impairments. Moreover, championing awareness efforts designed to reshape public views and sentiments regarding individuals with disabilities (PWDs) and accessible transportation while redirecting the emphasis from "fixing" the individual to eradicating societal hindrances obstructing their involvement will establish an inclusive transportation environment for PWDs.

8.5 Conclusions of the Study

This study sought to explore the accessibility and use of public transport services by persons with visual and physical disabilities in the Greater Accra and Ashanti Regions of Ghana. The research objectives and questions guided this journey to delve into various dimensions of this

multifaceted issue, and the culmination of the findings presents a profound understanding of the challenges and opportunities that exist within this domain. The following conclusions are arrived at based on the discussions of the findings.

Regarding the first objective, this study uncovered the diverse array of public transport mobility options available to persons with disabilities in Ghana's urban and rural areas. Notably, the study findings reveal disparities in accessibility between these regions, with a prevalence of accessible transport options in urban centres compared to their rural counterparts. These disparities in available modes have unveiled the complex spatio-temporal features of mobility experienced by PWDs in their quest to access essential services and opportunities. Also, the gender disparity shows that men with disabilities possess greater access to diverse transport options, yet women exhibit heightened mobility. This discrepancy is attributed to the active involvement of women in economic activities, underscoring the critical significance of integrating gender-specific considerations in strategies aimed at improving transportation accessibility for individuals with disabilities. Furthermore, the study delved into the rationale behind the transport mode choices made by PWDs, revealing seven categories of determinants. These determinants, influenced by factors such as, the nature of the disability, trip cost, purpose, duration, timeliness, occupancy, and ergonomic features of transport modes, provided valuable insights into the intricate dynamics of travel behaviour among PWDs. It was observed that age, education level, employment status, marital status, and the presence of severe disabilities played pivotal roles in influencing these mode choices, thus, emphasising the evolving nature of mode selection across the life course.

In relation to the second objective, the study's exploration of the coping strategies adopted by PWDs in navigating their mobility journeys within the public transport system uncovered five main coping strategies. These strategies ranged from careful trip planning and preparation to onboard and disembarking techniques, assistance and support, the use of personal mobility aids,

and the utilisation of alternative transport modes. Women with disabilities were found to receive greater support in coping strategies compared to men, reinforcing the gender-specific differences in their mobility experiences. These strategies, tailored to individual needs and abilities, enabled PWDs to overcome various barriers and challenges presented by the transport environment. They underscored the pivotal role of agency in ensuring mobility, making up for a shortcoming of the Life Course Theory, challenging the deterministic characteristics of the public transport system, and shedding light on areas for potential improvement. Moreover, this study revealed that early exposure to these coping strategies among PWDs led to greater independence and inclusion in later life, reinforcing the significance of life course dynamics in shaping mobility experiences.

With respect to the third objective, the study's only quantitative aspect was executed via a questionnaire survey to gain insights into the knowledge levels of public transport operators and users concerning transportation options and needs for PWDs. The findings highlighted areas of alignment with the PWD Act 715 (2006) and identified knowledge gaps. While a significant majority of public transport operators demonstrated awareness of certain provisions, there were notable gaps in their knowledge, particularly, regarding the rights of people with hearing and other forms of disabilities. Conversely, public transport users exhibited a strong understanding of certain provisions, such as, stopping for PWDs at designated points and reserving seats on vehicles. Beyond sex and religion, sociodemographic factors such as age, the highest level of education, marital status, and employment status were strongly linked to knowledge of PWDs in the realm of transportation among public transport users. However, knowledge gaps were evident concerning the rights of individuals with hearing and other impairments to obtain driver's licenses. Higher knowledge levels ensured greater inclusion. In the context of disability advocacy, the famous quote by Sir Francis Bacon, "Knowledge is Power", will serve as a rallying cry, inspiring individuals and organisations to equip themselves

with the knowledge necessary to drive change, break down barriers, and promote the full inclusion and participation of people with disabilities in society.

Findings from the study's fourth objective comprehensively examined the roles of stakeholders in facilitating the mobility of PWDs in Ghana. Five major roles encompassing Awareness and Knowledge, Policy and Regulation, Collaboration and Coordination, Infrastructure and Facilities, and Training and Sensitisation were identified among Transport governance, Disability governance and the Transport service provider stakeholders. The study proves that transport governance agencies and disability organisations played key roles in advocating for and providing support to PWDs, albeit inadequately. Transport service providers, on their part, made efforts to incorporate some disability-inclusive features in their limited and compatible services. In executing their roles, funding emerged as a critical challenge, hampering the full realisation of stakeholders' responsibilities. The study underscored the need for increased funding to enhance awareness, sensitisation, and the acquisition and distribution of mobility assistive devices for PWDs.

The Life Course Theory and the Critical Disability Theory provided a valuable lens through which to understand the findings. The Life Course Theory highlighted the evolving transportation demands of people with disabilities as they progress through different life stages, emphasising the need for tailored policies and services. The critical disability theory underscored the role of advocacy and transformative policies in addressing societal barriers (structures) and promoting inclusivity.

The study findings have provided valuable insights into the experiences of persons with disabilities (PWDs) in accessing and using public transport, confirming the research propositions outlined at the beginning of the study. First, the investigation revealed significant disparities in transport accessibility and utilisation between rural and urban areas, affirming the

proposition that the experiences of PWDs vary across different geographical contexts. Second, the study identified distinct patterns in transport experiences based on various life courses and demographic characteristics, supporting the proposition that factors such as age, employment status, and education level significantly influence PWDs' access to and use of public transport. This study, thus, underscores the importance of recognising and addressing the diverse needs and experiences of PWDs in the realm of public transport, ultimately striving towards a more inclusive and equitable society for all.

8.6 Recommendations and Policy Implications of the Study

Building on the research findings, some critical recommendations and associated policy implications emerge. These recommendations are crafted to address the multifaceted challenges faced by PWDs in their quest for equitable and inclusive access to public transportation. The recommendations are presented with an accompanying rationale, outlining why the proposed measure is of paramount importance in promoting inclusivity and enhancing the quality of life for PWDs. Moreover, a delineation of the implementing institutions responsible for taking action is proffered to highlight the policy implications necessary to facilitate the successful execution of these recommendations. Furthermore, the recommendations are presented in a prioritised sequence of implementation, where each is built on a solid and coherent foundation, making them more practical to be put into action to benefit from the expected actionable results.

8.6.1 Awareness, Sensitisation and Training

The study has demonstrated that requisite awareness and knowledge of the rights of PWDs among transport users, transport service providers, transport operators, and PWDs is limited. As such, the behaviour of these individuals and stakeholders based on their knowledge goes a long way in excluding and discriminating against PWDs when it comes to their accessibility and use of public transport services in rural and urban parts of Ghana. In view of this, the study

recommends a nationwide public awareness campaign targeting both transport operators and the general public. By this, sections 23-30 of the Disability Act, Articles 9 and 20 of the UNCRPD, which make various provisions on accessibility and transportation for PWDs, will be made known to all persons. This could be championed by the Ministry of Local Government's district assemblies to cover the urban and rural areas alike where previous sensitisation efforts have not reached. This could be done through roadshows, workshops, and print and digital media platforms. This action must be implemented by both government and non-government organisations such as, the National Council on Persons with Disabilities (NCPD), the Ghana Federation of Disability Organisations (GFD) and its subsidiaries, the media outlets and the Civil Society Organisations (CSOs). Regarding training, transport service providers (MMT, ISTC, GPRTU with GFD) must include specialised training for their operators, while DVLA incorporates this into the licensing, registration and renewal process for operators (This is currently non-existent). When this action is executed, it will help bridge the knowledge gap, reduce stigma, and ensure that the general public, transport operators, users and stakeholders make room for inclusivity, respect equality and social justice for PWDs in transportation.

8.6.2 Advocacy, Empowerment and Policy

The study has also shown that the effectiveness of advocacy initiatives among the general public and the disability community is constrained. Therefore, the need to follow a multifaceted approach involving various stakeholders, organisations and strategies to increase advocacy and empowerment is imperative. The study recommends the provision of requisite training and resources to the disability community to strengthen their capacity for advocacy strategies, legal rights and policy engagement. Empowering the stakeholders with practical advocacy skills and resources allows them to effectively represent PWDs, especially, in their mobility journeys. Also, this affords them the capacity to promote policies that support the disabled community

in their advocacy efforts and encourage their active involvement in policy development and implementation. By this, the aspects of the 2020 National Transport Policy, the 2023 Drivers and Vehicle Licensing Authority's (DVLA) Policy for Training and Testing of Drivers with Disabilities, among other relevant policies, would be actively advocated for, in terms of their monitoring, transparency and accountability of duty bearers in implementation. This could be championed by disability organisations such as, the GFD and its subsidiaries, the Ministry of Transport, the Driver and Vehicle Licensing Authority, Motor Traffic and the National Road Safety Authority. When this is done, existing policies are promoted, possibly amended to reflect new challenges and finally implemented to the latter to ensure that PWDs enjoy a safe, inclusive and accessible public transport system.

8.6.3 Inclusive Transport Service Provision

The study finds that most transport service providers lack inclusive transport features and facilities in their vehicles, terminals, and other transport-related spaces, subjecting PWDs to various barriers and discrimination in their public transport mobility journeys. In this regard, the study calls for the development and enforcement of Accessibility Standards. Relevant stakeholders, such as the MOT, MORH, DVLA & GFD, should work with the Ghana Standards Authority (GSA) to develop national and regional accessibility standards for public transport vehicles, terminals and transport infrastructure. Also, the transport service providers must make available basic inclusive devices that will enhance the accessibility features in their vehicles and terminals to ensure that PWDs can access and use public transportation without difficulty. These basic features include, ramps for high-floor vehicles, and lifts at the entrance of vehicles, priority seating, fold-down seats, handrails and handholds, audiovisual systems, assistance request buttons, braille and tactile markings, accessible ticketing and fare payment systems, wheelchair securement systems and accessible restrooms. The case of the makeshift device placed at the entrance of buses at Mankranso in the Ahafo Ano South-West District of the

Ashanti Region is an inspiration and an indication of the value of little efforts towards bridging the exclusionary gap that PWDs are faced with in transportation. To fit both rural and urban contexts, these features and devices may be modified to reflect the environment and provide the necessary accessibility to PWDs. This action could be spearheaded by the various transport service providers: Metro Mass Transit Limited (MMTL), Intercity STC Coaches (ISTC), V.I.P Jeoun Transport Service, members of the Ghana Private Road Transport Union (GPRTU), Yango Ghana and all other Digital Taxi operators. It is in this vein that regulations can be initiated to ensure transport service providers maintain a certain percentage of their fleet with inclusive features and accessible terminals.

8.6.4 Investment in Infrastructure

The study finds that major impediments to accessible transport for PWDs were the nature of the existing transport infrastructure on the one hand, and the lack of requisite inclusive infrastructure as a whole on the other. In rural and urban areas, PWDs encountered physical barriers that impeded their seamless access to transport services. Consequently, the study recommends a supportive environment for funding allocation, to ensure that transport infrastructure is tailor-made, designed and maintained to benefit PWDs. This process must be championed by the Ministry of Transport and its subsidiary, the DVLA, in collaboration with local government authorities and the various government and private transport services providers operating in Ghana's rural and urban areas. Embedded in this clarion call for investment is the need to establish a dedicated fund for infrastructure investment in accessibility, with contributions from government budgets, international donors, and corporate social responsibility programs. When these funds are in place, there should be the concurrent development and enforcement of policies that mandate the incorporation of accessibility standards and features in public transportation infrastructure, such as, sidewalks, bus stops and terminals, and public transport vehicles. Successful adoption of this recommendation will chart

a course to overcome infrastructure barriers and promote the growth of a robust public transport network that genuinely serves the needs of all, irrespective of their physical abilities.

8.6.5 Funding for Accessibility

While the study established some existing policies and frameworks in place to promote inclusivity, rehashing the need for funding, access to affordable mobility, and assistive devices to achieve PWDs' independence in their mobility journeys plays a significant role in attaining their life goals. Funding must be sought from both governmental and non-governmental sources. Institutions to lead this charge include the Ministry of Transport, the Driver and Vehicle Licensing Authority, the Motor Traffic and Transport Department of the Ghana Police and the National Road Safety Authority, in close collaboration with disability organisations like the Ghana Federation of Disability Organisations. These institutions will rely on their fundraising skills and strategies to attract local and foreign donor support to raise funds for PWDs' accessibility. In so doing, a funding mechanism will be established to ensure that mobility aids and assistive devices are accessible and affordable to PWDs to participate and realise their full mobility potential.

8.6.6 Policy Review and Development

The need to review and update existing policies and legislation related to accessibility for PWDs in the transportation sector is essential for protecting the mobility rights of PWDs. Moreover, developing comprehensive policies that cover all aspects of accessibility, from infrastructure to services, aligns with international standards and best practices while considering our local context and fully commits to the total inclusion of PWDs in transportation. The major policy stakeholder institution, the Ministry of Transport, will serve as the umbrella unit through which transport-related policies will be reviewed to reflect the needs of PWDs. The Policy Planning and Monitoring and Evaluation (PPME) directorate of the Ministry of Transport takes a pole position in preparing, designing, and implementing

sustainable strategic policies in this regard. The PWD Act 715 (2006) and the National Transport Policy (2020) are key policy reviews that ought to be executed. Although the PWD Act 715 (2006) is undergoing review, it has yet to be enacted in the Parliament of Ghana. These reviews should be done collaboratively with disability organisations such as, the Ghana Federation of Disability Organisations (GFD) to ensure that the policy review and development process considers the firsthand experiences and needs of PWDs.

The successful implementation of these recommendations offers the potential to revolutionise the transportation experiences of PWDs in Ghana. They form a coherent strategy, addressing awareness, training, infrastructure, funding and policy toward a goal. The combined impact of these recommendations can lead to an inclusive and accessible transportation system that empowers PWDs to participate fully in society, access opportunities, and enhance their overall quality of life, irrespective of geography. As such, a transportation-inclusive society for PWDs is not only attainable but also an imperative step toward greater social equity and inclusivity in Ghana.

8.7 Contributions to Knowledge

At the core of this research lies contributions to knowledge by addressing the paucity of wide-ranging insights into the lives of PWDs within the dynamic context of public transportation. These contributions provide insight into:

Comprehensive and Spatial Understanding of Public Transport Mobility Options and

Needs for PWDs: The study has contributed to the disability transport nexus by identifying and categorising various public transport mobility options available to persons with disabilities (PWDs), and their accessibility and use in Ghana's urban and rural areas. This has been explained from a five-facet perspective. The study has demonstrated the detailed contributions from the perspectives of i. persons with disability, ii. the public transport service providers, iii.

the public transport users, iv. the public transport operators, v. the disability governance agencies, and vi. the transport policymakers. As such, a culmination of the knowledge, experiences, and perspectives of these six key stakeholders in the disability-transport milieu provides a total and updated state of transport inclusions for the disabled in Ghana. In addition, these interpretations help explain how the concepts of space, place, and time interplay in the mobility, accessibility, and coping strategies of PWDs during their life course.

Application of the Life Course Theory and Critical Disability Theory in Disability-

Transport Research: Theoretically, the study contributes to knowledge in the synthesis of components of the Life Course Theory and the Critical Disability Theory in the context of PWDs mobility, particularly in a developing country context. As such, it extends the theories' reach and tests their validity in a different socio-economic and cultural setting. This also opens up new avenues for future research, both in Ghana and other developing countries. The study also expands our understanding of how mode choices evolve over time in response to changing needs and life events, and emphasises the larger societal frameworks, power relationships, and discriminatory practices that shape public transport experiences for PWDs. Furthermore, it explains how power relations and society coalesce to enable/disable PWDs in their mobility journeys. Also, these theories help examine how geography plays an imperative role in shaping the experiences of disabled people distinctively and holistically.

Methodological Innovation to Knowledge: The study has shown that it is feasible to combine qualitative and quantitative research approaches in studying persons with disabilities in transport geography. The study's use of mixed methods, such as in-depth interviews, observation, and questionnaire surveys, is, thus, a methodological innovation, demonstrating that multi-methods provide a holistic and nuanced understanding of the issues when studying PWDs and their diverse needs. It, therefore, opens the door for other researchers to consider mixed methods as an effective approach to gain a deeper understanding of this peculiar

population and their varied experiences. It also highlights the importance of flexibility in research methods when dealing with diverse and complex issues related to disability and transportation.

Insight into Coping Strategies: The insights into coping strategies from this study offer a deeper understanding of the agency and resilience of PWDs in their daily mobility journeys. These insights underscore the resourcefulness of individuals with disabilities as they navigate both physical and social barriers within the public transport system. By highlighting the coping strategies adopted, the study contributes to knowledge by emphasising the need to recognise and support the autonomy of PWDs in accessing public transport services. These insights can inform the development of more inclusive transportation policies and services, ensuring that the specific needs and preferences of PWDs are taken into account. Additionally, they contribute to a broader discussion of environment and agency, showing that PWDs actively engage in strategies to overcome mobility challenges, thereby shifting the focus from the limitations of the transport system to the capabilities and determination of individuals with disabilities.

Improving Knowledge of Transport Operators and Users: The study's evaluation of transport operators' and users' knowledge concerning transportation mobility options for PWDs is a vital contribution. It emphasises the importance of addressing knowledge gaps and raising awareness among these key stakeholders. This insight offers a foundation for the development of targeted educational initiatives and training programs, ultimately improving the understanding of public transport accessibility for PWDs. The study's findings encourage a shift from a knowledge deficit to a more informed and inclusive transport system, ensuring that operators and users are better equipped to meet the needs of individuals with disabilities.

Guidance for Policy and Advocacy: The study contributes to Policy as it contributes to (SDG) 11.2, which aims to provide access to safe and accessible transport systems for all by 2030. and provides opportunities for the formulation of transport accessibility standards in the country. The study also offers valuable insights into the roles of stakeholders, including government agencies and disability organisations, in providing accessible transport for PWDs. These insights can serve as a roadmap for policymakers, advocacy groups, and service providers to develop and implement more inclusive policies and practices. By understanding the contributions of different stakeholders, efforts can be focused on fostering greater accessibility, thereby, promoting a more equitable and inclusive transport environment for persons with disabilities.

In summary, this study makes significant contributions by filling knowledge gaps, offering practical recommendations, and applying relevant theories to the spatial context of PWD mobility in Ghana. These contributions have the potential to inform policy, advocacy, and future research endeavours aimed at enhancing the accessibility and inclusivity of public transport services for PWDs.

8.8 Areas for Future Research

This study has interrogated the experiences of persons with visual and physical disabilities in accessing and using public transport services in Ghana. One suggested research area is the need to explore the experiences of persons with other kinds of disabilities other than visual and physical disabilities, such as, auditory, cognitive and multiple disabilities. Research focusing on the transport needs of individuals with hearing impairments can explore how public transportation services can be made more accessible through visual information cues, clear communication methods, and technology like visual alerts or sign language interpreters. For individuals with intellectual/developmental disabilities, research can explore how to design transport services that are more user-friendly for individuals who may require additional

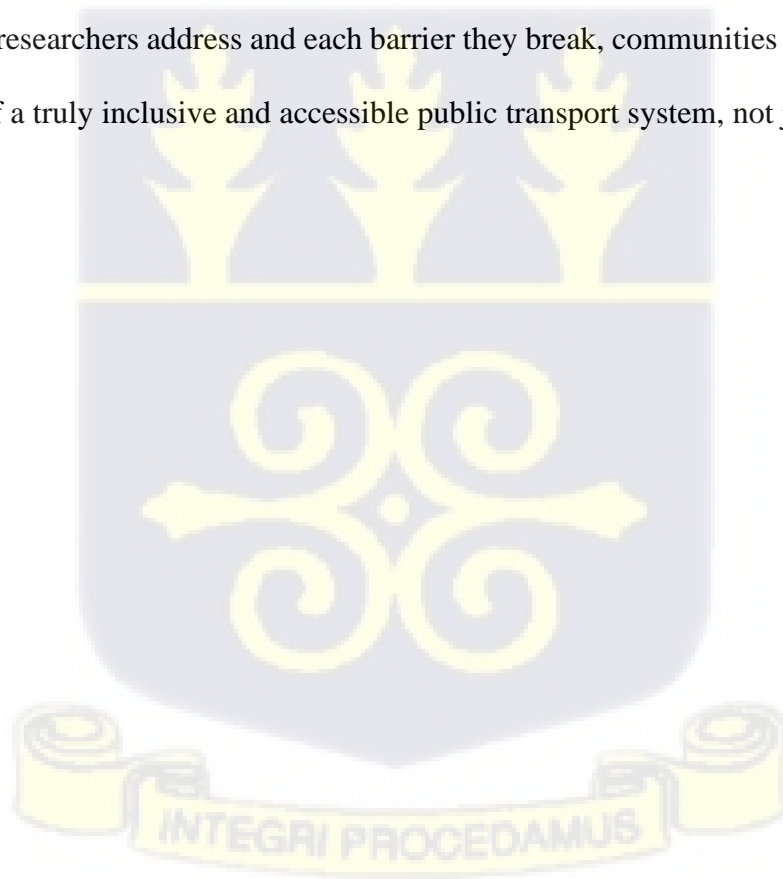
support and clarity. Research into persons with a blend of two or more disabilities can provide insights into their compounded challenges. For this reason, including these disability types in future studies will contribute to a more inclusive transport system that caters to a wider range of needs within the disabled community.

The study's adoption of the Critical Realism Philosophy, out of which the Critical Disability Theory was culled, demonstrated that besides the provision of accessible and inclusive transportation for PWDs, the social environment, where people's attitudes and behaviour coalesce to disable PWDs in their mobility journeys further, is of great concern. To this end, instead of just asking about knowledge levels of commuters, a critical observation of commuter's actual behaviours in inclusive transportation settings should be explored. This could include their interactions with accessible features, assistance to PWDs, or any discriminatory behaviours. This will highlight the social dimensions of disability to promote and drive community engagement and disability advocacy, which can be put in check at a lower cost when compared to funding for inclusive transport infrastructure in the transport system within a developing country like Ghana.

Finally, this study could have benefited immensely from the primary and secondary data on accessibility assessments of public transport systems and the economic impact of inaccessible transport on PWDs. Data on accessibility assessments of public transport systems, including infrastructure and vehicles, can provide an objective measure of the accessibility of the transport system. Additionally, acquiring data on the economic effects of inaccessible transport on PWDs, such as, their employment opportunities and income levels, would have shed light on the financial toll of inaccessibility for both individuals and society. While the narratives from the in-depth interviews with stakeholders and PWDs alike offered valuable insights, obtaining quantitative data on accessibility assessments and economic impacts can strengthen arguments and provide robust empirical support for advocating inclusive transport policies.

8.9 Conclusion

In conclusion, this study has delved deep into the intricate nexus of accessibility and public transport services for persons with visual and physical disabilities in the Greater Accra and Ashanti Regions of Ghana. The findings, insights, and recommendations generated throughout this research mark a significant milestone in the ongoing quest for a more inclusive and equitable society, more specifically, in the transportation space. By unravelling the diverse mobility options, resilience strategies, and knowledge gaps among stakeholders, this study lays the groundwork for transformative policies and practices. Moving forward, this work aims to serve as a catalyst for change, an advocate for the voiceless, and a beacon to guide future research endeavours in the ever-evolving realm of disability studies and transportation. With each challenge researchers address and each barrier they break, communities inch closer to the ultimate goal of a truly inclusive and accessible public transport system, not just in Ghana but worldwide.



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APPENDIX A: POP SOFTWARE OUTPUT

Harzing's Publish or Perish (Windows GUI Edition) 8.8.4275.8412

File Edit Search View Help

My searches Trash

Search terms

Source
 Crossref
 Google Sc...
 Google Sc...
 OpenAlex

Google Scholar search

Authors:

Publication name:

Title words:

Keywords:

Maximum number of results: Include: CITATION records Patents

Years: 2012 - 2022
 ISSN:

Search
 Search Direct
 Clear All
 Revert
 New

Cites	Per year	Rank	Authors	Title	Year	Publication	Publisher
136	27.20	1	J Park, S Chowdhury	Investigating the barriers in a typical journey by public transport users with disabilities	2018	Journal of transport & health	Elsevier
121	30.25	2	E Grisd, G Boigoly, M Maguire, A El-Genedy	Elevating access: Comparing accessibility to jobs by public transport for individuals with and without a physical...	2019	... Research Part A: Policy and ...	Elsevier
70	23.33	4	M Kett, E Cole, J Turner	Disability, mobility and transport in low- and middle-income countries: a thematic review	2020	Sustainability	journals.sagepub.com
61	12.20	5	S Darcy, JF Burke	On the road again: The barriers and benefits of automobility for people with disability	2018	Transportation research part A: policy and practice	mdpi.com
108	12.00	6	L Ferrati, M Belfingero, F Caibresse, ...	Improving the accessibility of urban transportation networks for people with disabilities	2014	... Research Part C ...	Elsevier
63	9.00	8	R Velho, C Holloway, A Symonds, B Balmer	Emerging technologies and access to mobility through public transport: a review of potential impact upon peo...	2022	ICCHP-AAATE 2022 ...	epub.iku.at
133	22.17	9	NIN Sze, KM Christensen	The effect of transport accessibility on the social inclusion of wheelchair users: A mixed method analysis	2016	Social Inclusion	cogitatopress.com
5	5.00	10	B Duri, R Luke	Access to urban transportation system for individuals with disabilities	2022	IATSS research	Elsevier
166	23.71	11	T Saghapour, S Moridpour, RG Thompson	Public transport accessibility in metropolitan areas: A new approach incorporating population density	2016	Journal of Transport ...	Elsevier
299	59.80	12	MA Jackson	Models of disability and human rights: Informing the improvement of built environment accessibility for people...	2018	Laws	mdpi.com
36	12.00	13	T Ross, P Blas, R Bullung, A El-Genedy	A scoping review of accessible student transport services for children with disabilities	2020	Transport Policy	Elsevier
178	35.60	14	RCP Wong, WY Szeto, L Yeng, YC Li, SC Wong	Public transport policy measures for improving elderly mobility	2018	Transport Policy	Elsevier
120	30.00	15	J Berg, J Jilström	The importance of public transport for mobility and everyday activities among rural residents	2019	Social Sciences	mdpi.com
85	7.73	17	Z Taylor, J Jézéowicz	Customer perception of service quality in public transport	2014	Transport	jau.vgtult
175	17.50	18	D Rojas-Rueda, A de Nazelle, O Tensidó, ...	Intra-urban daily mobility of disabled people for recreational and leisure purposes	2012	Journal of Transport Geography	Elsevier
98	8.91	19	G Bane, M Deely, B Donohoe, M Doohier, ...	Health impact assessment of increasing public transport and cycling use in Barcelona: a morbidity and burden ...	2013	Preventive ...	Elsevier
208	26.00	20	R Adams, B Reiss, D Serlin	Relationships of people with learning disabilities in Ireland	2012	... Learning Disabilities	Wiley Online Library
135	33.75	21	R O'Klin, HS Hayward, MS Abbene, ...	Keywords for disability studies	2015	Journal of Social ...	books.google.com
152	21.71	22	JK Ganle, E Otupiri, B Obeng, AK Edusie, A Anko...	The experiences of microaggressions against women with visible and invisible disabilities	2019	Journal of Social ...	Wiley Online Library
124	15.50	23	MR Islam	Challenges women with disability face in accessing and using maternal healthcare services in Ghana: a qualitati...	2016	PloS one	journals.plos.org
50	5.00	24	C Barnes, G Mercer	Rights of the people with disabilities and social exclusion in Malaysia	2015	International Journal of Social Science and Humanity	ijsh.net
29	14.50	25	RK Patel, R Etmanni-Gharadaishi, ...	The politics of disability and the struggle for change	2013	Disability, politics and the struggle for ...	ap.taylorfrancis.com
91	10.11	26	K Sherry	Exploring preferences towards integrating the autonomous vehicles with the current microtransit services: A dis...	2021	... on Transportation and ...	acelibrary.org
1	0.25	27	NE Nahar	Disability and rehabilitation: Essential considerations for equitable, accessible and poverty-reducing health care i...	2014	South African health review	journals.co.za
173	28.83	28	BP Smertha, A Millong, NB Hounsell, ...	Urban mobility &inequality in public services in Dhaka city: An analysis of accessibility of transportation for peo...	2019	Journal of population ...	depace.brucua.ac.bd
458	45.80	29	R Daniels, C Mulley	Review of public transport needs of older people in European context	2017	Journal of Transport and Land Use	Springer
246	22.36	30	D Buhalis, S Darcy, J Ambrose	Explaining walking distance to public transport: The dominance of public transport supply	2013	Journal of Transport and Land Use	JSTOR
155	14.09	31	SHK Soltani, M Sham, M Awang, R Yaman	Best practice in accessible tourism: Inclusion, disability, ageing population and tourism	2012	Procedia-Social and ...	books.google.com
33	11.00	32	D Milakis, B van Wee	Accessibility for disabled in public transportation terminal	2020	Demand for emerging transportation systems	Elsevier
140	17.78	33	I Miranar, C Namri	Implications of vehicle automation for accessibility and social inclusion of people on low income, people with p...	2014	Smart Management Review	Taylor & Francis

Tools

Preferences...

Online User's Manual

Frequently Asked Questions

Training Resources

YouTube Channel

Become a POP Supporter

How to Publish in academic journals

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APPENDIX B: IN-DEPTH INTERVIEW GUIDE FOR PWDS

FOR A STUDY ON ACCESSIBILITY AND USE OF PUBLIC TRANSPORT SERVICES BY PERSONS WITH DISABILITY IN GHANA

This research is being carried out in the Department of Geography and Resource Development, University of Ghana. The main objective of this research is to explore the experiences of persons with disabilities (PWDs) in accessing and using the various public transport services in Ghana.

The information is collected purely for academic research purposes as stated herein. Anonymity and confidentiality will be strictly observed.

Your participation in this survey is voluntary and you may withdraw at any time without attracting any penalties.

Interviewees Name:		
Location Address:		Date of Interview:
Start Time:		Time Completed:

Section A: Objective 1: Describe the various public transport mobility options of PWDs.

Public transport mobility options for PWDs

A1. There are a number of public transport options or ways by which people travel around, including using personal/family/work car, taxi, trotro, ride hailing (eg. Uber, Bolt, Yango, etc.), bus or even walking on foot. Within your neighbourhood, i.e where you live, can you tell me which of these options may be found?

A2. Which of the above-mentioned transport mobility options do you normally patronise for your journeys? (Probe: do you require help in reaching and using the transport option(s) mentioned, what kind of help do you require).

A3. Why do you choose this mode of transport for your commute? (Probe: when do you opt for this mode, what periods or under what circumstances and why? affordable, comfortable, availability, convenience, safety, timeliness etc). (at what costs do you pay to use this mode, per day, week, month?)

A4. How often do you use this mode of transport? (Probe: how many trips per day/week/month, if you recall? Do you use it during emergencies? such as needing to visit the hospital due to ill-health, etc.).

A5. During the past three days (or week), what has been your major mode of transport (i.e., the one in which you spent the greater time during your journey)?

A6. Which major destination did your most recent journey undertaken during the past three days (or week) end? E.g. from home to workplace/market/hospital, from work to church/mosque, home to school etc?

A7. What about your family members or members of your household, what mode of transport do they normally use?

A8. Do you have any experience travelling on another transport mode aside from your major mode of transport? (Probe: Can you describe the experience?).

A9. Has your chosen mode of transport had any effect on your disability? (Probe: has it caused you any more harm or led to other damages on your body (further visual or physical impairments in this case?).

Section B: Objective 2: Explore the coping strategies adopted by PWDs in the mobility journeys.

Coping strategies of PWDs in mobility journey (9 questions)

B1. Can you describe how your journey to ... (main trip destination mentioned earlier) today or in the past 3 days (or week) was like? (Probe on user-friendliness of the trip).

B2. Elsewhere, PWDs are provided with exterior and interior user-friendly facilities or services like wheelchair lifts, securement devices, handrails, stanchions (vertical bars placed in buses for support), priority seating etc. to make their journeys more convenient.

Which of these configurations or considerations do you encounter on your transport mode usually? (Have you encountered any of these configurations ever? Which of them?).

How user-friendly can you say the transport modes you use is? On a scale of 1-10 where 1 is the least user-friendly and 10 is the highest form of user friendliness in your opinion.

(Probe: how do you manage when getting unto the vehicle, are you able to put your walking or sight aids while on board, is your seat comfortable on the vehicle,)

B3. How user-friendly are the transport facilities/ infrastructure (taxi stations, walkways, pavement, footbridge, bus terminals)? On a scale of 1-10 where 1 is the least user-friendly and 10 is the highest form of user friendliness.

Probe: Are there particular points for you to wait for incoming vehicles to board).

B4. Do you get assistance from others in using the public transport services? Probe: which people help you; how do they help you, do you compensate them after? How about assistance from the vehicle operators (driver, mate)?

B5. Have you adopted a way to manage with these public transport mobility options?

B6. In your view, what peculiar problems or challenges are faced by disabled women in reaching public transport services? When you compare to the men?

How about in comparison to Children, and the Aged/Elderly folks as well? Can you tell me more about that? What happened then? Can you describe what that felt like? (for the gender dimension).

B7. How about persons with other kinds of disabilities? What can you say about how they cope in their experiences with accessing public transport? How different is it from your kind of disability?

B8. How do passengers treat you when you get on board the vehicle? (For chartered and non-chartered services, how do the drivers/car caretakers/conductors relate to you on the service).

B9. Is there anything else you would like to share about using public transport in your situation?

Section C: Objective 3: Assess the role of stakeholders in the provision of accessible transport for PWDs.

Stakeholders' role in accessible transport provision for PWDs

Stakeholders (Min of Gender, Children and Social Protection, Dept of Social Welfare, Min of Justice and Attorney – General Dept, Commission on Human Rights and Administrative Justice, MTTU, DVLA, ISTC, MMTL, National Road Safety Commission)

Ghana Federation of Disability Organisations, the Ghana Society of the Physically Disabled (GSPD), the Ghana Blind Union, the Centre for Disability and Rehabilitation Studies and the office of the National Council on Persons with Disability).

C1. I will read out some of the duties and roles of these institutions concerning mobility, transport and the wellbeing of PWDs and I will ask your opinion of how they have executed these roles and duties to PWDS.

.....
Having heard these roles and functions of this institution, how will you rank their discharge of this duty more specifically in relating to how they ensure access to transport for PWDs.

Based on your experience in accessing public transport services, how have these roles been performed?

If so, by how much? On a scale of 1-10, how will you rank them.

In your view Do you think there is room for improvement? What kind of improvement do you want to see? Which actors can spearhead this improvement and how should the improvement be carried out?

C2. How do public transport operators (car owners, drivers, bus conductors) facilitate the mobility of PWDs on their transport services?

C4. Do the drivers stop for you when you signal them to board or upon request? Probe: what is their reaction on first notice of your disability?

C5. Do the vehicle operators stop for you to cross at zebra crossings or other designated crossings? Why do you think they do that?

C6. DO they reserve special parking spaces for you within parking areas? Why o you think they do that?

C7. Do the conductors or drivers help you get on board and alight from the vehicles? Probe: How do they do it?

C8. What do you think public transport stakeholders at the national and local level must do to improve transport infrastructure to promote inclusion regarding accessibility and use of public transport?

C9. What do you think public transport operators specifically can do to promote inclusion regarding accessibility and use of public transport?

C10. Do these institutions include you in the planning and policy making decisions concerning PWDs and transportation? If yes, how do they involve you? If no, have you or your leadership reached out to them in this regard? How was that done, how did it go?

C11. What are some recommendations you can make for these institutions in the provision of accessible transport services and infrastructure for PWDs?

C12. In your view, what can PWDs also do to improve accessibility and use of public transport services in the country?

Section D: Sociodemographics

Profile and background of PWD: Journey of life course: when did your disability begin? How has it unfolded over the years? education level, previous work, current work with disability).

D1. Can you please tell me about yourself? (Probe: Name (optional) (to be referred to throughout the interview process).

D2. How old are you? Or which year were you born?

D3. What is your ethnicity? (Akan, Ga- Dangme, Ewe, Guan, Gurma, Mole- Dagbani, Grusi. Mande, Other) (GSS standard ethnic groups in Ghana).

D4. Are you married? (Probe: Age at first marriage, Age of spouse, Occupation of spouse, Is Spouse a PWD?).

D5. How many children do you have? (Probe: how old are they, where do they live, are any of them PWDs?).

D6. Where do you stay/live? (Probe: who do you live with, why do they live with you). If they live with you explain why they do and what is their visiting or living arrangement with you like? Are any of them PWDs?

D7. What work do you do? (Probe: how long have you been doing this current job, what work were you doing earlier, for how long). Are any of your work colleagues PWDs?

D8. What is your educational background? (Probe: why did you stop at that level? would you want to continue someday).

D9. What type of disability do you have? (Probe: is it a congenital disability, acquired? How did you acquire the disability, how long have you had the disability)?

D10. Due to your disability, have you signed up for any insurance policy cover for yourself in general or in case of any transport related accident or road accident to safeguard their livelihoods in future should any unforeseen incident occur?



THANK YOU FOR YOUR TIME

APPENDIX C: NVIVO THEMATIC ANALYSIS OUTPUT

PHD thesis.mpx - NVivo Pro

FILE HOME CREATE DATA ANALYZE QUERY EXPLORE LAYOUT VIEW

Workspaces Refresh Open Properties Edit Item

Clipboard Merge Paste Copy Cut

Format Paragraph Styles

Find Now Clear

Advanced Find

PDF Selection Text Find Region Select

Insert Replace Delete

ABC Spelling Proofing

Look for Search in Nodes

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Reports

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TA 43 items

Node Name	Count	Created On	Created By	Modified On	Modified By
1. Socio Demographics	0	17/05/2023 05:46 AM	TA	17/05/2023 05:48 AM	TA
2. Mobility options for pwds	9	10/02/2023 01:28 AM	TA	12/06/2023 03:31 PM	TA
3. Educational level reason to furthering	1	17/05/2023 05:48 AM	TA	06/06/2023 04:21 AM	TA
Emergency situation mode choice	14	16/17/05/2023 05:01 AM	TA	13/06/2023 08:43 AM	TA
frequency of using mode	15	17/05/2023 04:59 AM	TA	13/06/2023 08:36 AM	TA
Public transport preferred use	27	34/16/05/2023 05:23 PM	TA	13/06/2023 09:26 AM	TA
reasons for mode choice	25	39/16/05/2023 05:36 PM	TA	13/06/2023 08:36 AM	TA
timeliness of mode choice	8	8/16/05/2023 05:56 PM	TA	11/06/2023 01:37 PM	TA
cost of mode choice	16	19/01/06/2023 03:28 PM	TA	13/06/2023 09:27 AM	TA
comfortability of mode choice	5	5/06/06/2023 04:25 AM	TA	11/06/2023 12:47 PM	TA
safety of mode choice	4	5/06/06/2023 04:26 AM	TA	11/06/2023 01:37 PM	TA
Public transport options available	20	23/24/04/2023 01:54 AM	TA	13/06/2023 08:26 AM	TA
transport mode impact on disability	15	16/17/05/2023 05:45 AM	TA	13/06/2023 09:35 AM	TA
reception of pwds on PT	13	17/16/05/2023 06:06 PM	TA	13/06/2023 09:43 AM	TA
household mode of transport	23	23/17/05/2023 05:58 AM	TA	13/06/2023 09:34 AM	TA
userfildness ranking of transport modes	15	15/29/05/2023 05:11 PM	TA	13/06/2023 09:04 AM	TA
experience on other mode of transport	18	24/30/05/2023 07:50 PM	TA	12/06/2023 05:25 PM	TA
International standard features for pwds on PT	1	1/06/06/2023 04:09 AM	TA	06/06/2023 04:09 AM	TA
ride hailing delays and charges experience	2	2/31/05/2023 09:09 AM	TA	10/06/2023 06:50 AM	TA
userfildness and ranking of transport infrastructure	17	20/31/05/2023 09:16 AM	TA	13/06/2023 08:08 AM	TA
destination of travel	8	9/31/05/2023 12:12 PM	TA	12/06/2023 10:48 PM	TA
ride hailing sign up for pwds	1	1/01/06/2023 08:02 AM	TA	10/06/2023 07:49 AM	TA
experience and knowledge on userfildness transport	10	11/11/06/2023 09:54 AM	TA	13/06/2023 09:36 AM	TA
Pwd on stakeholders role	0	0/29/05/2023 05:03 PM	TA	29/05/2023 05:03 PM	TA
recommendations from pwds themselves to improve accessibility t	23	24/30/05/2023 12:40 AM	TA	13/06/2023 09:46 AM	TA
Knowledge of organizational stakeholder roles in providing accessi	5	5/30/05/2023 08:54 AM	TA	12/06/2023 03:55 PM	TA
Level of inclusion of pwds in planning for transport	22	23/30/05/2023 02:33 PM	TA	13/06/2023 09:45 AM	TA
Efforts of PWDS in improving accessibility to PT services	6	9/30/05/2023 02:38 PM	TA	12/06/2023 02:13 PM	TA
Efforts of stakeholders in improving accessibility to PT services	20	24/31/05/2023 10:04 AM	TA	13/06/2023 09:32 AM	TA
recommendations to stakeholders to improve accessibility to PT	25	34/31/05/2023 10:43 AM	TA	13/06/2023 09:45 AM	TA
recommendations to PT operators to improve accessibility to PT	18	21/31/05/2023 10:44 AM	TA	13/06/2023 09:23 AM	TA

APPENDIX D: NVIVO CODING OUTPUT

PHD thesis.nvp - NVivo Pro

File Home Create Explore Query Analyze Data Layout View

Workspace Refresh Open Properties Edit Paste Copy Merge Clipboard

Item Look for Search in Internals

Find Now Find Next Clear

References

Nodes

Sources

- Internals
- Externals
- Memos
- Framework Matrices

Sources

- Nodes
- Classifications
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Name	Count	Created On	Created By	Modified On	Modified By
Adwoa Amanzie PI	1	24/04/2023 01:13 AM	TA	24/04/2023 01:13 AM	TA
Anthony Adarkwa AMA PI	20	30 24/04/2023 01:13 AM	TA	30/05/2023 02:38 PM	TA
Atta Pua PI Ejisu	1	24/04/2023 01:13 AM	TA	24/04/2023 01:13 AM	TA
Auntie Amanzie PI	1	24/04/2023 01:13 AM	TA	24/04/2023 01:13 AM	TA
Beatrice VI Tema	27	24/04/2023 01:13 AM	TA	31/05/2023 11:23 AM	TA
Benjamin VI Tema	17	24/04/2023 01:13 AM	TA	01/06/2023 10:27 AM	TA
Bernice VI Ga South	24	33 24/04/2023 01:13 AM	TA	01/06/2023 01:18 PM	TA
Cecilia Ejisu VI	42	24/04/2023 01:13 AM	TA	02/06/2023 01:07 PM	TA
Charles Ejisu VI	18	25 24/04/2023 01:13 AM	TA	04/06/2023 05:51 AM	TA
Christian VI Ga South	21	39 24/04/2023 01:13 AM	TA	06/06/2023 04:46 AM	TA
Comfort Tema PI	16	18 24/04/2023 01:13 AM	TA	06/06/2023 04:46 AM	TA
Elder Kofi Ahafo Ano PI	18	23 24/04/2023 01:13 AM	TA	06/06/2023 04:46 AM	TA
Eugenia PI Ga South	25	39 24/04/2023 01:13 AM	TA	09/06/2023 11:12 AM	TA
Felicia Amanzie PI	1	1 24/04/2023 01:13 AM	TA	24/04/2023 01:13 AM	TA
Florence AMA VI	19	28 24/04/2023 01:13 AM	TA	10/06/2023 07:08 AM	TA
Georgina Amanzie PI	1	1 24/04/2023 01:13 AM	TA	24/04/2023 01:13 AM	TA
Gideon AMA PI	1	1 24/04/2023 01:13 AM	TA	24/04/2023 01:13 AM	TA
Gladys AMA PI	25	29 24/04/2023 01:13 AM	TA	10/06/2023 08:07 AM	TA
Isaac Amanzie PI	1	1 24/04/2023 01:13 AM	TA	24/04/2023 01:13 AM	TA
Janet AMA VI	19	27 24/04/2023 01:13 AM	TA	11/06/2023 09:01 AM	TA
Joseph AMA PI	1	1 24/04/2023 01:13 AM	TA	24/04/2023 01:13 AM	TA
Madam Lydia PI Ahafo Ano	12	17 24/04/2023 01:13 AM	TA	11/06/2023 09:01 AM	TA
Madam Zuzette PI Ahafo Ano	24	27 24/04/2023 01:13 AM	TA	11/06/2023 09:50 AM	TA
Mercy PI AMA	18	24 24/04/2023 01:13 AM	TA	11/06/2023 11:13 AM	TA
Mr. Joseph PI Ejisu	21	27 24/04/2023 01:13 AM	TA	11/06/2023 11:57 AM	TA
Mr. Albert VI AMA	18	24 24/04/2023 01:13 AM	TA	11/06/2023 12:49 PM	TA
Mr. Joseph PI Ejisu	24	29 24/04/2023 01:13 AM	TA	03/05/2023 09:28 AM	TA
Mr. Kofi Ejisu VI	23	27 24/04/2023 01:13 AM	TA	11/06/2023 02:33 PM	TA
Mr. Lamptey AMA PI	6	10 24/04/2023 01:13 AM	TA	12/06/2023 02:53 PM	TA
Nene Opata Tema PI	24	25 24/04/2023 01:13 AM	TA	12/06/2023 04:19 PM	TA
Salomey VI Ga South	19	20 24/04/2023 01:13 AM	TA	12/06/2023 04:20 PM	TA
Sammy PI Ejisu	11	14 24/04/2023 01:13 AM	TA	12/06/2023 05:19 PM	TA
Samuel VI Tema	15	16 24/04/2023 01:13 AM	TA	12/06/2023 05:34 PM	TA
Simon PI Tema	22	29 24/04/2023 01:13 AM	TA	13/06/2023 08:10 AM	TA
Sti Yaa PI Ejisu					

APPENDIX E: STRUCTURED OBSERVATION SCHEDULE

STRUCTURED OBSERVATION SCHEDULE FOR A STUDY ON ACCESSIBILITY AND USE OF PUBLIC TRANSPORT SERVICES BY PERSONS WITH DISABILITIES (PWDS) IN GHANA

This research is being carried out in the Department of Geography and Resource Development, University of Ghana. The information is collected purely for academic research purposes.

The main objective of this research is to explore the accessibility of persons with disabilities in using public transport services in Ghana.

Name of Observer:			
Checklist No:	Date & Time:		
Transport Terminal Location:	District:		

Vehicle Characteristics

Feature	Availability of Infrastructure										State of Infrastructure	
1. Origin-Destin. name												
Origin-Destin. name												
2. Entrance lift/ramp												
Entrance lift/ramp												
3. Reserved PWD seat												
Reserved PWD seat												
4. Regular seat												
Regular seat												
5. Reserved space for mobility aid												
Reserved space for mobility aid												

Terminal Characteristics

Feature	Availability of Infrastructure										State of Infrastructure	
1. Origin-destination name												
Origin-destination name												
2. Colour coding												
Colour coding												
3. Wheelchair access/ramp												
Wheelchair access/ramp												
4. Reserved PWD seat(s).												
Reserved PWD seat(s).												
5. Reserved PWD parking												
Reserved PWD parking												
6. Speaker /info. centre												
Speaker /info. centre												
7. Help centre/desk												
Help centre/desk												

Mobility aid: clutches, wheelchairs, callipers, white cane etc.

APPENDIX F: QUESTIONNAIRE FOR PUBLIC TRANSPORT USERS

**A STUDY ON ACCESSIBILITY AND USE OF PUBLIC TRANSPORT SERVICES
BY PERSONS WITH DISABILITIES (PWDS) IN GHANA**

The main objective of this research is to explore the experiences of Persons with Disabilities (PWDs) in accessing and using the various public transport services in Ghana. PWDs include blind or partially sighted persons, persons with physical impairments, persons with hearing and speech impairments etc.)

Your participation in this survey is voluntary, and you may withdraw at any time without attracting any penalties. The survey takes approximately 10 minutes to complete. Thank you in advance for participating in this study.

If you wish to know more about this research, kindly contact the project lead Mr. Dominic Edem Hotor, Department of Geography & Resource Development University of Ghana, Legon. Tel: 0249998766

Please tick or write where applicable. Thank you for your anticipated participation.

Name of Interviewer:			
Questionnaire No:	Date & Time:		
Location:	District:		

PART A: VEHICLE & TRIP CHARACTERISTICS

1. During the past one week, what is the major transport mode you commute with:
(kindly select the means of transport in which you spend a greater part of your journey time)

- a) On foot/walking
- b) On a bicycle
- c) On a personal motorcycle
- d) On a commercial two-wheeler (i.e. Okada)
- e) On a commercial three-wheeler (i.e. Pragya/Mahama Camboo)
- f) In a personal car, someone else's car or an organisational car
- g) In a traditional taxi
- h) In a trotro
- i) In a bus (e.g. Metromass/Aayalolo)
- j) On a train
- k) In a digital taxi (e.g. Uber, Bolt, Yango etc.).

2. In addition to the above major transport mode used in the past week, which alternative transport mode did you use as well?

- a) On foot/walking
- b) On a bicycle
- c) On a personal motorcycle
- d) On a commercial two-wheeler (i.e. Okada)
- e) On a commercial three-wheeler (i.e. Pragya/Mahama Camboo)
- f) In a personal car, someone else's car or an organisational car

- g) In a traditional taxi
- h) In a trotro
- i) In a bus (e.g. Metromass/Aayalolo)
- j) On a train
- k) In a digital taxi (e.g. Uber, Bolt, Yango etc).

3. What was the main purpose for the trip undertaken in the past week?

- a) To/from work
- b) To/from social/recreation
- c) To/from visiting family and friends
- d) To/from shopping
- e) To/from hospital/pharmacy
- f) To/from the airport
- g) To/from school/lectures
- h) To/from public transport stop/terminal
- i) To/from home
- j) I don't remember
- k) Other (please specify)

PART B: AWARENESS & KNOWLEDGE LEVEL OF PWDS IN TRANSPORT

4. Does your major transport mode have a wheelchair-accessible entry or a ramp?

- (i) Always (ii) Sometimes (iii) Rarely (iv) Never (v) Don't Know

5. Does your major transport mode have a specialised seat (s) for PWDs?

- (i) Always (ii) Sometimes (iii) Rarely (iv) Never (v) Don't Know

6. Have you ever seen or observed passengers who are PWDs get onboard and alight from a public transport which you were already on board in the past one month?

- (i) Yes (ii) No

If "Yes" to question 6, did you feel obliged to assist such passengers who are PWDs?

- (i) Yes, I did (ii) No, I didn't think that was necessary (iii) No, somebody else had already made the effort to assist (iv) No, because

7. Have you ever seen a driver or conductor assisting passengers who are PWDs get onboard and alight from a public transport which you were already on board in the past one month?

- (i) Yes (ii) No

8. Have you ever seen or observed PWDs crossing the road at zebra crossings and other designated stops in the past one month?

- (i) Yes (ii) No

If "Yes" to question 8, did you feel obliged to assist such pedestrians who are PWDs?

(i) Yes, I did (ii) No, I didn't think that was necessary (iii) No, somebody else had already made the effort to assist (iv) No, because.....

9. Have you ever observed drivers or conductors assisting PWDs crossing the road at zebra crossings and other designated stops in the past month? (i) Yes (ii) No

10. At the nearest public transport terminal in this locality or the one you normally visit, have you observed name tags of trip destinations (e.g. Alajo-Madina, Asafo-Bantama, Legon etc.) displayed boldly so that PWDs can also benefit?

(i) Yes (ii) No (iii) I'm not sure

11. At the nearest public transport terminal in this locality or the one you normally visit, have you observed that there are wheelchair accessible entrances and exits for PWDs?

(i) Yes (ii) No (iii) I'm not sure

12. At the nearest public transport terminal in this locality or the one you normally visit, have you observed that there are accessible seating facilities reserved for PWDs?

(i) Yes (ii) No (iii) I'm not sure

13. At the nearest public transport terminal in this locality or the one you normally visit, have you observed that they use public addressing system (microphone, loudspeaker etc.) to provide journey information which PWDs can also benefit?

(i) Yes (ii) No (iii) I'm not sure

14. At the nearest public transport terminal in this locality or the one you normally visit, have you observed that there is a help centre to assist PWDs find their way about in the terminal?

(i) Yes (ii) No (iii) I'm not sure

INDICATE YOUR AGREEMENT OR DISAGREEMENT WITH EACH OF THE FOLLOWING STATEMENTS:

15. PWDs have a right to access all public services, facilities and places in Ghana.

(a) Agree (ii) Disagree

16. PWDs have the right to be employed in all sectors in Ghana?

(a) Agree (ii) Disagree

17. Persons with hearing disability have the right to be given licenses to drive in Ghana.

(a) Agree (ii) Disagree

18. Public transport vehicles are supposed to always reserve 2 seats for PWDs, unless there are no PWDs to board the vehicle.

(a) Agree (ii) Disagree

19. I am expected to be polite and offer my seat for PWDs who are unable to find seats in a commercial vehicle I am already seated.

- (a) Agree (ii) Disagree

20. Each public place for parking vehicles is to have a clearly demarcated area for the exclusive use of persons with disability.

- (a) Agree (ii) Disagree

21. Transport facilities must be user-friendly for PWDs.

- (a) Agree (ii) Disagree

22. Retrofitting involves installing new or modified parts on vehicles which was not previously manufactured or constructed.

To make transport facilities user-friendly for PWDs, I think commercial transport operators should retrofit their old vehicles to accommodate the needs of PWDs

- (a) Agree (ii) Disagree

23. The state should have specialised transport services for persons with severe disabilities to aid their mobility journeys.

- (a) Agree (ii) Disagree

24. There are a number of governmental and non-governmental organisation (s) that support PWDs activities in Ghana. Are you familiar with any of these organisations? (a) Yes (b) No

If "Yes" to question 16, kindly list them.....

25. In your view, what can stakeholders do to support PWDs in their mobility journeys via public transport?
.....

26. In your view, what can PWDs do to enhance their own mobility journeys via public transport?
.....

PART D: (SOCIOECONOMIC CHARACTERISTICS)

27. Gender of Respondent. (i) Male [] (ii). Female []

28. Age of Respondent

29. Respondents Place of residence.....

30. Educational Status. (i) No formal education [] (ii) Primary[] JSS/JHS/Middle School [] SSS/SHS [] Voc./Tech./Commercial [] Tertiary

Level of completion

31. Marital Status. (i) Single and never married [] (ii) Married [] (iii) Married with children (iv) Divorced/Widowed [] (v) CO-habiting []

32. Household Size (how many persons do you live with, e.g. children, siblings etc in the same house)

33. What is your Occupation status?

(i) Formal sector (ii) Informal sector Student Unemployed Retired

For (i) and (ii), Kindly indicate the specific occupation

34. Average monthly Income/Stipend/Allowance

(i) Less than 300 cedis (ii) 300 – 500 cedis (iii) 500 – 1,000 cedis (iv) 1,000- 1,500
 (v) 1,500 -3,000 (vi) 3,000 – 4,500 cedis (vii) 4,500 and above

THANK YOU FOR YOUR TIME



APPENDIX G: QUESTIONNAIRE FOR PUBLIC TRANSPORT OPERATORS

**A STUDY ON ACCESSIBILITY AND USE OF PUBLIC TRANSPORT SERVICES
BY PERSONS WITH DISABILITIES (PWDS) IN GHANA**

The main objective of this research is to explore the experiences of persons with disabilities (PWDs) in accessing and using the various public transport services in Ghana. PWDs include blind or partially sighted persons, persons with physical impairments, persons with hearing and speech impairments etc.)

Your participation in this survey is voluntary, and you may withdraw at any time without attracting any penalties. The survey takes approximately 10 minutes to complete. Thank you in advance for participating in this study.

If you wish to know more about this research, kindly contact the project lead Mr. Dominic Edem Hotor, Department of Geography & Resource Development University of Ghana, Legon. Tel: 0249998766

Please tick or write where applicable. Thank you for your anticipated participation.

Name of Interviewer:			
Questionnaire No:		Date & Time:	
Location:		District:	

PART A: VEHICLE CHARACTERISTICS

1. Which one of the following statements identifies you as a driver? I drive
 - a) Trotro
 - b) Taxi
 - c) Digital taxi (e.g. Uber, Bolt, Yango etc.)
 - d) Bus (Metromass/Aayalolo)
 - e) Commercial two-wheeler (i.e. Okada)
 - f) Commercial three-wheeler (i.e. Pragma/Mahama Camboo)

PART B: AWARENESS & KNOWLEDGE LEVEL OF PWDS IN TRANSPORT

2. Does your vehicle have a wheelchair-accessible entry or a ramp?
 - (i) Yes (ii) No
3. Does your vehicle have a specialized seat (s) reserved for PWDS?
 - (i) Yes (ii) No
4. Have you ever seen or observed passengers who are PWDS get onboard and alight from your vehicle in the past one month?
 - (i) Yes (ii) No

If “Yes” to question 4, did you feel obliged to assist such passengers who are PWDs?

(i) Yes, I did (ii) No, I didn’t think that was necessary (iii) No, somebody else had already made the effort to assist (iv) No, because.....

5. Have you ever seen or observed PWDs crossing the road at zebra crossings and other designated stops in the past one month?

(i) Yes (ii) No

If “Yes” to question 8, did you feel obliged to stop or slow down for such pedestrians who are PWDs?

(i) Yes, I did (ii) No, I didn’t think that was necessary (iii) No, because.....

6. At the nearest public transport terminal in this locality or the one you normally work, have you observed name tags of trip destinations (e.g. Alajo, Madina, Asokwa, Ayigya, Legon etc.) displayed boldly so that PWDs can also benefit?

(i) Yes (ii) No (iii) I’m not sure

7. At the nearest public transport terminal in this locality or the one you normally work, have you observed that there are wheelchair-accessible entrances and exits for PWDs?

(i) Yes (ii) No (iii) I’m not sure.

8. At the nearest public transport terminal in this locality or the one you normally work, have you observed that there are accessible seating facilities reserved for PWDs?

(i) Yes (ii) No (iii) I’m not sure

9. At the nearest public transport terminal in this locality or the one you normally visit, have you observed that they use public addressing system (microphone, loudspeaker etc.) to provide journey information which PWDs can also benefit?

(i) Yes (ii) No (iii) I’m not sure

10. At the nearest public transport terminal in this locality or the one you normally work in, have you observed that there is a help centre to assist PWDs find their way about in the terminal?

(i) Yes (ii) No (iii) I’m not sure

INDICATE YOUR AGREEMENT OR DISAGREEMENT WITH EACH OF THE FOLLOWING STATEMENTS:

11. PWDs have a right to access all public services, facilities and places in Ghana.

(a) Agree (ii) Disagree

12. PWDs have the right to be employed in all sectors in Ghana?

(a) Agree (ii) Disagree

13. Persons with hearing disabilities have the right to be given licenses to drive in Ghana.

(a) Agree (ii) Disagree

14. Public transport vehicles are supposed to always reserve 2 seats for PWDs unless there are no PWDs to board the vehicle.

- (a) Agree (ii) Disagree

15. I am expected to be polite and offer my seat for PWDs who are unable to find seats in a commercial vehicle I am already seated.

- (a) Agree (ii) Disagree

16. Each public place for parking vehicles is to have a clearly demarcated area for the exclusive use of persons with disability.

- (a) Agree (ii) Disagree

17. Transport facilities must be user-friendly for PWDs.

- (a) Agree (ii) Disagree

18. Retrofitting involves installing new or modified parts on vehicles which was not previously manufactured or constructed.

To make transport facilities user-friendly for PWDs, I think commercial transport operators should retrofit their old vehicles to accommodate the needs of PWDs

- (a) Agree (ii) Disagree

19. There are a number of governmental and non-governmental organisation (s) that support PWDs activities in Ghana. Are you familiar with any of these organisations?

- (a) Yes (b) No

If “Yes” to question 11, kindly list them.....

20. In your view, what can stakeholders do to support PWDs in their mobility journeys via public transport?
.....

21. In your view, what can PWDs do to enhance their own mobility journeys via public transport?
.....

PART C: (SOCIOECONOMIC CHARACTERISTICS)

22. Gender of Respondent. (i) Male [] (ii). Female []

23. Age of Respondent

24. Respondents Place of residence.....

25. Educational Status. (i) No formal education [] (ii) Primary[] JSS/JHS/Middle School [] SSS/SHS [] Voc./Tech./Commercial [] Tertiary

Level of completion

26. Marital Status. (i) Single and never married [] (ii) Married [] (iii) Married with children (iv) Divorced/Widowed [] (v) CO-habiting []

27. Household Size (how many persons do you live with, e.g. children, siblings etc in the same house).....

28. How many years have you been driving/riding?

29. Indicate the state of licensure.

(i) have an active driver's/rider's license (ii) have an expired driver's/rider's license

(iii) have an active provisional driver's/rider's license (iv) have an expired provisional driver's/rider's license

(v) do not have a driver's/rider's license

30. Indicate the state of insurance

(i) have an active comprehensive insurance (ii) have an expired comprehensive insurance

(iii) Have an active 3rd party insurance (iv) Have an expired 3rd party insurance

(v) Have other kind of insurance (vi) Have no insurance

(Use the short code *920*57# and enter vehicle registration number to check the status after the interview)

31. Indicate make and model of vehicle (e.g. Mercedes Benz Sprinter, Toyota Hiace etc).

.....

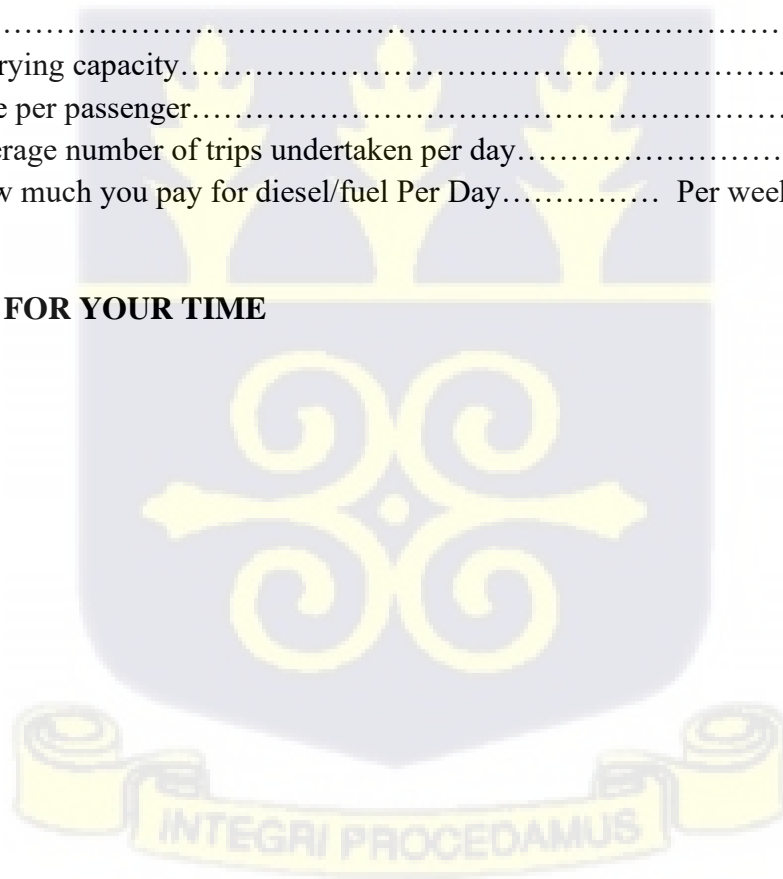
32. Indicate carrying capacity.....

33. Indicate fare per passenger.....

34. Indicate average number of trips undertaken per day.....

35. Indicate how much you pay for diesel/fuel Per Day..... Per week.....

THANK YOU FOR YOUR TIME



APPENDIX H: ETHICAL CLEARANCE



UNIVERSITY OF GHANA
ETHICS COMMITTEE FOR THE HUMANITIES (ECH)

P. O. Box LG 74, Legon, Accra, Ghana

My Ref. No: ECH 179/ 22-23

May 19, 2023

Mr. Dominic Edem Hotor
Department of Geography and Resource Development
University of Ghana
Legon

ETHICAL CLEARANCE
(ECH 179/ 22-23)

The Ethics Committee for the Humanities (ECH) conducted a full board review and approved your protocol titled:

ACCESSIBILITY AND USE OF PUBLIC TRANSPORT SERVICES BY PERSONS WITH DISABILITIES IN GHANA

PRINCIPAL INVESTIGATOR: MR. DOMINIC EDEM HOTOR

Please note that the final review report must be submitted to the Committee at the completion of the study. Your research records may be audited at any time during or after the implementation. Any modification of this research project must be submitted to ECH for review and approval prior to implementation.

Please report all serious adverse events related to this study to ECH within seven (7) days verbally and in writing within fourteen (14) days.

This certificate is valid until May 18, 2024. You are required to submit annual reports for continuing review.

Please accept my congratulations.

Yours Sincerely,

Professor C. Charles Mate-Kole
ECH Chair

Cc: Prof. Alex Boakye Asiedu, Department of Geography and Resource Development, UG

Tel: +233-303933866

Email: ech@ug.edu.gh