The Nexus between Infrastructural Support Systems and Educational Inclusion of Students Living with Disabilities (SLWDS) in Public Universities in Kenya

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Abstract: **The study focused on establishing the effect of infrastructural support systems on the educational inclusion of Students Living with Disabilities (SLWDs) in public universities in Kenya. It was founded on the Social Model (SM). A cross-sectional survey design was adopted. A sample size of 6 public universities, 6 coordinators (staff) for SLWDS, 6 SLWD leaders, and 384 SLWDs was sampled through multistage and purposive sampling. Quantitative data was collected from the SLWDs using questionnaires while qualitative data was from the coordinators and SLWDs leaders using an interview guide. An observation guide was used for triangulation. Content validity was established through expert judgment while reliability was established through Cronbach Alpha. A pilot study was carried out to assess the feasibility of the study. The study findings however revealed no significant relationship between Infrastructural Support Systems and the Educational Inclusion of Students Living with Disabilities (SLWDS) in public universities in Kenya. While correlation analysis revealed that the availability of educational infrastructure, would influence the educational inclusion of the SLWDS in public universities in Kenya at a significant level of 0.090. The study recommended the adoption of effective infrastructural strategies to facilitate educational inclusion for SLWDs. It concluded that opportunities for the SLWDs to pursue higher education can be realized with the same rights as their counterparts without challenges if the barriers to the required infrastructural needs are leveled, in particular; the cost of assistive technology, provision of alternative transport within the university facility and accessibility of the university facilities.**

Keywords: **Infrastructural Support Systems, educational inclusion, Students Living with Disabilities (SLWDs), Social Model and public universities in Kenya.**

I. BACKGROUND OF THE STUDY

University education increases employment opportunities and a noble life for any human being. Providing effective academic services for Students Living with Disabilities (SLWDs) remains a difficult process in higher education despite the critical need. Nevertheless, regardless of the progress in most parts of the world in respect to educational access, there is stark concrete and accurate data showing the true scale of discrimination worldwide and on a national level (UN, 2020). This is even more the case for education related data, a dearth of data concerning the enrollment of students with disabilities suggests that very few disabled students are enrolled in higher education institutions (Kefallinou, Symeonidou, Meijer, 2020).

Conventionally, the study of the evolution of inclusive practices has been focused on non-university educational levels (Nuria, María, Ruiz, Eulogio, 2021). As result, numerous studies focus on evaluating the inclusion of students with special educational needs at the childhood, primary, and secondary education levels. Inclusive education is aimed at providing an educational response to all students. They can participate and advance in a common educational context through the use of methodological strategies that allow the lifelong learning of all with recognition of and attention to the educational needs of all students (Ainscow, 2020; Nuria, et al., 2021)

PLWDs are among the populace most likely to suffer from educational exclusion (UNESCO, 2019). The inclusion of persons with disabilities is critical to the realization of international goals. Sustainable Development Goal, (SDG) 4 includes explicit references to People Living with Disabilities (UN, 2020). In Kenya, 5% of the population of individuals aged 5 years and older constitutes of PLWDs (WHO, 2015). Equal access to education is a human right and a basic goal in many countries around the world. Consequently, the educational Rights of PLWDs in Kenya ought to be protected by the fact that The Kenyan Government is a signatory to various international conventions and declarations.

Global Partnership for Education (2018) recognizes Kenya among 175 countries that have ratified the Convention on the Rights of Persons with Disabilities. Locally, the government has taken serious strides by coming up with policies to address the issue of people with disabilities as regards inclusion. The 1990 policy on inclusive education, The Persons with Disability Act, 2003 part 3 article 18, The Education Sector Strategic Plan 2004-2015 recognizes the obstacles facing children with disabilities and proposes a way forward. Also, the Ministry of Education embraced a national policy on Special Needs education in 2010.

Despite all these, the inclusion of SLWDs in higher education remains a global challenge. While studies confirm that the number of students with special needs in higher education has increased (Tawanda, 2018), SLWDs experience diverse barriers to higher education inclusion among others include; physical barriers, difficult access to facilities, insignificant facilitation services, lack of funding for additional support, difficulties, rigid curriculum, unsuitable teaching, and assessment methods among others (Naser, Fjolla & Donika, 2021). Hence, the implementation of inclusion principles and the practical involvement of SLWDs in higher education remains a persistent challenge at institutional, national, and international levels. However, various researches signal a mismatch of available infrastructure to countries' inclusive approaches (Edwards, Poed, Al-Nawab; 2022; Ireri et al., 2020; Efendi, et. al, 2022).

Statement of the Problem

Education is highlighted as a vital basic human right and it is to be made accessible to all the people regardless of their abilities as reported by (UNESCO, 2017). In this regard, A National Disability Policy framework in Kenya has been in place since 2006. The policy aims was to address discrepancies in service provisions and also guarantee that services that are offered to other citizens are also accessible to People Living with Disabilities. Consequently, a high percentage of learners living with disabilities in higher institutions learn in inclusive settings with their counterparts in universities. However, Wawire, Elarabi, and Mwanzi (2010) reported that participation of SLWD in the learning activities in Kenya's university education is poor, translating to below 0.4% of the total number of students enrolled. UNESCO (2017) report cited the lack of appropriate infrastructural system in the country as a major factor responsible for low transition rates of SLWDs after completion of a level. The National Gender and Equality Commission (2016) report on Access to Basic Education by Children with Disability in Kenya, reported that most learning institutions in Kenya are not well equipped to handle students living with disabilities. The government has not provided enough textbooks and learning aids that are adjusted to meet the needs of SLWDs. The grants given to institutions is also inadequate to cater for needed infrastructure. Assistive devices are very costly and not adequately availed for Students living with disabilities. The inspection of facilities, infrastructure and equipment by the main stake holders to ascertain their appropriateness for use by SLWDs with disabilities is not being done regular basis. An analysis on resource distribution undertaken by the Kenya Integrated Education Programme (KIEP, 2016) indicated a gross under supply of the requisite resources for the education of leaners with special needs. This paper seeks to the effect of Infrastructural Support Systems in particular assistive devices and physical structural accessibility on the Educational Inclusion of SLWDS in Public Universities in Kenya.

Purpose of the Study

This study was to assess the effect of Infrastructural Support Systems on the Educational Inclusion of SLWDS in Public Universities in Kenya

Significance of the study

This work highlights the progress and challenges of infrastructural support systems in Public universities in Kenya thus exposing the probable sustainability and suitability of educational inclusion of SLWDs thereby enhancing public accountability of all educational stakeholders.

II. THEORETICAL REVIEW

The researcher adopted the Social model by Oliver (1986), later improved by Oliver and Barnes, (2012). This model perceives disability as a social creation, a relationship between people with impairment and disabling society. The socially created disadvantage and marginalization experienced by people with impairments. From a social model perspective, disability is thus viewed as a socially produced injustice that is possible to challenge and eliminate through radical social change (Lawson & Beckett; 2021). Hence, the responsibility of removing barriers faced by students living with a disability belongs to society. This study is based on the belief that the academic success of the SLWDs lies in the willingness of the educational stakeholders to level the academic environment by eliminating all the infrastructural barriers by making necessary adaptations to the academic setting and lowering the cost of assistive technologies.

III. LITERATURE REVIEW

Structural Accessibility and Educational Inclusion of Students Living with Disabilities

Disability in the Kenyan setting incorporates any physical, tactile, mental, mental or other weakness, condition or sickness that has, or is seen by huge areas of the local area to have, a generous or long-haul impact on a singular's capacity to complete customary everyday exercises (Republic of Kenya Public Service Commission Disability Guideline; 2018). Inaccessible school infrastructure is excluding children with disabilities. This exclude children with disabilities and threaten Kenya's Vision 2030 poverty eradication goal (kiiru, 2019).

Students Living with Disabilities (SLWDs) often encounter physical barriers in the postsecondary environment which continues to cause anguish among SLWDs (Edwards et. al., 2022; Maingi, 2016; Mendoza, Luján, Otón, Sánchez, Rodríguez, Reyes, 2022). Accessible environments across learning institutions are occasionally restricted by architectural designs and budgetary constraints and post-secondary institutions often do not consider the immediate individual needs of students with disabilities (Kiru, 2019; Maingi, 2016). These hindrances identified with the physical environment can add to the isolation of SWLDs that they may have to endure. In the rural areas, SLWDs face, even more,

increased barriers to education mainly as a result of limited infrastructural support systems compared to their counterparts from the urban areas (Hayes, 2019; Kiru, 2019).

Educational infrastructure is one of the Key inputs to the education system that help to improve the quality of education (Barret, 2019, Ireri et al., 2020). Moreover, infrastructure concerning SLWDs mainly implies that which will support the services being provided such as school facilities, instruction in braille/tactile or audio, doors wide enough to accommodate a wheelchair, handrails on both sides of stairs, and trained teachers (Bakari, 2017). For a learning environment to be accessible, it must allow all learners, educators, and parents to safely enter, use all the facilities including recreational areas, and participate fully in all learning activities with as much autonomy as possible, as well as an exit during emergencies.

Investments in quality school infrastructure are strongly associated with improved learning outcomes even after controlling for other relevant covariates. Various studies have revealed that investments in school infrastructure and the physical conditions for learning are not a luxury but a need (OECD 2017, World Bank, 2019). To the SLWDs, the state of the infrastructure is considered a more significant factor as it has a relationship with students' satisfaction with the learning environment. This calls for policymakers to put into consideration PLWDs in the envisioning, coordination, and planning of specific infrastructure projects in the decision-making process for infrastructure development.

Physical infrastructure accessibility has countless components, both within and outside the school. Accessible structures refer to the availability of ramps in all the buildings, lifts or elevators in each of the buildings, wheelchair-accessible rooms, transportation facilities, and dining halls (UNESCO, 2019). To ensure justice in an education system, accessibility must be addressed, concerning pathways or stairs to key resource rooms (Marchetta, 2019). Appropriate seating arrangements adapted furniture and facilities, and transportation to and within the educational facility are vital. Subsequently, university management should warrant that, this is put in contemplation during construction (Barrett, 2019).

To address the issue, there are fundamental laws in low and middle-income countries to eliminate barriers and mandate accessibility standards in school buildings, and promote the full inclusion of all students. Laws, policies, and building codes exist in India, Malaysia, Nigeria, Mexico, and Brazil (Global Educational Monitoring Report, 2020). These were amended to incorporate the accessibility norms and universal design principles in the built, transport, and pedestrian environment to harmonies with UNCRPD. For example, Nigeria is among the first nations/countries of the world to ascent to the UNCRPD in 2007 and ratified the same in 2010. The Nigerians with Disability Decree (1993), Section: 5 sub-sections states "free education at all levels; structural

adaptation of all educational institutions and provision of special needs of the disabled".

The UK legislation is meant to encourage and enforce equality of opportunity and prevent discrimination on the grounds of race, religion, gender, sexual preference, and disability. Consequently, these changed the fabric of buildings, such as schools and universities, shops and streets as well as public transport have all been altered to make them more accessible for all kinds of disabled people. These include ramps for wheelchair access, Braille and tactile signs the introduction of induction loops, and so on. Several businesses have been spawned providing aid and adjustments to public areas as required by both legal and societal expectations. However, despite the improvement, a 2016 survey in the UK, found that only 5 percent of 59,967 schools were "performing as intended." (Thomas and Pasquale 2016) The US and the UK are wealthy countries so it is not surprising that these school infrastructure and related problems are much worse in many other regions around the world (World Health Organization 2015, World Bank, 2019).

In Sweden, Grönlund, Lim, and Larsson (2010) conveyed that engineering plans have been exposed to extraordinary guidelines and construction standards since the mid-1960s, zeroing in on access for wheelchair clients to public structures. For a considerable lot of Africa's debilitated, assistive gadgets, for example, wheelchairs, support, portable hearing assistants, and prosthetics are either not promptly accessible or unreasonably expensive (Bunning, Gona, Newton, and Hartley; 2017). Infrastructural inadequacies have been featured as one of the core hitches for SLWDs in higher education (Schuelka, 2017).

Mexico as well ratified the CRPD in 2007, and in 2011, signed into law the General Law for the Inclusion of People with Disabilities (LGPID), which replaced the 2005 law. The Mexico City Code of Building Regulations, 1993 stipulates architectural requirements for the free transit of persons with disabilities. Minimum requirements regarding accessibility and movement for persons with disabilities, in private and public spaces are specified, along with circulation needs and elements of communication, both inside buildings and on public rights of way. Hence, it includes both school buildings and approaches roads/streets.

In the East Asian Tigers, the building of modern public infrastructures such as transport networks, highways, freeways, airports, ports, and tramway systems are very complete, the development of Information and Communication Technologies (ICT) infrastructure, increasing its massive access, and others. The condition and access of the public infrastructure services have been one of the central factors that explain the attraction of foreign investors to Singapore (Kang, Kang & Plunkett, 2015). Undoubtedly, Hong Kong skyscrapers make her become one of the most attractive businesses and financial centers in the world; all of them are also touristic attractiveness. Participation to build modern infrastructure has not been coming only from the

public sector, but also private national and international investors (Public-Private Partnership) (Avalos & Ricardo, 2013; Gilson &Dymond, 2015).

Evidence from India shows that the majority of the states; have education departments in partnership with UNICEF. They have established sustainable and scalable WASH projects. Here the Government of Odisha constructed a drinking water and hand wash facility at multiple heights, which are accessible to children with and without disabilities. In 2017, OPEPA approximately 350 engineers were trained by UNICEF on access audits and universal design applications in schools. As a result, a sizeable number of urban and semi-urban state-run schools were made accessible with state funds.

In Nigeria, a task force by the Centre for Citizens with Disabilities (CCD) was set to assess Public Infrastructures for Persons with Disabilities, they aimed to inspect infrastructure buildings and other public spaces that are established to provide public services. The task force revealed that there was the existence of old and nonstandard infrastructure that hampered the accessibility of PLWDs to the required services (CCD, 2015). It concluded that access to Public Infrastructures for Persons with Disabilities infrastructural challenges was the most stumbling block for PLWDs, that most government buildings do not have special infrastructural requirements for disabilities (Bakari, 2017).

In Tanzania, the inadequacy of school equipment and accessible physical environment to enable persons with disabilities to comfortably accomplish their studies was reported among the major issues affecting inclusive education (Uromi&Mazagwa, 2014). Various scholars still indicated that there were no appropriate infrastructures for SLWDs, a report by Issa Yussuf of daily news for the case of State University of Zanzibar (SUZA) report titled "Tanzania: When Varsity Architecture 'Forgets' People with Disabilities" (Tanzania Daily News, 17 Dec 2014), which explains the ongoing construction process without consideration of the infrastructural requirements for students with disabilities (Bakari, 2017).

Assistive Technology and Educational Inclusion of Students Living with Disabilities

Globally, there are more than one billion people who need one or more assistive products or devices (WHO, 2017). However, only one in ten people have access to such products, leaving many individuals unable to enjoy the levels of inclusion and participation they are entitled (WHO, 2019). Currently, only 5–15% of those who need assistive technology (AT) can obtain it in low-and-middle-income-countries (LMICs) (UNICEF, 2016; Hayes & Jennae, 2017).

The complexity of life tasks may hinder People Living with disabilities from exploiting their full potential with no exception of educational attainment. People with disabilities have the right to practice their life in the way they find suitable; conversely, if they are powerless against this and are prohibited from accessing assistive technology, it can lead to a dependency on others and thus a meaningless life. UNICEF (2016) report noted that up to ten percent of children in the world have affected specific learning disabilities (SLD) and the majority of these children are educated in general education classrooms. An essential resource for children with learning disabilities to flourish in the classroom is accessible to assistive technology

The commitment to increase the inclusion of SLWDs has ensured that the concept of Assistive Technology (AT) has become increasingly widespread in education (Fernández, Montenegro, Fernández, 2022). Assistive technology is a broad concept that includes a range of services and devices. Assistive technology is anticipated to facilitate people who have challenges or disabilities and in this case; SLWDs. Erdem (2017) refers to assistive technologies as the equipment, devices, and apparatus, and the services, systems, processes, and adaptations made to the environment that support and facilitate the functions, used by persons with special education needs. According to the Individuals with Disability Education Act (IDEA), any equipment that is used to improve the functional capabilities of individuals with disabilities is considered AT. It may include any software program or product system that is used to increase, maintain or improve the functional capabilities of people with disabilities (Kumar & Raja, 2010).

Assistive technologies meaningfully help in aiding persons with special educational needs in learning, building self-confidence, being independent, and achieving a high quality of life Erdem (2017). They play a key role in enabling SLWDs to access education, actively and independently participate in the education process, interact with their peers, and have control over their own learning experiences. The use of assistive technologies facilitates the improved performance of the students by providing support, such as adapting content and activities of the curricula, specific to their needs within a minimum-restricted environment. Assistive technologies aim to improve the functional performances and the academic success of the students.

IV. METHODOLOGY

This study adopted a cross-sectional design. A cross-sectional survey design was considered the best for this study because the design secures evidence concerning all prevailing situations and offers the way forward on how to take the next step having determined the current situation and what is anticipated (Saunders et al., 2016).

Sample Size

Using a sample size of 6 public universities, 6 coordinators for SLWDS and 6 student leaders for SLWDs, and 384 students living with disabilities were sampled through multistage and purposive sampling.

Constructions of Research Instruments

A questionnaire was embraced as the major method for data collection. A five-Likert scale was adopted. It was

administered to SLWDs to gather quantitative data. A questionnaire is a formal data collection instrument that enables the researcher to measure the variables of concern (Casteel & Bridier, 2021). This method was applied because it is suitable for the non-observable form of data. Interview guide and observation. An interview guide and observation guide was used for triangulation.

Test for Reliability and validity of the study

Cronbach Alpha for multi-point scaled items was used in the pilot study to test the reliability of the research instrument. The measure was based on standardized items at 0.729 using 29 items. A test with vigorous dependability was relied upon to show a Cronbach Alpha above 0.80. Notwithstanding, values above 0.7 are OK signs of interior consistency (Cooper & Schindler, 2011). Thus, the questionnaire was considered suitable for collecting data.

Data Collection Methods and Procedures

The researcher employed four research assistants who were tasked with a sampled university. The research assistants were directed on how to administer the instrument after which they proceeded with data collection. All the instruments were then handed to the researcher for final processing in a period not later than two days after data collection. The interviews and observations were carried out by the researcher who did it according to the schedule that she would be given before data collection.

V. DATA ANALYSIS TECHNIQUES AND PROCEDURES

The study embraced both qualitative and quantitative approaches to process, analyze and interpret data. Afore processing the collected data, preparation was done on the concluded questionnaires by editing, coding, entering, and cleaning the data. Qualitative data collected through interviews, observations, and documents were analyzed through Content analysis. Qualitative research is deemed convenient as it deepens the appreciation of human experience (Creswell & Creswell, 2018). Quantitative data were coded and processed using Statistical Packages for Social Sciences (SPSS) version 21.0 and were analyzed using descriptive statistics such as frequencies and percentages. Hypotheses were tested using inferential statistics specifically Pearson's correlation and multiple regression to find levels and significance of relationships between the infrastructural support system (independent variable) and Educational Inclusion (dependent variable).

Response Rate

The study entailed questionnaires, interviews, and participant observation to collect primary data. From a study sample of 384 SLWDs, the study obtained a response of 83%. Abidin, (2022) proposes a response rate of at least 60% and for quantitative data in surveys, a response rate of ≥80% is expected.

VI. SUMMARY OF THE FINDINGS

Availability of Educational Infrastructure for Educational Inclusion

The study delved into the inquiry of availability of educational infrastructural support system on educational inclusion for the SLWDs in the public universities in Kenya. The SLWDs were issued with a questionnaire containing the research question on availability of infrastructure in their universities. The questionnaire item was designed as a nested table and rated on a 5-point Likert scale with statements on availability of infrastructure. The collected data was analyzed descriptively and presented using Table 1

Table 1: Availability of Educational Infrastructure

		totally disagree	disagree	neutral	agree	totally agree	Total
Information in different formats	F	24	24	49	156	65	318
	%	7.5	7.5	15.4	49.1	20.4	100
Modified information sources	F	42	51	89	68	68	318
	%	13.2	16	28	21.4	21.4	100
Alternative transport provisions	F	47	98	67	60	46	318
	%	14.8	30.8	21.1	18.9	14.5	100
Affordable cost of AT devices	F	63	87	85	53	30	318
	%	19.8	27.4	26.7	16.7	9.4	100
Access to Class	F	42	84	64	86	42	318
	%	13.2	26.4	20.1	27	13.2	100
Access to other areas	F	55	91	54	104	14	318
	%	17.3	28.6	17	32.7	4.4	100

Table 1 shows that majority of the respondents 98(30.8%) rated the statement "The university provided alternative transport for the SLWDS" as disagree. This is in agreement with the OSDE, 2006 report that identified Provision of accessible student transport services as one of the most complex daily activities for schools and school boards, due to differences in the challenges and responsibilities involved in transporting children with and without disability.

The next largest portion of the respondents 68(21.4%) rated the statement as neutral as they could not agree nor disagree with it. This may be attributed to significantly large amount of finances and resources that may be required to provide such support to the SLWDs. For instance, having a standby bus or van for the SLWDs would mean that an entire department of support staff attached to the vehicle and only serves the SLWDs. The findings of this work contradicts with the work of Ismail et al., (2021) who identified the main sources of barriers to educational inclusion of SLWDs in public universities as the physical environment.

Table 1 shows that majority of the SLWDs 87(27.4%), disagreed with the statement about the affordability of the AT devices. This was followed by 85(26.7%) who were neutral

with the statement. The finds are at per with KNCHR 2016 report that identified simply 32% of PLWDs had access to assistive devices and services while of these, 41% were based in the urban areas, in comparison to 26% in the rural areas (KNCHR, 2016). The cost of AT devices is one of the highlighted impediments to inclusivity in educational institutions in many studies (Tamakloe, 2020; Hunt, 2021). The two researchers point to the need for assistive technology for the SLWDs as soon as at they join early childhood education. This implies that the cost of the devices and applications need to be affordable for the parents at all levels.

Table 1 indicates that majority of the SLWDs 86(27%) agreed with the statement about easy access to access to classrooms. Through observation guide, the researcher found out that the classrooms have been prioritized for access to the SLWDs. The storey buildings have fixed elevators and escalators. The respondents were also required to rate their level of agreement with the statement on the ease of access of other areas like washrooms, dining halls, shops and other facilities. Majority of the SLWDs 104(32.7%) agreed that they could easily access "other areas" within the universities. On the contrary, a comparatively large portion of the SLWDs rated the statement on access to other areas as disagree 91(28.6%).

The findings of this study disagreed with that of Anastasiou & Kauffman, (2013) and Maingi (2016) who emphasized that accessible environments across learning institutions were occasionally restricted by architectural constraints and post-secondary institutions often do not consider the immediate individual needs of students with disabilities and thus inadequate auditoriums, classrooms and stairs, narrow walkways, heavy doors, elevator doors without delay mechanism, the absence of ramps and signs, ineffective regulations are among the common barriers for disabled students. However, the findings revealed that higher learning institutions devised strategies to cater for students with challenges in terms of accessibility to infrastructures.

Therefore, the overall percentage on the availability of Availability of Educational Infrastructure in the selected universities was represented by 20.76% and mean of 2.01. This implies that although there is availability of educational infrastructure, it is far below the average. This implies that students living with disabilities in selected universities face challenges due to inadequate educational infrastructure and as a result it hinders their full exploitation of their academic abilities.

On interviewee stated as follows:

The university buildings were constructed several years ago; some buildings are as old as during colonial period and as a result did not cater for the requirements of other students with special needs. However, there are some few new buildings which are considering some of our requirements. We believe with time thing will change.

The above information from the interviewee indicates that students with disabilities are facing hard times due to shortage

of educational infrastructure. Through observation method, it was noted that among the six (6) universities that were studied, only two (2) universities had the adequate educational infrastructure to support the effective learning of students living with disabilities. This availability was attributed to many new buildings that were constructed basing the needs of both SLWDs and those without challenges. The rest (4) universities had old buildings which had not been renovated to cater for the students with special needs and thus made it difficult for effective accessibility of SLWDs. This also contributed to other universities having higher enrollment of SLWDs than others.

The study examined the availability of educational infrastructure for educational inclusion for SLWDs using correlation analysis. Using the concern for the information on disability being available in different formats, the correlation analysis findings on the level of inclusion is presented in Table 2.

Table 2 Correlation Analysis on Availability of Educational Infrastructure

		Physical Infrastructure
SLWD access facilities	Pearson Correlation	.043
	Sig. (2-tailed)	.443
	N	318
Continuous improvement on disability issues	Pearson Correlation	.004
	Sig. (2-tailed)	.939
	N	318
Movement is comfortable	Pearson Correlation	.070
	Sig. (2-tailed)	.213
	N	318

Table **2** shows that the correlation between access to facilities and movement within the university environment is weak but positive (r=.043, sig level =.443); movement is comfortable (r= .070, sig level = 213). This implies that an increase on accessibility to the physical environmental would increase inclusion of SLWDs on a small scale. Apparently, all the correlation between adapted physical infrastructure and the constructs of educational inclusion of the SLWDs are insignificant. This implies that while there would be change in the success of the educational inclusion of the SLWDs arising from dissemination of information on disability, the change would not be significant.

The observation guide from the 6 universities studied revealed that three had accessible libraries with ramps, accessible class rooms and well organized computer labs for SLWDs of different types while the rest lacked ramps for students with physical disabilities to access especially the higher floors which contained learning resources that could be useful for their programs. Likewise, three of those libraries had elevators with brails for the VI.

The following was observed during observation;

Plate 1.1 Accessible Classroom with ramps

Plate 1.2 Computer lab for students living with physical disabilities and those who are Visually Impaired

Plate 1.3 Accessible University Library with ramps

The above images from the observation guide indicate adapted buildings with ramps to facilitate the inclusion and acceptability of SLWDs by meeting their exclusive needs. Students with Physical disabilities who may need to use wheelchairs or those who may need to use a white cane as a result of vision impairment are considered. However, this was not the case in most of the sampled university buildings.

VII. SUMMARY OF THE FINDINGS OF THE FINDINGS

The majority of the respondents 89(28%) were neutral about the statement "the materials in the universities had modified sources". The majority of the SLWDs 98(30.8%) rated the statement "The university provided alternative transport for the SLWDS" as disagree. The majority of the SLWDs 87(27.4%), disagreed with the statement about the affordability of AT devices. Finally, the study found that majority of the SLWDs 86(27%) agreed with the statement about easy access to access to classrooms.

From the findings, it is manifested that accessibility and movement of students living with disabilities were generally catered for all categories of SLWDs though there is still room for improvement as not all the buildings were adapted. Ireri et al., (2020) noted that modified physical resources are crucial for the success of learners with disabilities in an inclusive learning environment. In Uni1, Uni3, Uni4, and Uni6, renovations of buildings have been made to improve infrastructure and services. However, in Uni2, and Uni5, through the observation guide, the researcher discovered that the buildings are old and need to be modified for accessibility of the SLWDs. While access routes have been created, ramps, lifts, stairs, and signs to make buildings more accessible a keen consideration show that there is still room for improvement.

An accessible environment is necessary for SLWDs to partake in the institutions of higher education contentedly. The insufficiency of these amenities will hamper their sustained movement in the university's environment. Consequently, providing facilities that are required for SLWDs should be a principal requirement for every learning institution. Sulaj et al, (2021) agree by emphasizing the need for ineffective implementation of the policies is among the collective barriers for SLWDs.

On the adoption of AT. 81% percent of the respondents reported that they use assistive devices in the classroom and their learning experience, while 19% of them had never used them. Concerning the AD use impact on the educational inclusion of SLWDs, 98% had faith that AD makes a significant difference in their academic inclusion, nonetheless, 2% of the respondents disagree. Providing access to the appropriate assistive technologies to SLWDs is one of the ultimate factors in creating their educational inclusion in public universities. Thus this work is in agreement with Erdem (2017) and Fernández, et. al, (2022) who identified the increasing use of AT towards realizing inclusivity and its role in improving the student's quality of life in a fashion appropriate to their differences and needs can be used to support persons with special educational needs in many areas of education as assistive technologies help support SLWDs in reading, writing, communication, and daily life.

VIII. CONCLUSION

The study found that there is influence of availability of educational infrastructure on educational inclusion for Students Living with Disabilities (SLWDs) in Public universities in Kenya. The study showed that the educational infrastructure that highly influenced their educational inclusion was the cost and affordability of the assistive technology and related materials. The study therefore recommended that the University management and close

stakeholders should undertake the process of providing affordable assistive technologies and materials for the SLWDs through mobilizing needed resources and providing information on the same.

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