

Influence of physical school facilities on learning performance of students with physical disabilities: A case study of Dodoma city secondary schools

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ABSTRACT

The focus of this study is an investigation on influence of supportive physical school facilities such as classrooms, ramps, laboratories, toilets and sports grounds on the learning performance of students with physical disabilities (SWPDs) in Tanzania. A case of seventeen secondary schools having students with physical disabilities in Dodoma City were visited. The study used a cross-sectional survey design and questionnaires for data collection. The study assessed the influence of classrooms, ramps, toilets, laboratories and sports grounds on learning performance of SWPDs. A multistage sampling procedure was used to obtain study sample of 350 respondents. Up to 327 participants including 294 teachers and 33 students with physical disabilities returned their questionnaires. The study employed structural equation model (SEM) in analysing quantitative data. The findings have shown that, laboratories and sports facilities (sports grounds) have significant influence on SWPDs' learning performance ($p < 0.05$). The toilets, ramps, and classrooms, on the other hand, do not have a direct influence on learning performance of SWPDs. The findings imply that, much improvement is needed so that the available physical school facilities can accommodate SWPD usage and fitting.

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Introduction

Physical facilities in the context of learning environment for students with physical disabilities (SWPDs) include buildings, equipment, infrastructure, and grounds needed to create a product. The focus of this study was on physical school facilities which cover buildings such as classrooms, laboratories, and toilets; grounds such as sports and games play grounds and ramps which assist accessibility into elevated learning places and rooms. Quality of product, in this case learning performance, may be affected by the condition of the physical school facilities. This is highly dependent on the design and nature of the school classrooms, laboratories, toilets, ramps, and play grounds in relation to the nature of the disabled students in a particular school (Akomolafe *et al.*, 2016; Hull, 2010).

Students with disabilities face difficulties or challenges in terms of mobility, participation in manual works due to some weakness of physical body organs such as hands, legs, spinal cords. They are likely to encounter difficulties due to the design of learning environment especially infrastructure, equipment, and or buildings necessary for their learning activities (Hull, 2010; UNESCO; UNICEF; World Bank; WFP. 2020).

Insufficient facilities, poor and inaccessible infrastructures and non-interactive learning environment for physical disabled students make school life of the SWPDs more difficult. Access to learning places, participation and students' involvement in learning activities and interactions of the students and learning sources are associated with learning performance of the SWPDs (Hanum, 2017). Learning performance in this study is considered as an ability of a student to use newly gained information or act in order to gain knowledge. Alshurman *et al.* (2021) once said that, materials and infrastructure should be available to assist SWPDs to obtain education which is critical for the job market and in reducing the country's burden of providing services to them. It also assists them to overcome the psychological consequences associated with their disability.

Globally, calls have been made for international community to build and upgrade education facilities which are child and disability friendly and gender sensitive with safe, non-violent and effective learning environment for all (Chambers *et al.*, 2016; AuCoin *et al.*, 2020; Barrett *et al.*, 2019). This study focuses on the learning facilities for disabled students. In Tanzania students with physical disabilities have been experiencing unsuitable learning environment, specifically characterised by unfitting facilities. Studies show that, suitable physical facilities are considered among factors leading to good outcome (learning performance) (Kuresoi *et al.*, 2022; Kabuta, 2018; Hull, 2010).

Studies show that, physical facilities are among vital factors that facilitate learning performance both academically and in terms of extra-curricular activities (Barrett *et al.*, 2019; Hull, 2010; Ojuok *et al.*, 2020, Alsalem & Abu Doush, 2018). Despite this fact, recent literature has shown less empirical proofs on how physical facilities specifically classrooms, ramps, toilets, laboratories, and sports and games play grounds influence learning performance of SWPDs in Tanzanian secondary schools and particularly the schools in Dodoma City (Kabuta, 2014; Stone-McDonald, 2014; Opini & Onditi, 2016). Based on such grounds, the aim of this study was to address this empirical research gap.

Study Objective

The current study was designed to assess the relationship between physical facilities and learning performance of Students with Physical Disabilities (SWPDs) in Tanzania Secondary Schools. The study sought to address the following specific objectives:

- i. To determine influence of classrooms facility on learning performance of students with physical disabilities
- ii. To determine influence of ramps facility on learning performance of students with physical disabilities
- iii. To determine influence of toilet facility on learning performance of students with physical disabilities
- iv. To determine influence of laboratory facility on learning performance of students with physical disabilities
- v. To determine influence of sports and games ground facility on learning performance of students with physical disabilities

Research Hypotheses

The study tested the following null hypotheses:

- H1: There is no significance influence of classroom facilities on learning performance of SWPDs.
- H2: There is no significance influence of ramp facilities on learning performance of SWPDs.
- H3: There is no significance influence of toilet facilities on learning performance of SWPDs.
- H4: There is no significance influence of laboratory facilities on learning performance of SWPDs.
- H5: There is no significance influence of sports facilities on learning performance of SWPDs.

Literature Review

Empirical Review

Classroom Facility and Learning Performance of SWPDs

Classroom facility is an important aspect of learning environment whose characteristics determine how learning and teaching take place. Favorable learning environment with suitable physical facilities gives an optimistic influence on the educational attainment scores of secondary school's learners or students. In order to have this favorable learning environment, class physical setting need to be organized in a proper manner, and be facilitated and equipped (Suleman & Hussain, 2014). The management of the classroom is a serious part of operational and fruitful teaching and learning. As such, a class must be well organized. Organised classrooms, efficient lesson planning and preparation are what make up effective management. However, all of these are initiated to guide a teacher to teach and a student to learn effectively. Classroom management attracts two views: Students' point of view and teachers' point of view. In considering point of view of the students, active management of classrooms can assist learners with chances to socialize as they learn contents. On teachers' point of view, the management of a classroom involves anticipatory discipline and enjoyable instruction (Suleman & Hussain, 2014; Lang & Hebert, 1995; Lippman, 2010). In this regard, physical facilities and classroom facilities are significant in improving an overall performance of schools. These can be more vital to learning and general performance of SWPDs. This study investigated Influence of physical facilities on learning performance of SWPDs built on a hypothesis that:

H1: There is no significance influence of classroom facilities on learning performance of SWPDs.

Ramps Facilities on Learning Performance of SWPDs.

Physical facilities have influence on educational performance and achievement of learners, while the inadequacy of facilities would translate to deprived performance (Oluremi & Olubukola, 2013). To students with physical disabilities, physical learning facilities mean a lot and go further than performing in academic only. Some experience shows that, many schools' facilities such as hand rails and ramps, hearing aids, and lower toilets tend to be unavailable. In cases they are available; they are in poor standard and condition. The study conducted in Nigeria listed ramps facilities among crucial facilities for special needs learners before mainstreaming learners with exceptional essentials in regular classes. Other facilities listed include hearing facilities, braille, lower toilets, wide doors, clear floor space and wheelchairs. The availability of the mentioned facilities would help SWDs to maximize their potentials. Moreover, studies insist the importance to provide ramps and hand rails for easy access of students, particularly SWPDs to classrooms, laboratory rooms, toilets and other learning areas (Okongo *et al.*,

2015). This study is built on a hypothesis that:

H2: There is no significance influence of ramps facilities on learning performance of SWPDs.

Toilets Facilities on Learning Performance of SWPDs.

A study carried out in Brazil revealed that, toilets facilities are neither sufficient nor adequate in condition. Many toilet facilities in learning institutions are dirty, inadequate and insufficient. This condition affects more the girl students since the toilets offer unhygienic environment for menstrual hygiene management (Coswosk *et al.*, 2019). However, to the SWPDs this condition can be worse, though cannot deny toilets their importance in promoting performance by securing students' stay and studying in areas without psychological disturbance caused by missing Human Right to Water and Sanitation (HRTWS) once the need arises. This is addressed under the hypothesis that:

H3: There is no significance influence of toilets facilities on learning performance of SWPDs.

Laboratory Facilities on Learning Performance of SWPDs.

Experts in technical education propose that, laboratories are crucial facilities for students' learning. The importance of laboratories does not leave other students out of learning environment and their use. Students of all status, gender and age have got right to access, use and benefit the laboratory facilities (Wolf, 2010). SWPDs tend to miss this right by failing to access, utilize the available laboratory in schools due to their unacceptable conditions. In Tanzania secondary schools, less is known about influence of laboratory facilities on performance of SWPDs. This study sought to address the hypothesis that:

H4: There is no significance influence of toilets facilities on learning performance of SWPDs.

Sports Facilities on Learning Performance of SWPDs.

Sports and games in many times have been considered a tool for entertainment and leisure. However, there are extra advantages and roles of sports and games particularly to the students. Ramli and Zain (2010) study revealed some factors that can influence students' educational accomplishment. These are system management (elearning, management information); Environment of learning (teaching aids, classrooms, library); and infrastructure (hostel, sports grounds, parking areas and transportation). It is further emphasized that resources such as physical resource, human resources and material resources which are available in schools should be of a high quality to encourage students head for learning (Akomolafe & Adesua, 2016). More priority should be given to allocation and provision of funds to make schools environment conducive for teaching and learning. With consideration to this contentment, this study hypothesized that:

H5: There is no significance influence of sports facilities on learning performance of SWPDs in Tanzania secondary schools.

Theoretical Review

This particular study was underpinned by theory of Social Learning. The theory originates from the works of Albert Bandura in 1960s. Bandura argued that there is a direct correlation between individual perceived self- efficacy and behavioural change (Bandura, 1977). Here, this implies behaviours and their

environment or an interaction between person and their environment. This theory was later named as social cognitive theory (SCT) with the aim of describing roles played by cognition in encoding and performing behaviours. The assumption of this theory is that, people learn and perform by observing and interacting with others, with environment, behaviour and cognition as factors influencing development in a reciprocal triadic relationship.

In the effort to make learning environment acceptable and less pushing factor for SWDs researchers have been looking for empirical evidences to see how learning environment influence performance via various sectors. Arguably, environment may play a crucial role in supporting life of students and helping SWPDs to cope with school learning environment. This theory was later backed up by Social Perspective Theory by Vygotsky (1979). This theory plays a role of building a foundation on which variables of the study originate. In this regard, it has informed the researcher about study variables.

Conceptual Framework

The design of this conceptual framework of the study in Figure 1 considers the variables on physical facilities based on the reviewed literature and practices. Each physical facility on the exogenous variables is directed to the endogenous variable when assessing the direct influence of the latent variables. The model used in this study includes an endogenous variable (dependent variable such as level of attendance in classrooms, attendance in sports activities, ability to accomplish tasks, and performance in tasks and management) in the form of SWPD performance. Thee exogenous variables (independent variables) in the form of toilets, classrooms, laboratories, ramps, and sports facilities, all of which influence support for SWPDs in the school are shown in figure 1.

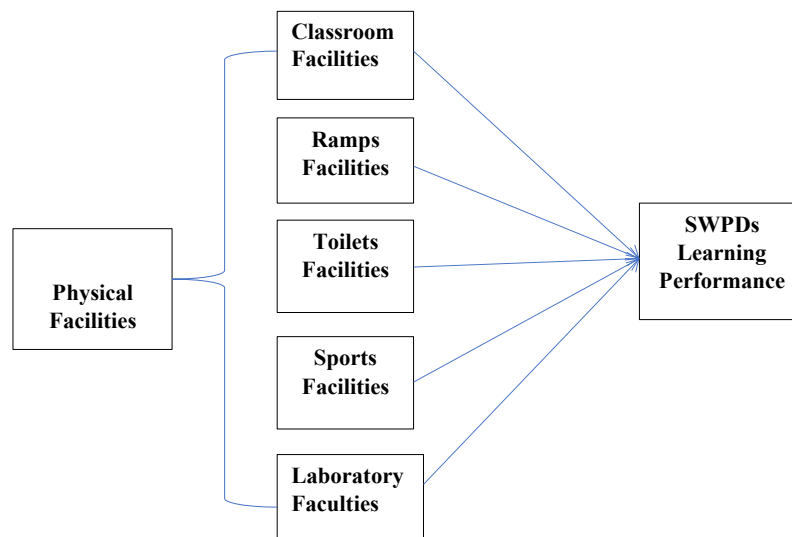


Figure 1: *A Research Model*

Table 1: Independent variables used in the model and their appropriate abbreviation.

Exogeneous variables (Independent variables)	
Classroom1	The available classrooms in this schools have enough space tom move freely
Classroom2	There are special chairs and tables for physical disabled students
Classroom3	Classrooms have a physically accessible environment that is not mobility limited
Classroom4	Classes are well ventilated
Ramp1	Available ramps are wide enough for wheelchairs to turn or allow two-wheel chair to pass at ago
Ramp2	The available ramps have gentle slopes of about 1:12 for your safety
Ramp3	The available ramps are well designed with handrails on both sides
Ramp4	The ramps are safety enough to avoid slippery
Toilets1	Toilets and latrines in this school have been modified
Toilets2	School's toilets are wheelchair accessible toilets
Toilets3	Schools' toilets for SWPDs have got well designed changing rooms and hygiene rooms
Toilets4	Schools' toilets entail nonslip floor and possess adjustable
Laboratory1	There are enough wheelchair accessible school laboratories
Laboratory2	Laboratories have all equipment necessary for SWPDs
Laboratory3	There is preferential seating for SWPDs
Laboratory4	In this school laboratories equipment and apparatus have been modified to fit SWPDs
Sports1	In this school SWPDs always participate in sports
Sports2	In our school SWPDs have access to available sports
Sports3	SWPDs never participate in any type of sports and games
Sports4	In this school the SWPDs ability to engage with other students

Table 2: Dependent variables used in the model and their appropriate abbreviation.

Endogenous variable (dependent variable)	
Performance1	SWPDs attend classes regularly without any obstacles
Performance2	In this school SWPDs have an average attendance of above 75
Performance3	In this school SWPDs participate fully in essay writing
Performance4	SWPDs achieve upper grades as from B and above
Performance5	In this school participation of SWPDs in class discussion
Performance6	SWPDs successfully accomplish extra activities tasks
Performance7	SWPDs performance in sports and games have improved
Performance8	SWPDs participate fully in students' government

Research Gap

Numerous studies on people with disabilities in social and education context have been conducted, with a focus on the challenges that people with different types of disabilities face. Furthermore, such studies either focus on educational access (inclusion), where most of them are in primary schools or on some infrastructure challenges at the primary and university levels. Less is known about the state of infrastructure in secondary schools for learners with challenges of disabilities, particularly in Tanzania. This study was designed to explore the influence of physical facilities used in learning environment on the learning performance of SWPDs in learning processes.

Research Methods

The study used cross-sectional as a study design where the data were collected at one point in time. The primary goal was to investigate the impact of the school's supportive physical facilities on the learning performance of students with physical disabilities (SWPDs).

The target population of the study included all students with physical disabilities enrolled in secondary schools and the respective teachers in the schools enrolled. The study sample was distributed accordingly as can be observed in Table 3. A total of 327 out of 350 respondents turned up for the study. This study gathered primary data from respondents via a use of structured questionnaire distributed to students and teachers. The study used the theoretical literature proposed by Dweikat (2016), Al-Hadidi & Al-Zaboun (2013) using Likert scale and categorizing the facilities/dimensions based on the indicator for supporting SWPDs. This study used physical facilities including Classroom facilities, Ramp facilities, Toilet facilities, Laboratory facilities, and Sports facilities as independent variables with four indicators each and therefore a total of 20 indicators.

The collected data based on information from students and teachers were loaded into MS-Excel 2016 for data cleaning and sorting. The organized data was entered into IBM-SPSS version 25 for analysis. In this study, PLS-SEM analysis software was used to conduct quantitative analysis using inferential statistics. The data was analyzed and presented based on each specific physical facility influence among students with physical disabilities, which was then demonstrated using figures and charts based on the general interpretation of influence on each indicator variable.

Table 3: The study sample distribution by specialization.

Category	Number	Proportion (%)
Teacher	294	89.90
SWPDs	33	10.10
Total	327	100

Source: Field work, 2021

Table 3: Dimensions and the number of indicators in each area.

Independent (exogenous variables)			
No.	Physical facilities	Number of indicators	Denotation
1	Classroom facilities	4	Classroom1 up to Classroom4
2	Ramp facilities	4	Ramp1 up to Ramp4
3	Toilet facilities	4	Toilet1 up to Toilet4
4	Laboratory facilities	4	Laboratory1 up to Laboratory4
5	Sports facilities	4	Sports1 up to Sports4
Dependent (endogenous variable)			
1	Performance of SWPDs	8	Performance1 up to Performance8

Results and Discussion

The study used Structural Equation Model (SEM) and Partial Least Square (PLS) techniques to assess the impact of supporting physical facilities on SWPD performance. These are the best measure in path analysis when testing a theoretical framework with multiple indicators (Hair *et al.*, 2019). There are 20 indicators in this study as presented in the model (figure 1). The step number one in the evaluation of the obtained PLS-SEM was to examine the measurement models which differ for contemplative and constructive or formative constructs. The aim was to see whether the models of the measurement met the required benchmarks before finally assessing model of the structure (Hair *et al.*, 2017a).

Description of the study model.

Each physical facility on the exogenous or independent variables is directed to the endogenous or dependent variables when assessing the influence of the underlying variables which are also called latent. The model used in this study includes an endogenous variable (dependent variable) in the form of SWPD performance and exogenous variables (independent variables) in the form of toilets, classrooms, laboratories, ramps, and sports facilities, all of which support for SWPDs in the school (figure 2).

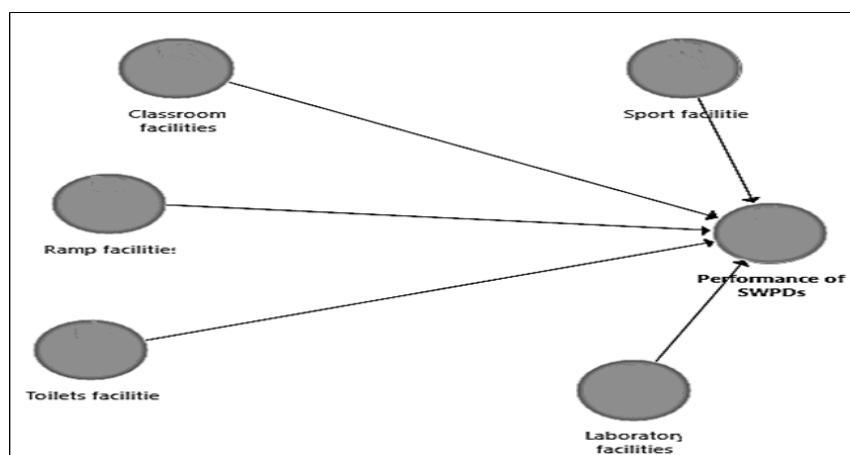


Figure 2: Conceptualized structural model to assess the influence of physical supportive facilities on performance of SWPDs.

Measurement model analysis

The analysis of models was done by examining the validity, internal reliability, and construct goodness of fit analyses. The results for the model are presented as follows:

Validity of the model

The study used construct validity to determine whether what was intended to be measured was actually measured. In model examination of the validity, Fornell and Larcker (1981) suggest that, the "square root" of AVE (Average Variance Extractor) of each latent variable should be greater than the correlations among the latent variables. According to the model, all variables have greater square root number than the latent variable. For example, the correlation between laboratory facilities and classroom facilities was 0.630 (Table 5). Therefore, the number's square root is 0.7937 (approximated to four decimal places), which is greater than the correlation values. The outcome suggests that, the validity of the discriminant is established appropriately.

Table 5: Fornell-Larcker Criterion Analysis for Checking Discriminant Validity.

	Classroom facilities	Laboratory facilities	Performance of SWPDs	Ramp facilities	Sport facilities	Toilet's facilities
Classroom facilities	1					
Laboratory facilities	0.630	1				
Performance of SWPDs	0.444	0.562	1			
Ramp facilities	0.634	0.615	0.422	1		
Sport facilities	0.553	0.742	0.604	0.549	1	
Toilet's facilities	0.581	0.753	0.435	0.655	0.632	1

Source: Field work, 2021

The Study's Model Reliability

The reliability of the model was measured based on reliability of the internal consistency, specifically the composite reliability which is the square of outer loadings. Composite reliability measure was preferred to Cronbach's alpha measure as Cronbach's alpha undertakes similar thresholds; however, yields lower values compared to composite reliability. Specifically, for this case with many indicators, Cronbach's alpha manifests a less accurate reliability measure for the reason that the items are unweighted in disparity. However, when doing with compound reliability, the items are weighted grounded on the indicators of the construct individual loadings and consistency is greater than Cronbach's alpha (Dijkstra and Henseler, 2015). Jöreskog's (1971) states the decision criterion for composite reliability as that, indicator reliability values that are much larger than the minimum acceptable level of 0.4 and close to the preferred level of 0.7 are considered. Otherwise, the reliability values of 0.95 and above suggests the possibility of undesirable response patterns (e.g., straight lining), thereby triggering inflated correlations among the indicators' error terms. For this case, the results in table 5 show that greatest number of the indicators have single indicator reliability values that are much larger than the least acceptable level of 0.4 and close to the favored level of 0.7 except sports3, sports4, ramps4 and classroom4 which were less reliable because of being low than the acceptable limit.

Structural Model Fit Summary

The results in table 6 on model fitness, the projective performance of their PLS path model for the manifest variables (MV or indicators) and the latent variables (LV or constructs) are defined by Dijkstra and Henseler (2015), d_ ULS (i.e., the squared Euclidean distance) and d_ G (i.e., the geodesic distance); Standardized Root Mean Square Residual (SRMR), Chi-Square and Normed Fit Index (NFI). The model fit's summary shows the d_ ULS and d_ G representing two dissimilar ways to compute incongruity between the empirical covariance matrix and the covariance matrix inferred by the composite factor model. The Normed Appropriate Index (NFI) which shows an incremental fit measure is 0.871. This is best fitting as it ranges between the acceptable ranges of closer to 1; further basing on SRMR, the value 0.058 is best fit as it ranges within the acceptable range of 0.01 up to 0.1 (Lohmoller, 1989). The NFI is used here since the Chi² rate of the projected model itself only does not offer sufficient statistics to judge model fit, the NFI uses the Chi² value from the model as a benchmark.

Table 6: The model fit summary.

	SRMR	d_ULS	d_G	Chi-Square	NFI
Estimated Model	0.058	1.348	0.51	797.807	0.871

Source: Field work, 2021

Path coefficients and hypothesis.

Basing on the path coefficients results computed in the model is based on bootstrapped to ensure stability of results as suggested by Cheah *et al.* (2018). The results show a positively moderate significant ($p < 0.05$) influence of about (0.24) 24% on laboratory facilities towards performance of SWPDs. As such, the null hypothesis that “there is no significant influence between laboratory facilities and performance of SWPDs” is rejected. On the other hand, the influence of sports facilities is about 40.1% on Performance of SWPDs and is highly significant ($p < 0.001$). Hence, the null hypothesis that “there is no significant influence of sports facilities on performance of SWPDs” is rejected. Further results have shown that, having or having no significant influence of other facilities on the performance of SWPDs as the T-statistics criteria of having a value greater than 1.96, which is the rule of thumb, was not met. Further, $p < 0.001$, $p < 0.05$ or $p < 0.01$ do not meet; hence the null hypothesis specified is not rejected.

Table 7: Influence of physical facilities on performance by bootstrapped results and hypothesis.

Physical supportive facilities influence on Performance of SWPDS	Original Sample	Sample Mean	Standard Deviation	T -Statistics	P-Values	Null Hypothesis
Ramp facilities -> Performance of SWPDs	0.055	0.057	0.087	0.628	0.531	Do not reject
Toilet's facilities -> Performance of SWPDs	-0.084	-0.059	0.08	1.054	0.292	Do not reject
Classroom facilities -> Performance of SWPDs	0.084	0.099	0.08	1.056	0.291	Do not reject
Laboratory facilities -> Performance of SWPDs	0.24	0.22	0.098	2.459	0.014**	Reject null
Sport facilities -> Performance of SWPDs	0.401	0.413	0.086	4.645	0.000***	Reject null

The symbol _> indicates the “is influencing”, *** means significant at 99%, ** means significant at 95%, * means significant at 90%.

Internal factor loadings among physical facilities.

From the structural model on table 8, the significant influence of supportive physical facilities is achieved by only the influence of sports facilities and laboratory facilities. A further presentation of results is presented in table 8 where by the internal components variable that influence the latent variables was obtained per each two significant variables and has been presented by the structural model in figure 2 to show the influence of each latent variable and its respective units with specific p-values as indicated in closed brackets.

The results in table 8 shows that, the contribution of laboratory regardless of significance on the performance of SWPDs is influenced by not all internal components but by Laboratory 3 (preferential seating to avoid physical barriers for SWPDs) which contributes 46.10%; and Laboratory 4 (school laboratories equipment and apparatus have been modified to fit SWPDs) which contributes 37.3% and all the two are moderately significant with $p < 0.05$.

On the basis of these results, most of the laboratories have equipment and apparatus that favors SWPDs to perform laboratory tasks and they have a preferential consideration in seating pattern in the laboratory. On the other hand, the contribution of Sports facilities is highly also influenced such that not all component variable Sports 1 (Participates in sports and games within school compound) which contributes 73.8% which has a highly significant ($p < 0.001$) positive contribution on the sports facilities. On the other hand, the contribution of Sports 3 (never participates in any sports and games in the school) with 21.5% was moderately significant ($p < 0.05$). The two antagonistic variables contributing to sports facilities indicate that there are two distinctive groups that contributes to sports facilities but highly influenced by those who participates as the mean coverage of SWPDs who participate is almost 3.5 times more than those who don't participates. Further results on table 7 show that, the contribution of laboratory despite being significant on the performance of SWPDs is influenced not by all internal components but by Laboratory 3 (preferential seating to avoid physical barriers for SWPDs) which contributes 46.10% and Laboratory 4 (school laboratories equipment and apparatus have been modified to fit SWPDs) which contributes 37.3%. All the two are moderately significant with $p < 0.05$. Most of the laboratories have equipment and apparatus that favor SWPDs to perform laboratory tasks and they have a preferential consideration in seating pattern in the laboratory.

The contribution of Sports facilities is also highly influenced by not all components variable in itself but only Sports 1 (Participates in sports and games within school compound) which contributes 73.8% with a highly significant ($p < 0.001$) positive contribution on the sports facilities. Otherwise, the contribution of Sports 3 (never participates in any sports and games in the school) with 21.5% was moderately significant ($p < 0.05$). The two antagonistic variables contributing to sports facilities indicates two distinctive groups that contribute to sports facilities but highly influenced by those who participate as the mean coverage of SWPDs who participate is almost 3.5 times more than those who do not participate. The results have shown that, other physical variables like classroom facilities, toilets facilities and ramps facilities regardless of not being significant have variables that contribute significantly as shown on the table 8.

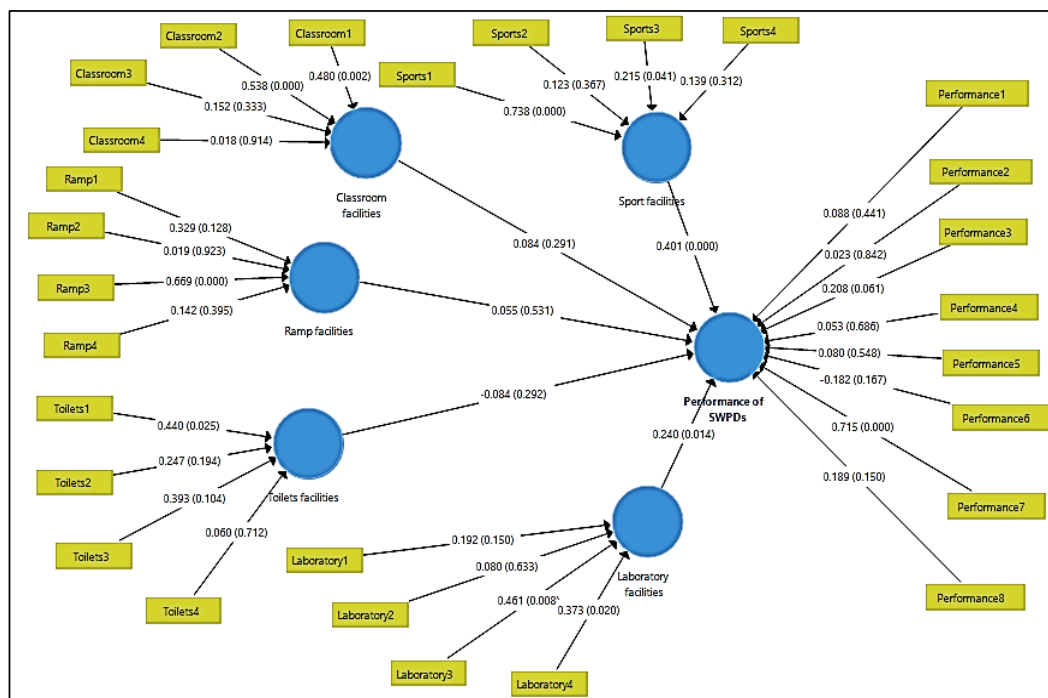
Table 8: Inter-contribution of components latent variables basing on insignificant Latent variables.

	Original Sample	Sample Mean	Standard Deviation	T-Statistics	P-Values
Classroom1 -> Classroom facilities	0.480	0.461	0.152	3.157	0.002**
Classroom2 -> Classroom facilities	0.538	0.535	0.154	3.504	0.000***
Classroom3 -> Classroom facilities	0.152	0.154	0.157	0.969	0.333
Classroom4 -> Classroom facilities	0.018	0.002	0.162	0.109	0.914
Ramp1 -> Ramp facilities	0.329	0.305	0.216	1.524	0.128
Ramp2 -> Ramp facilities	0.019	0.02	0.2	0.096	0.923
Ramp3 -> Ramp facilities	0.669	0.653	0.189	3.541	0.000***
Ramp4 -> Ramp facilities	0.142	0.145	0.167	0.852	0.395
Toilets1 -> Toilet's facilities	0.440	0.423	0.196	2.245	0.025**
Toilets2 -> Toilet's facilities	0.247	0.239	0.19	1.3	0.194
Toilets3 -> Toilet's facilities	0.393	0.372	0.242	1.627	0.104
Toilets4 -> Toilet's facilities	0.060	0.078	0.163	0.37	0.712

The symbol _> indicates the "is influencing", *** means significant at 1%, ** means significant at 5%, * means significant at 10%

The results show that, Classroom 1 (enough space to move freely with or without wheelchair) is moderately significant as $p < 0.05$ and has a 48% positive contribution, whereas Classroom 2 (Special chairs and tables in the class for SWPDs) is highly significant as $p < 0.000$ and has a 53.8% positive contribution to the classroom facilities. In the case of ramp facilities, only one component, ramp 4 (ramps are safe enough to avoid slipping), which is highly significant at $p < 0.000$ and accounts for 66.9% of the ramp's facilities. Similarly, the contribution of toilet facilities as one component toilet 1 (modified toilets and latrines to fit SWPDs) has significant $p < 0.05$ contribution of 44% on the toilet's facilities.

Figure 3: The structural equation model showing direct and indirect effects of latent variables on the performance of SWPDs.



Numbers in the curved bracket implies the p-value

Discussion of the Findings

These findings are consistent with Musoa's (2019) that, the best school to be registered should support students with all the facilities for the better achievement of the education sector. The problems begin when a school is registered with a lack of equipment to support its students. The paper highlights that, in order to improve assistance to SWPDs, all schools must have facilities with SWPD support setup so that any SWPD will have a large playground of choosing a school. Majority of secondary school students are unable to fully utilize the available physical facilities because they do not support their SWPDs. According to Buyung *et al.* (2018), providing students with disabilities facilities that are suitable to their conditions is tremendously problematic in terms of usage and applicability. Most of the weaknesses of the administrations are related to provision of all of the required facilities. That makes it difficult for them to become self-sufficient without the assistance of stakeholders or the government at the appropriate time. Following the results, it can be summarized that, the proposed measures to enhance SWPD performance seeks to improve infrastructure such as toilets, ramps, and classroom facilities, which will aid SWPD performance as the available facilities have least contribution on their demand. The current study sought to test five hypotheses. The results have shown that, such hypotheses have been

rejected because the results revealed a significant contribution of classroom facilities to the performance of SWPDs. This was evident for example with the influence of enough space in the classroom. The paper has shown that, enough space helps students to move freely and participate in class learning activities. It concurs with Mustapha *et al.* (2019) in that, a well-designed learning environment does not only help in achieving intended learning outcome but also helps in socialization.

This paper further reveals that, ramps facilities positively influence participation and ultimately performance of SWPDs. Well-designed ramps help to increase accessibility and confidence of the SWPDs to move and participate in learning activities. This is similarly to a study by Sulaj *et al.* (2021), who argued that, inadequate auditoriums, classrooms, stairs, narrow walk ways and absence of ramps, limit performance, participation and development of SWDs in academic and social aspects in a school and life at large.

Other results of the study are based on toilets facilities and sports and games. The paper has shown that, descent toilets with adequate features provide necessary services to SWPDs. SWPDs are likely to feel comfortable and free hence stay at school the whole time prescribed in the timetable. These crucial services in turn influence their performance in collaboration with other facilities facilitate learning. The paper further noted that, sports and games facilities similarly help in making students active in learning, socialization and participation in academic and other social life skills activities. The results are congruent with Sulaj *et al.* (2021) in that, the infrastructure challenges limit students from leisure and nature.

Limitations

Certain limitation emerged out in this study: Based on the research design, it should be noted that, the use of a cross-sectional design led to collection and measurement of the data within a short time. Moreover, this study was conducted within a single city in the country of multiple cities; hence the generalization of the results may not work because this is same country with different conditions and traditions.

Conclusion

The study has presented a conclusion that laboratories and sports and games facilities have significant ($p < 0.05$) and direct influence on performance of SWPDs. Classrooms, toilets, ramps, have no significant direct influence on performance of SWPDs. This is because they (classroom, ramp, and toilets) have been built in a way that some crucial features lack quality needed to support SWPDs to use. This calls for a need to restructure the school infrastructure to fit SWPDs. Despite accepting the world slogan of "leaving no one behind," there is a shortage of training on the proper use of physical facilities for assisting SWPDs. SWPDs lack motivation in the context of sports and games; this consequently degrade the reputation and equity of education in secondary schools across the country.

Recommendations

Grounded on the findings of this paper and the conclusions drawn in the preceding section, the paper recommends the following actions: The need for a specific policy on SWPDs to comprehensively address all issues related to this segment of the population including the SWPDs and in the Tanzania secondary schools. The paper further recommends for the secondary schools to have SWPDs-trained teachers. Finally, the paper recommends the need for the Ministry of Education, Science and Technology to

establish a dedicated department in each school staffed with professional experienced in managing and taking care of SWPDs and ensure that the learning environment specifically physical facilities in Tanzania secondary schools favour SWPDs.

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