



(RESEARCH ARTICLE)



## Occupational therapy services as adjustments that enhance academic performance of learners with physical impairments in Public Primary Special Schools in Nyanza Region, Kenya

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### Abstract

The academic performance of learners with Physical Impairments (PI) in most public primary special schools in Nyanza Region have been dismal. The purpose of the study was to explore the relationship between access to occupational therapy (OT) services and academic performance of learners with PI in public primary special schools in Nyanza Region Kenya. The research was guided by Social Model of Disability theory with mixed-methods approaches and concurrent triangulation design. The target population was 1421 participants, that is; 6 head teachers, 92 teachers, 6 OTs and 1317 pupils. Simple random sampling technique, saturation sampling, and purposive sampling technique were used to select; 396 pupils; 6 head teachers, 6 OTs and 48 teachers respectively, a total of 456 respondents. Data was collected using questionnaire, interview schedules, Focus Group Discussions, and an observation checklist. Content validity and Cronbach's alpha were used for validity and reliability respectively. Quantitative data was analyzed using descriptive and inferential statistics while thematic analysis was used for qualitative data from which conclusions were made. The research findings indicated that: there was inadequate access to OT services for learners with PI in public primary special schools; and there was a statistically significant positive relationship ( $r=0.604$ ) between access to OT services and academic performance. It was concluded that OT services are inadequate, and their inadequacy contributes to poor academic performance of pupils with PI in public primary special schools in Nyanza Region. The research findings recommended that there is need for the Ministry of Education and other stakeholders to facilitate; access to OT services in public primary special schools for learners with physical impairments.

**Keywords:** Occupational Therapy Services; Physical Impairments; Academic Performance; Learners; Special Schools

### 1. Introduction

Motor skills limitations influence participation of learners with PI in activities associated with the general education curriculum such as academic performance if there are no appropriate adjustments put in place for them (Berg, 2020). Research conducted in US by Effgen (2016) on the relationship between fine motor skills and academic achievement of learners in elementary schools to 8<sup>th</sup> grade, established that a robust predictor of academic achievement is fine motor skills; children who access OT services have greater motor abilities and also tend to have better academic achievement.

Research in Uganda by Kiyuba and Tukur (2014) on challenges of providing special education to children with disabilities revealed that children with disabilities are still facing many challenges in accessing special education due to poor adjustments and other services such as OT. Lack of such adjustments mostly affect learners with PI due to mobility challenges. A case study carried out by Wachianga (2010) on provision of support services and their impact on academic

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participation for learners with PI in schools in Kisumu East Sub-County, Kenya revealed that the schools lacked OT services although it facilitated their academic participation.

According to National Coordinating Agency for Population and Development (2017), Kenya National Survey for Persons with Disabilities conducted in 2007 indicated that Nyanza Region had the highest number of people with PI as compared to other regions in Kenya which implies that, majority of learners with PI in the region may be more disadvantaged if there are poor adjustments. Also, Nyanza Region is among the regions in Kenya with the highest (9.2%) prevalence of people with PI (Kenya Population Housing Census, 2019). Most pupils in public primary special schools for learners with PI in Nyanza region Kenya have been performing dismally for 5 consecutive years as shown on table 1.

**Table 1** KCPE Performance of Public Primary Special Schools for Learners with PI

COUNTY	SCHOOL	YEAR (MSS)				
		2016	2017	2018	2019	2020
I	A	212.65	230.75	194.05	198.00	202.05
	B	235.45	237.65	249.04	246.74	240.56
II	C	171.35	179.98	201.70	190.27	188.73
III	D	182.04	185.62	188.06	217.90	227.21
	E	187.65	198.76	197.09	199.43	196.42
	F	239.86	238.98	240.78	241.66	244.79
IV	G	237.68	236.89	245.81	247.66	247.92
V	H	186.02	201.87	187.43	211.93	201.44
VI	I	183.56	199.39	192.08	218.76	202.06

Source: Kisumu, Siaya, Homa-Bay, Migori, Nyamira, & Kisii County Offices (2021).

The poor scores in national examinations by pupils with PI could be accounted for by various adjustments which are crucial in enabling them to attain their valued functioning, hence be able to operate near normal as 'normal' learners as well as enhancing their academic performance, and which is a possibility that this research sought to investigate.

### 1.1. Statement of the Problem

Learners with PI are expected to access appropriate adjustments in order to operate in learning institutions with ease and also perform well academically. Efforts have been made by the government and stakeholders to promote academic performance in schools, however, academic performance of pupils with PI in most public primary special schools for learners with PI in Nyanza Region has been declining over time despite having qualified teachers. This may have a negative reflection on the various programs put in place to enhance their academic performance in schools. The study sought to find out what contributes to dismal academic performance of pupils with PI by exploring the access to OT services and their relationship with academic performance of pupils with PI in public primary special schools for learners with PI in Nyanza Region, Kenya.

### 1.2. Purpose of the Study

The purpose of the study was to explore access to OT services and its relationship with academic performance of learners with PI in public primary special schools in Nyanza Region, Kenya.

### 1.3. Theoretical Framework

The research was guided by Social Model of Disability (SMD) theory by Oliver (1983) which is based on a distinction between the terms Impairment and Disability. The word impairment is used to refer to the actual attributes (or lack of attributes) that affect a person such as inability to walk or breath independently, while "disability" refers to restrictions caused by the society when it does not give equivalent attention and accommodations to the needs of individuals with impairments such as systemic barriers which make it difficult or impossible for individuals with impairments to attain their valued functioning.

The SMD has been criticized for underplaying the role of impairments by neglecting the social relational nature of impairment and illness (Charmaz, 2010: 16). Also, it doesn't promote the normal differences between disabled people

(Owens, 2014). This theory addresses the attributes that affect pupils with PI and identifies barriers such as lack of access to OT services which makes it difficult for them to attain their valued functioning hence poor academic performance. It informed the current research in a school setting of pupils with PI on the importance of making appropriate adjustments such as access to OT services to meet the diversified needs of pupils and not the vice versa (Pratt and Peterson, 2015).

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## 2. Literature Review

In Pennsylvania, Nichole (2019) conducted qualitative research on interventions used among school-based OT practitioners to promote learners' performance. Five OTs were used as the sample, and the findings revealed that OT services improve pupils' academic participation; OTs help learners to achieve maximum ability and independence; and that the role of pupils in academic setup is to learn. The previous research lacked the quantitative dimension which would be useful for generalizability of the results, and which the current research captured. An investigation was carried out by Smith, Weaver, and Holland (2014) on effects of a classroom embedded OT teacher handwriting programme for first grade pupils in United States of America. It used non-randomized comparison of write start programme and standard handwriting and writing instructions.

The target population was 80 pupils and 59 instruction learners. The findings revealed that a co-taught write start programme may benefit first grade pupils at risk for handwriting and writing problems potentially promoting their writing development and success when demands increase in later grades. The previous inquiry was carried out in USA while the current one was carried out in Kenya with a different education policy, hence the findings from the current inquiry were expected to be more comprehensive as far as relationship between access to OT services and academic performance of pupils with PI in Nyanza Region is concerned.

In Slovenia, Suc, Bukovec and Karpljuk (2017) conducted research on the role of inter-professional collaboration in developing IE; experiences of teachers and OT. The sample size comprised of 36 primary school teachers and 9 occupational therapists. The research instruments included focus groups discussions and interviews. The findings revealed that both teachers and OTs expressed frustration with organizational and systemic factors that often-prevented better exchange of knowledge and information. OTs had limited access to school environment due to organization of work and financial issues. The previous research was qualitative in nature hence lacked quantitative aspect of collecting and analyzing data which would be useful for generalizability, this was captured by the current investigation by use of questionnaire to fill the gaps in regards to instrumentation. Also, the previous investigation did not capture the relationship between access to OT services and academic performance of pupils with PI which the current one captured.

Research was conducted in South Africa by Stormbroek and Uchana (2016) on community service occupational therapists (CSOT) to find out the role played by CSOT in improving access to OT services. It used a descriptive cross-sectional research design. The target population included all OTs who were allocated community service placement for 2013 by national department of health. The sample size was 240 for those took part. Questionnaire was used, and the findings revealed that community service OTs are playing an important role in improving access to services. The previous inquiry did not capture the relationship between access to OT services and academic achievement of learners which was captured by the current one. The previous investigation was quantitative in nature hence did not have the qualitative dimension which would have provided the participants a chance to express their feelings and experiences unlike the current one which used a mixed method approaches which filled in the gaps that had been left in respect to instrumentation.

Research by Jean (2016) on strategies of early interventions on academic performance of pupils with disabilities in 2 selected districts in Rwanda used purposive sampling techniques, simple random sampling and stratified random sampling techniques. It used questionnaire, interview schedule, FGDs and observation checklist as data collection tools. The findings established that early interventions are poorly done due to lack of expertise such as occupational therapists. There was no collaboration of multidisciplinary team with teachers. The previous research did not capture the role of OT in helping learners acquire functional performance skills that the current one captured.

Research was carried out in Old Donholm estate by Mwendwa (2010) on performance of cerebral palsy society of Kenya (CPSK) in rehabilitation of children with cerebral palsy (CP) in Kenya in which OT services was among the independent variables. Descriptive case design was used, with a population of 300 registered members of CPSK, 2 PTs, 3 OTs, and chairman of the society. The sample size was 103, that is 100 CPSK members, 1 CPSK chairman, 1 PT and 1 OT. Questionnaire, interview guide, document analysis and observation checklist were used. The findings indicated that CPSK has not been able to provide OT services to its members' such as children with PI due to lack of human and material

resources. The previous investigation did not capture access to OT services in relation to academic achievement of learners with PI which was captured by the current one.

An investigation was carried out on influence of habilitation on academic performance of pupils in Joytown special school for learners with PI in Kiambu County, Kenya by Wairimu (2018). Target population was 45 participants, that is, 1 headteacher, 20 learners, 20 teachers, 2 teacher aides and 2 OTs. The sample size was 1 headteacher, 20 learners, 10 teachers, 2 teacher aides and 2 OTs. Questionnaire, interviews and observation checklist were used as data collection instruments. The findings indicated that habilitation done by OTs was vital in improving academic performance of pupils with PI. The previous study did not capture the role of OT in helping pupils acquire advocacy and self-determination skills which was captured by the current research.

Research done by Oliecha (2010) on environment and academic performance of pupils with PI in 30 primary schools in Rongo District, Kenya used OT services as a method of supporting learners under medical intervention, and the findings revealed that OT services supported academic performance of pupils with PI. The previous investigation did not capture the role of OT in helping learners to actively participate in classroom activities and acquire advocacy and self-determination skills which the current one captured.

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### 3. Methodology

The study used concurrent triangulation design (Creswell, 2014) within mixed method approaches which involve conducting research involving collecting, analyzing, merging qualitative and quantitative research, as well as integrating quantitative and qualitative data (Creswell, 2012). The inquiry was carried out in Nyanza Region of Kenya located on the South Western part of Kenya, bordering Uganda with Kisumu city the third largest city in Kenya. It lies between longitude 34° 30' 0 East and latitude -00° 30' 0 South. The region has 6 Counties and is among the regions in Kenya with the highest number of people with PI (9.2%) (Kenya Population and Housing Census, 2019).

The target population was made up of 1421 respondents, that is 6 head teachers in the 6 schools, 92 teachers, 1317 learners with PI and 6 OTs (Nyanza Regional Office, 2021). Purposive sampling technique was used to select 6 public primary special schools for learners with PI whose performance had been more dismal in national examinations for 5 consecutive years and 48 teachers (Guest, Namey & McKenna, 2017). Simple random sampling method was used to select 396 learners (Thomas, 2020). Saturation sampling technique was used to select 6 head teachers and 6 OTs (Walker, 2012). The total sample size was 456 (Nyanza Region County offices, 2021). Questionnaire was used for learners with PI; interview guide for head teachers and OTs, Focus Group Discussions (FGDs) for teachers; and an observation checklist for the researcher as data collection tools.

Content validity was used, and piloting was conducted in 1 public primary special school for PI on 40 (10%) learners with PI (Junyong, 2017). Cronbach's alpha with a reliability value ranging between 0.6 and above was used to ascertain reliability (Oso & Onen, 2013). Statistical Package for Social Science (SPSS) version 22 was used. Trustworthiness of a research was employed (Devault, 2018). Quantitative analysis was facilitated by coding for the closed-ended questions from the questionnaire. The data was converted into numerical codes which represent attributes or measurements of the variables, only one code was assigned to each response category by making a code book that would enable the data to be entered into the computer. Data was organized into percentages according to the categories on the Likert rating scale type responses.

The variables were identified and defined. Data was formatted and analyzed by use Likert scale (strongly agree to strongly disagree in a scale of 1 to 5). The data was then tabulated depending on how many strongly agree (4.21-5.00), Agree (3.41-4.20), Neither Agree nor Disagree (2.61-3.40), Disagree (1.81-2.60) and Strongly Disagree (1.00-1.80) and were presented as percentages of the total number of responses. These were then condensed into broader groups of agree for strongly agree and agree; and disagree for strongly disagree and disagree.

The scores were summated to measure the respondents' attitude and the total scores represented their response. This was done by the aid of SPSS version 22 (Lister, 2020). The quantitative data was analyzed using descriptive and inferential statistics. The statistical tests; Pearson Product-Moment of Correlation, regression analysis, and analysis of variance (ANOVA) were used to investigate the relationship between the variables. All tests of significance were computed at  $\alpha = 0.05$ . The significant level (P-value) was set at 0.05 whereby if the p-value is less than 0.05, the null hypothesis would be rejected and conclusion reached that a significant difference exists and vice versa (Creswell, 2014). The findings were presented in form of frequency tables from which conclusions were drawn. The qualitative data was analyzed using phases of thematic analysis (Caulfield, 2019).

## 4. Results and Discussions

### 4.1. Views of Learners with PI on Access to Occupational Therapy Services

**Table 2** Views of Learners with PI on Access to Occupational Therapy Services (n=292)

Statement of Opinion	SD	D	N	A	SA	Mean	SD
I always consult occupational therapist for help.	88 (30.1%)	108 (37.0%)	6 (2.1%)	60 (20.5%)	30 (10.3%)	2.44	1.37
With the help of occupational therapist in reducing barriers, I participate well within the school environment.	96 (32.9%)	102 (34.9%)	6 (2.1%)	62 (21.2%)	26 (8.9%)	2.37	1.35
I receive adequate assistive technology to improve my success.	78 (26.7%)	100 (34.2%)	10 (3.4%)	56 (19.2%)	48 (16.4%)	2.64	1.46
I ' m satisfied with OT ' s planned activities to help me in my learning process.	100 (34.2%)	120 (41.1%)	2 (0.7%)	42 (14.4%)	28 (9.6%)	2.24	1.32
With the help of OT, I do access the learning environment so as to improve my progress.	100 (34.2%)	116 (39.7%)	10 (3.4%)	40 (13.7%)	26 (8.9%)	2.23	1.29
Through OT' s help, I have developed self-advocacy and self-determination skills to improve my academic performance.	100 (33.6%)	96 (32.9%)	10 (3.4%)	52 (17.8%)	34 (11.6%)	2.40	1.41
Occupational therapist always helps me learn by adapting learning materials in the classroom.	104 (35.6%)	112 (38.4%)	6 (2.1%)	26 (8.9%)	44 (15.1%)	2.29	1.42
Occupational therapist helps me learn with ease by adapting the working surface of the classroom.	88 (30.1%)	112 (38.4%)	4 (1.4%)	56 (19.2%)	32 (11.0%)	2.42	1.37
I receive adequate occupational therapists help.	94 (32.2%)	102 (34.9%)	4 (1.4%)	48 (16.4%)	44 (15.1%)	2.47	1.46
OT helps provide appropriate accommodations designed to enhance my potential for learning.	81 (29.8%)	109 (40.1%)	6 (2.2%)	62 (22.8%)	32 (11.8%)	2.50	1.37
OT helps me acquire functional performance skills needed to participate in and benefit from educational environment.	92 (33.8%)	103 (37.9%)	9 (3.3%)	62 (22.8%)	24 (8.8%)	2.39	1.33
OT helps me to actively participate in the learning environment.	76 (27.9%)	96 (35.3%)	14 (5.1%)	56 (20.6%)	48 (17.6%)	2.67	1.46
OT helps me function independently.	84 (30.9%)	123 (45.2%)	8 (2.9%)	45 (16.5%)	30 (11.0%)	2.37	1.33
Mean average response rate on access to occupational therapy services						2.39	0.49

Key: Strongly Disagree (1.00-1.80); Disagree (1.81-2.60); Somehow Agree (2.61-3.40); Agree (3.41-4.20); Strongly Agree (4.21-5.00) and SD-S.

Source: Survey data (2021).

The findings of the study have revealed that OT services offered to learners with PI in public primary special schools within Nyanza Region is generally inaccessible. Using the scale of 1 to 5, the mean overall average OT services was rated at 2.39 with a small standard deviation of 0.49, implying that most of the respondents held a common stand regarding OT services which they generally felt is inadequate. For instance, the findings of the study have established that many pupils do not enjoy consultation of OTs for help. This was reflected by an average mean rating of 2.44 with a standard

deviation of 1.37, where 196 (67.1%) of the learners said they hardly consult OTs for help and only 90 (30.8%) of them accepted that they always consult OTs for help. This implies that pupils with PI do not fully benefit from OT services to help them fulfil their roles as pupils.

It can be argued that the PT services received by pupils with PI are not adequate; do not address learners' academic needs, and are not accessible, which seem to suggest that inadequacy of OT services make it difficult for pupils to attain their valued functioning. There is therefore need for schools to ensure that pupils are able to access adequate OT services. This finding is in agreement with the results of an inquiry by Suc, Bukovec and Karpljuk (2017) which revealed that schools of learners with special needs have limited access to OTs hence may contribute to their poor academic performance. The headteachers also supported this finding as follows:

**4.2. The OT is programmed to come here for the services once a term during which learners can interact with him (HT1).**

This indicates that the OT only comes to school once a term hence has limited time with pupils. It can be argued that learners with PI do not enjoy consultations with OTs due to the limited time that the OTs spends with them, hence poor access to OT services, there is need to increase OT services. This finding conforms to a study by Hammarlund (2015) which revealed that there was a great need for OT services. The OTs also supported the findings as follows:

**4.3. Actually, there are limited OT services given to pupils in the school.... I am programmed to meet them only once in a term and this is not enough to attend to needs of most learners (OT2).**

The interview excerpt indicates that OTs have limited time with pupils, which seems to suggest that most learners do not benefit fully from OT services. This finding is in line with a research by Kithii (2016) which revealed that there was need for OT services. Schools should ensure that all pupils access adequate OT services. The response from FGDs with teachers also indicated that:

**4.4. There is one OT who provides OT services to pupils only once a term, I believe that majority of learners do not benefit from this (FG6).**

From the FGDs, it is evident that the time allotted for the OT is not enough for most learners to have adequate consultations with him. This finding conforms to a study by Mwendwa (2010) which revealed that essential rehabilitation services such as OT services has not been provided to learners with PI. Likewise, the survey data revealed that pupils with PI are not assisted by OTs to reduce barriers in the learning environment and that they do not participate well within the school environment. This was indicated by an average mean rating of 2.37 with a standard deviation of 1.35. It was also reflected by 198 (67.8%) of the learners who rejected the claim that with the help of OT in reducing barriers among the learners with PI, they participate well within the school environment. Only 68 (30.1%) of the respondents agreed that they participate well within the school environment following the help of OT they receive in reducing barriers.

This indicates that OT services are generally not accessible which implies that their role in reducing barriers within the learning environment is not effectively performed. This conforms to a study by Smith, Weaver, and Holland (2014) which revealed that there was need for OT services in the improvement of academic performance such as handwriting. The following interview excerpts from head teachers bears testimony to that:

**4.5. In most cases, it is upon the class teachers or subject teachers to reduce barriers in the learning environment since the OT only comes ones a term (HT3)**

This indicates that OTs are rarely seen in school, hence pupils with PI do not have adequate consultations with them. This finding conforms to a research by Kaelin, Ray-Kaeser, Moioli, Stadler, Santinelli, Echsel, and Schulze (2019) which revealed that OTs collaborated with schools. The qualitative data from observation checklist showed that OT rooms were not available. This may suggest that the OTs do not frequent in these schools for OT services hence poor access to OT services. The following shows teachers' response:

*4.5.1. There are still barriers that limit learner's participation within the learning environment....OTs rarely come to help us reduce them, however, we do what we can as teachers (FG3)*

The response from FGDs shows that the professional role of OTs in removing barriers in the learning environment for pupils with PI is not well performed. This is in line with a study by Hammarlund (2015) which revealed that there was a great need for OTs in schools.

The data from survey shows that most pupils do not receive adequate assistive technology from OTs to improve their success as was reflected by the majority of the respondents who strongly disagreed (78; 26.7%) and who disagreed (100; 34.2%) that they receive adequate assistive technology to improve their success. Only 108 (35.6%) of the learners accepted that they receive adequate assistive technology to improve their success, translating to a low rating of 2.64 (SD=1.46). This implies that pupils with PI do not receive adequate assistive technology that are essential in decreasing the impact of impairment or disability in learners with PI. This finding conforms to a study by Suc, Bukovec and Karpljuk (2017) which revealed that both teachers and OTs expressed frustration with organizational and systemic factors that often-prevented better exchange of knowledge and information. This finding was supported by OTs as shown:

*4.5.2. I only visit the school once a term, considering the population of pupils, the services provided to equip them with assistive technology are not adequate due to limited time with learners...hence most of them may lack assistive technology to support their success (OT2)*

The response shows that even though there is an OT, the time allocated to him is not enough to provide OT services to all learners with PIs. This is in line with a research by Klerk, Buchenan, and Pretorius (2016) which revealed that OT are often faced with lack of adequate time as far as helping pupils to improve their success is concerned. This finding was also supported by the qualitative data from HTs as shown:

*4.5.3. The assistive technology is not adequate for these pupils considering the limited time spent by OT with them (HT4).*

From the response, the OT spends little time with pupils with PI hence there is a challenge in provision of assistive technology. This is in line with an inquiry by Stormbroek and Uchana (2016) which established that there was poor multidisciplinary collaboration and team work, and the OTs wanted to increase more time spent on OT services. Through FGDs, teachers said:

*4.5.4. There is need for more OT services to address assistive technology of these learners...the little time spent by OT with them is not adequate for them to fully benefit from these services (FG1).*

The response indicates that OTs do not provide learners with PI with adequate assistive technology due to limited time that they spend with them. There is need for more OT services that would address the issue of assistive technology for pupils with PI. This is in line with an investigation by Stormbroek and Uchana (2016) which established that there was need to strengthen OT services.

On the level of satisfaction of OT's planned activities, the findings show that most learners with PI are not satisfied (mean=2.24; SD=1.32) with OT's planned activities as reflected by average mean rating of 2.24 with a standard deviation of 1.32, with 220 (75.3%) of the respondents confirming that they are not satisfied with OT's, only 70 (24.0%) of them accepted that they are satisfied with OT's believing that the planned activities help them in their learning process. This is not in line with an inquiry by Kaelin et al, (2019) which revealed that nearly all OTs collaborate well with schools. This might have been so because the previous study was carried out in Switzerland which is a developed country while the current study was carried out in Kenya which is a middle-income. The following qualitative data shows a headteacher's response when asked whether OTs' planned activities were of help to learners with PI as far as their academic achievements are concerned:

*4.5.5. They are of help to pupils but the problem is inadequacy.... they are not adequate due to limited time that the OT has with the learners (HT4).*

This response indicates that the OTs' planned activities that should help pupils in their success are not adequate, which implies that they do not serve the purpose for which they are meant to. There is need for more OT services in schools. This conforms to a research by Mwendwa (2010) which revealed that many of the rehabilitation services such as OT services have not been provided to children with PI due to lack of human resource. The following shows OT's response on the same:

*4.5.6. Yes of course they are of help to learners, the only challenge I face is time allotted for these services...providing these services to a school for only thrice a year....to me is unrealistic (OT5).*

The qualitative data from the OT shows that learners with PI benefit from OTs planned activities, however, they are inadequate due to limited time allocated for OT services hence most of them do not benefit from them. This conforms to a research by Kithii (2016) which revealed that there was need for support services such as OT services, and are a necessity. The following qualitative data shows teachers' response on the same:

*4.5.7. OTs' planned activities do not help our pupils here much since the time he spends with these learners is limited...just once a term does not make much difference (FG2).*

This qualitative data indicates that learners with PI do not benefit fully from OTs' planned activities as far as their academic performance is concerned. This finding is in agreement with the findings of a study by Suc, Bukovec and Karpljuk (2017) which revealed that schools of pupils with special needs have limited access to OTs hence may contribute to their poor academic performance.

On access to learning environment, the study results indicate that whereas only 66 (22.6%) of the learners who took part in survey were in agreement that with the help of OT they access the learning environment so as to improve their progress, majority 216 (73.9%) of the respondents said they do not access the learning environment so as to improve their progress even with the help of OT services. This was further reflected by average mean rating of 2.23 with a standard deviation of 1.29. The results of this survey indicate that most pupils with PI do not receive adequate help from OT to access the learning environment to improve their progress. It can be argued that, since they do not access the learning environment, they miss the benefits of accessing the learning environment such as increasing learners' interaction with peers and teachers, offering pupils the opportunity to apply their learning in other situations, and performing different tasks among others (American, Occupational Therapy Association, 2020). This conforms to a research by Smith, Weaver, and Holland (2014) which revealed that there was need for OT services in the improvement of academic performance such as handwriting. The OTs also support the same finding as shown:

**4.6. I do assist pupils to access the learning environment and this helps them to improve their progress, however, since I'm alone and my time with them is limited, I have always done only what I am able to do in a day....currently I'm working on ways to collaborate with teachers on the same (OT4).**

The OT's response indicates that pupils with PI are assisted to access the learning environment to improve their progress, however, these services are inadequate since there is only one OT who only comes to school once a term. This finding is in agreement with the findings by Suc, Bukovec and Karpljuk (2017) which revealed that schools of pupils with special needs have limited access to OT hence may contribute to their poor academic performance. The HTs also had the following to say:

**4.7. The OTs help pupils with PI to access the learning environment although rarely due to the time schedules (HT6).**

The response from the headteacher indicates that the OT helps learners to access the learning environment, however, he does that rarely. This conforms to findings by Nichole (2019) which revealed that there was need for OT services to help learners achieve maximum ability and independence. The teachers also support the same finding with the following statement:

**4.8. The school has one OT who has little time to offer OT services in school since he is programmed by the school to offer OT services only once a term to pupils with PI...he therefore spends very little time with learners (FG1).**

The teachers' response indicates that pupils with PI do not receive adequate assistance from the OT to access the learning environment so as to improve their progress. This conforms to findings by Smith, Weaver, and Holland (2014) which revealed that there was need for OT services in the improvement of academic performance such as handwriting.

Equally, the findings revealed that majority of learners with PI have not been helped by OTs in developing their self-advocacy and self-determination skills which are helpful as far as their academic achievement is concerned. This was reflected by an average mean response of 2.40 with a standard deviation of 1.41, with only 62 (21.2%) of the pupils accepting that through OT's help, they have developed self-advocacy and self-determination skills to improve their academic performance. However, about two out of every three 196 (66.5%) of the surveyed learners with PI were found not to have developed self-advocacy and self-determination skills to improve their academic performance through OT's help.

This implies that OT services have not helped them to develop self-advocacy and self-determination skills that are helpful to them as far as improvement in their academic performance is concerned. This is in line with the findings by Kithii (2016) which revealed that there was need for adequate support services such as occupational therapy services to support learners' achievements. The following qualitative data from headteachers also show some evidence to that:



**4.9. Assistance by OTs on self-advocacy or self-determination skills for learners is done but rarely due to lack of adequate time (HT6)**

The response shows that the OTs help pupils on self-advocacy and self-determination skills, however, they are inadequate which can be interpreted to mean that the pupils are not being helped by OTs on self-advocacy and self-determination skills which are essential for their academic performance. This is in line with an inquiry by Stormbroek and Uchana (2016) which established that there was need to strengthen OT services. The OTs also agree with the finding as shown:

**4.10. I help them with self-advocacy and self-determination skills though I am only here once a term and I have to ensure that all OT services are provided (OT1)**

The response shows that the OT helps pupils with self-advocacy and self-determination skills to improve their academic performance but it is inadequate. This implies that these services do not help improve learners' academic achievement, hence the need for adequate and accessible OT services. This conforms to findings by Smith, Weaver, and Holland (2014) which revealed that there was need for OT services in the improvement of academic performance such as handwriting. Qualitative data from FGDs with teachers also shows some evidence to that:

**4.11. If any, very few pupils with PI have learnt self-advocacy skills and self-determination skills...most learners have not been taught these by the OTs (FG4)**

The qualitative data proves that most pupils with PI do not benefit from OT services such as helping them to develop self-advocacy and self-determination skills which are essential for their academic performance. This is in agreement with an investigation by Mwendwa (2010) which observed that many of the essential rehabilitation services such as OT services have not been provided due to lack of human and material resources.

Similarly, the study results revealed that majority of learners with PI do not significantly benefit from OTs' services as far as helping them learn by adapting the learning materials in the classroom is concerned. This was reflected by an average mean response of 2.29 with a standard deviation of 1.42, with majority of the respondents 216 (74.0%) confirming that they have not benefited from such OT services. This can be interpreted to mean that OTs do not play their roles of adapting the learning materials for learners with PI. This implies that their learning materials are not well adapted to maximize their appropriacy. This is in line with an inquiry by Stormbroek and Uchana (2016). The following qualitative data from OTs has a proof to that:

**4.12. I always help teachers with adapting learning materials in the classroom whenever I visit the school. However, I only do this thrice a year (OT4)**

The qualitative data from the OT shows that even though OTs help in adapting the learning materials in the classroom, it is just done once in a while. This implies that OTs do not sufficiently help in adapting learning materials for learners with PI even though these learners need adapted learning materials. There is therefore need to ensure that learning materials for pupils with PI are well adapted to meet their needs. The following qualitative data from HTs has a proof to that:

**4.13. Yes, that is part of their work although mostly it is upon the subject teachers to use their knowledge to adapt the learning materials since the OT is not available most of the time (HT1)**

The response indicates that in most cases, the OTs do not perform their role of preparing learning materials for learners with PI in the classroom, it is mostly done by teachers. This conforms to a study by Anderson (2016) which revealed that there was need for OT services which has the potential to influence academic outcomes. The teachers supported the findings saying:

**4.14. We mostly adapt the learning materials since the OT is not mostly accessible (FG3).**

The response indicates that there is inadequacy of OT services such as adapting the learning materials in the classrooms due to limited time they take in schools. This agrees with an investigation by Kithii (2016) which revealed that there was need for adequate support services such as OT services to support learners' achievements. Adapting learning materials help meet learners' needs, hence very vital for academic achievement.

In addition, whereas only 56 (19.2%) and 32 (11.0%) of the learners were in agreement and strong agreement, respectively, that OTs help them learn with ease by adapting the working surface of the classroom, a majority of the pupils believe that OT have not helped them learn with ease in adapting the working surface of the classroom. This was reflected by 200 (68.5%) who negated the claim that OTs help learners with PI to learn with ease by adapting the

working surface of the classroom and overall mean rating of 2.42 with a standard deviation of 1.37. These results imply that most pupils with PI do not access OT services such as adapting the working surface of the classrooms that should enable them learn with ease. This is in agreement with the findings by Mwendwa (2010) which revealed that many of the essential rehabilitation services such as OT services have not been provided due to lack of human and material resources. This was supported by the OT as follows:

**4.15. I do that but not frequently since I don't have adequate time to offer such services as adapting the working surface of all the classrooms for pupils with PI (OT6)**

The interview excerpt from OT indicates that the OT helps in adapting the working surface of the classrooms, however, not adequately since the OT has limited time to do all that. This implies that the working surface of the classrooms are not adapted and this may cause discomfort and injuries to the learners, and this means that their ability to attain valued functioning is not met. It is therefore vital for schools to ensure that working surface of the classrooms are adapted. This conforms to research by Nichole (2019) which revealed that there was need for OT services to help learners achieve maximum ability and independence. From FGDs, the qualitative data from teachers also supported the findings as shown:

**4.16. We rarely receive such services from OT but we try to do what we can...however, lack of OT services has led to lack of support for learners' ability to participate in daily school activities with ease (FG1)**

The interview excerpt shows that pupils with PI are not able to learn with ease due to lack of adaptation of the working surface of the classroom owing to poor access to OT services. This is in line with an investigation carried out by Kithii (2016) which revealed that there was need for adequate support services such as OT services to support learners' achievements.

Further, this finding proves that most learners with PI in public primary special schools in Nyanza Region do not receive adequate OTs' help. In addition, whereas only 48 (16.4%) and 44 (15.1%) of the pupils were in agreement and strong agreement, respectively, that they receive adequate OT help, a majority of the learners believe that OT have not helped them. This was reflected by 196 (67.1%) who negated the claim that pupils with PI get adequate help from OT and overall mean rating of 2.47 with a standard deviation of 1.46. This implies that the OT services for learners with PI are not accessible. There is therefore need for schools to ensure that adequate OT services are available. This conforms to research by Anderson (2016) which revealed that there was need for OT services which has the potential to influence academic outcomes. The following interview excerpts from a headteacher bears witness to the same:

**4.17. The school has only one hired OT that provides services to learners with PI once per term, however his services are inadequate given the school population (HT3)**

From the response, the OT services are not adequate for learners with PI implying that they do not receive adequate OT services to help promote their academic performance. This conforms to a research by Smith, Weaver and Holland (2014) which revealed that there was need for OT services to promote academic performance such as handwriting and success. The following interview excerpt from an OT bears witness to the same:

**4.18. I do provide OT services whenever I come to school...the only problem is time allotted for the services...It is not easy for me to serve the whole school well just thrice a year (OT3)**

The interview excerpt indicates that the OT services provided to learners with PI are not adequate implying that they do not benefit from OT services. This conforms to a research by Nichole (2019) which revealed that there was need for OT services to help pupils achieve maximum ability and independence. From the FGDs with teachers, they also supported the findings that OT services for learners with PI are not adequate as follows:

**4.19. The OT services in this school are not adequate since he visits the school once every term and we have at least eight classrooms in the school with about 250 learners. If he has to play all his roles, it is not possible to serve all or most of these pupils (FG6).**

The response indicates that the school has inadequate services of OTs due to the limited time he spends in school hence poor access to OT services for learners with PI. This is in agreement with a study by Mwendwa (2010) which revealed that many of the essential rehabilitation services such as OT services have not been provided due to lack of human and material resources.

On appropriateness of accommodation, the study results indicate that whereas only 94 (34.6%) of the learners who took part in survey were in agreement that OT helps provide appropriate accommodations designed to enhance their

potential for learning, majority 190 (69.9%) of the respondents were of the contrary opinion. This was further reflected by average mean rating of 2.50 with a standard deviation of 1.37. This means that accommodations designed to enhance learners' potential for learning are not adequate. This finding conforms to a research by Mwendwa (2010) which found that many of the essential rehabilitation services such as OT services have not been provided by CPSK. The qualitative response by headteachers bears the same testimony as shown:

**4.20. Accommodations are provided to support learning, however there is need for adequate OT services to address this more effectively (HT6).**

The interview excerpt indicates that even though there are accommodations to support learning, they are inadequate. This implies that learners with PI do not get adequate accommodations designed to enhance their potential for learning. This conforms to a research by Suc, Bukovec and Karpljuk (2017) which revealed that schools for learners with special needs have limited access to OT services. The qualitative data from the OTs also agrees with the same findings as shown:

**4.21. I do try to provide appropriate accommodations that enhance learners' potential for learning each time I visit them; however, I spend very little time with them.... once a term. (OT6)**

From OTs' response, even though OT services help provide appropriate accommodations designed to enhance potential for learning, very little time is given for this. This conforms to an inquiry by Kithii (2016) which revealed that there was need for OT services. The teachers also supported the same findings as shown:

**4.22. The OT helps provide appropriate accommodations designed to enhance potential for learning, however, it is not adequate due to limited time the services are provide to learners. (FG6)**

The response indicates that pupils with PI are provided with appropriate accommodations designed to enhance potential for learning but this is inadequate. This conforms to a research by Smith, Weaver and Holland (2014) which revealed that there was need for OT services in the improvement of academic performance.

Equally, the study results reveal that majority of learners with PI have not been helped by OT in developing their functional performance skills needed to participate in and benefit from educational environment. This was reflected by an average mean response of 2.39 with a standard deviation of 1.33, with only 86 (31.6%) of the pupils accepting that through OT's help, they have developed their functional performance skills needed to participate in and benefit from educational environment. However, a significant majority of 195 translating to 71.7% of the surveyed learners with PI denied the researcher's assertion that OT has helped them acquire functional performance skills needed to participate in and benefit from educational environment.

This means that learners with PI are not being assisted by OT to acquire functional performance skills needed to participate in and benefit from educational environment. It can be argued that learners with PI do not access adequate OT services that should help them acquire functional performance skills needed to participate in and benefit from educational environment, and which is vital for their valued functioning. This finding concurs with the finding by Hammerlund (2015) which revealed that there was a great need for OTs in schools. The headteachers had this to say:

**4.23. Not all learners with PI have acquired functional performance skills needed to participate in and benefit from educational environment, this may be attributed to the fact that OT rarely visits the school. (HT5)**

The interview excerpt shows that the functional performance skills needed by pupils with PI to participate in and benefit from educational environment have not been acquired by learners since the OT rarely visits schools. This seems to suggest that if the OT can visit the school more often, then the pupils with PI would get adequate OT services. This conforms to a research by Hargreaves (2012) which revealed that OTs had limited access to school environment. The qualitative data from OTs bears testimony to this as follows:

**4.24. I do assist learners with PI to acquire functional performance skills that enable them to participate in and benefit from educational environment, however, due to limited time.... I can't say that it is adequate. (OT1)**

The qualitative response by OT indicates that the OT assists learners with PI acquire functional performance skills needed to participate in and benefit from educational environment but he rarely does this. This implies that most pupils with PI do not get adequate access to OT services that enable them to acquire functional performance skills needed to participate in and benefit from educational environment. This concurs with a research by Klerk, Buchenan and Pretorious (2016) which revealed that OTs are often faced with lack of adequate time as far as helping learners improve their success is concerned. The following interview excerpt shows teachers' response towards the same:

**4.25. Fewer learners have acquired functional performance skills needed to participate in and benefit from educational environment...there is need to improve OT services on this. (FG5)**

The response indicates that most pupils with PI have not acquired functional performance skills needed to participate in and benefit from educational environment. This is in line with a research by Stormboek and Uchana (2016) which established that there was need to strengthen OT services.

By the same token, this finding proves that most learners with PI in public primary special schools in Nyanza Region do not participate actively in learning environment as expected. This was confirmed by the fact that whereas only 56 (20.6%) and 48 (17.6%) of the pupils were in agreement and strong agreement, respectively, that OT has helped them to actively participate in the learning environment, a majority of the learners do not believe that OT have helped them to participate in the learning environment. This was reflected by 172 (63.2%) who negated the claim that pupils with PI get adequate help from OT to make them actively participate in the learning environment and an overall mean rating of 2.67 with a standard deviation of 1.46. This denotes that the OT services for learners with PI are not adequate to inspire in them active participation in the learning environment.

It can be argued that the role of OT in helping learners with PI to participate actively in the learning environment has not been played well, hence the need to ensure that they access OT services that focus on helping them to participate actively in the learning environment. This finding conforms to a study finding by Anderson (2016) which revealed that there was need for OT services which has the potential to influence academic outcomes. This was supported by the head teachers as shown:

**4.26. The OT helps learners with PI to participate actively in the learning environment but this is done on termly basis...I don't think this is enough to make a big change as such. (HT2)**

The interview excerpt from headteachers indicates that OTs rarely help pupils with PI to participate actively in the learning environment since these services are only provided once a term. It can be argued that OT offer services just thrice a year and this may not benefit majority of learners with PI given that some may also need individual attention. This is in agreement with a research by Smith, Weaver and Holland (2014) which revealed that there was need for OT services to promote academic performance. The following qualitative response by the OT also bears the same testimony:

**4.27. Whenever I visit the school, I address active participation of learners with PI in the learning environment, however, the time allocated for all these is not enough for me to ensure that pupils with PI actively participate in the learning environment. (OT1)**

The response indicates that, even though the OT helps learners with PI participate actively in the learning environment, the services are inadequate due to lack of appropriate time to enable learners with PI benefit from such services. This conforms to a research by Anderson (2016) which revealed that there was need for OT services which has the potential to influence academic outcome. The qualitative data from teachers in FGDs also indicated the need for more OT services as shown:

**4.28. If pupils with PI are to be helped fully to participate actively in the learning environment, more time of this is required with OT, otherwise, most learners with PI may not benefit from this. (FG6)**

The qualitative response by teachers indicates that majority of learners with PI do not benefit from OT services of being helped to participate actively in the learning environment. This seems to suggest that there is inadequate access to OT services by learners with PI as far as helping them to participate actively in the learning environment is concerned. This finding is however not in line with a research by Stormboek and Uchana (2016) which found that OTs are playing an important role in improving access to OT services. The differences in the results may have been attributed to the fact that different research approaches were employed, that is, the previous study used quantitative approach while the current study used mixed-methods approach which had an additional qualitative data whereby the researcher can collect more in-depth data.

Lastly, the data from the survey shows that most learners with PI feel that the OTs do not help them function independently in spite of the OT services purportedly offered to them. This was reflected by the majority of the respondents who strongly disagreed (84; 30.9%) and who disagreed (123; 45.2%) that OT helps them function independently. Only 75 (27.5%) of the PI pupils accepted that OT services has helped them to function independently, translating to a low rating of 2.37 (SD=1.33). This suggests that OT services has not helped majority of learners with PI to function independently, an indication that OT services provided in public primary schools to learners with PI is inadequate and not easily accessed by pupils. This finding agrees with a research by Kithii (2016) which established

that there was need for OT services to help learners with PI manage challenges and eventually learn to be independent. The head teachers also supports the same finding as follows:

**4.29. The OT helps pupils with PI function independently, however, learners with PI have not gained much of it from OT services due to limited time for OT services. (HT4)**

The response indicates that however much the OT has helped learners with PI to function independently, the OT services offered to learners is inadequate due to little time spent by OT with pupils. This conforms to an inquiry by Kithii (2016) which stated that there was need to increase more time spent by OT on OT services. The following qualitative shows OTs response the same:

**4.30. One of my goals is to help pupils with PI to function independently....in as much as I do this, not many learners with PI acquire these skills in time due to limited time I spend with them since most of them need individual attention. (OT3)**

The interview excerpt indicates that most learners do not access adequate OT services that focus on helping them to function independently. This conforms to a research by Slovenia, Suc, Bukore and Karpljuk (2017) which revealed that OT had limited access to school environment. On the same note, the qualitative findings from the teachers through FGDs also supported the same findings as shown:

*4.30.1. The OT helps pupils with PI to function independently though rarely. (FG1)*

The qualitative data from teachers indicates that the OT rarely helps learners with PI to function independently. It can be argued that pupils with PI do not access the OT services that focus on helping them to function independently. There is therefore need for schools for pupils with PI to ensure that all learners with PI access adequate OT services that help them function independently. This finding conforms to a research by Mwendwa (2010) which found that CPSK has not been able to provide many of the essential services such as OT services to its members such as children with PI.

*4.30.2. Hypothesis testing*

**H<sub>0</sub>:** There is no statistically significant relationship between access to OT services and academic performance of learners with PI in public primary special schools.

A Pearson Product Moment Correlation Coefficient was computed with scores on access to OT as independent variable and academic performance as dependent variable. The scores of independent variables (OT) were computed from frequencies of responses and by computing mean responses per respondents. Mean response across a set of questions of Likert scale responses in each item was computed to create an approximately continuous variable, within an open interval of 1 to5, that is suitable for the use parametric data, as explained by Sullivan and Artino (2013), where high scale ratings implied high perceived OT in public special schools of learners with PI. The overall academic performance was computed from the mean average scores of the learners in the three exams that were administered to them for term 2, 2019, term 3, 2019 and term 1, 2020.

The significant level (p-value) was set at .05, where, if the p-value is less than 0.05, the null hypothesis would be rejected and conclusion reached that a significant difference exists. However, if the p-value is larger than 0.05, it would be concluded that a significant difference does not exists. Table 3 shows the SPSS output correlation analysis results.

**Table 1** Relationship between Access to Occupational Therapy and Academic Performance

		<b>Academic Achievement</b>
Occupational therapy	Pearson Correlation	0.604**
	Sig. (2-tailed)	0.000
	N	292

The finding of the study shows that there was statistically significant positive correlation between OT and academic performance (n=292; r = .604; p<.05). Since p-value = 0.000 < 0.05, the null hypothesis was rejected. Therefore, it was concluded that there is statistically significant relationship between access to OT services and academic performance among learners with PI, with high level access to OT services and associated to improved academic performance and vice-versa. This implies that if the schools can have adequate access to OT services such as removing barriers in the

learning environment, then pupils may be able to achieve their valued functioning as well as having quality life hence better academic performance of learners with PI will improve (Oliver, 1983).

It can also be argued that the barriers in the learning environment which are not yet addressed due to poor access to OT services, may prevent pupils from attaining their valued functioning hence preventing them from achieving their maximum potential, that is, academic performance. There is therefore need for schools of pupils with PI to ensure that OT services are accessible to all learners. This is in line with a research by Lee (2018) which found out that positive relationship existed that can be used to guide educators in improving OT services to improve academic achievement. However, to estimate the level of influence of access to OT services on academic performance, a coefficient of determination was computed using regression analysis and the result was as shown in Table 4.

**Table 2** Model Summary on Regression Analysis of Access to Occupational Therapy Services on Academic Performance of Learners with PI

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Model	
1	0.604 <sup>a</sup>	0.365	0.362	16.7394	1	
Model	Sum of Squares	Df	Mean Square	F	Sig.	
1	Regression	46633.439	1	46633.439	166.425	0.000 <sup>b</sup>
	Residual	81260.206	290	280.208		
	Total	127893.646	291			

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	130.248	4.857		26.815	0.000	120.688	139.808
	Occupational therapy services	25.690	1.991	0.604	12.901	0.000	21.770	29.609

a. Dependent Variable: Academic Performance  
 $Y = \alpha + \beta_1x$   
 Academic Achievement = 130.248 + 25.690x

The model summary reveals that OT services explain 36.2%, as signified by *Adjusted R<sup>2</sup>* =0.362, of the variation in academic performance of learners with PI. This is a substantial influence on a dependent variable by one predictor. This seems to suggest that the more the access to OT services, the higher the academic performance of learners with PI, hence need for more OT services that would help in increased functional skills which would contribute to good academic performance. Also, table 4 shows the coefficients values of regression model of the influence of OT services on academic performance. From the model table, it is evident that the slope coefficient for OT services was 25.69, implying that academic achievement of learners with PI improves by 25.69 units for each one-unit improvement OT services among the learners with PI in public primary special schools.

Similarly, an improvement in OT services by one standard deviation is associated to improvement of academic achievement by .604 standard deviations. This implies that more access to OTs services to pupils with PI may have a positive relationship with their academic achievement. This is in line with a study by Brown (2019) which revealed that hours spent by OTs were found to be statistically significant predictors of academic performance. To investigate whether access to OT services was really a significant predictor to academic performance among the learners with PI in special schools, Analysis of Variance was conducted, in line with the recommendation by Bhandari (2020), as shown in Table 4.

From the ANOVA output, there exists enough evidence to conclude that the slope of the population’s regression line is not zero, meaning OT service is a significant predictor of academic achievement  $F(1, 290) = 166.425, p = 0.000 < 0.05$ ;

*Adjusted R*<sup>2</sup>=0.362. Therefore, it was concluded that there is statistically significant influence of OT services on academic performance. This implies that learners with PI who are exposed to adequate and accessible OT services are likely to record better academic performance. This agrees with an investigation by Brown (2019) which revealed that hours spent by OTs were found to be statistically significant predictors of academic performance. There is therefore need for adequate OT services in schools.

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## 5. Conclusion

It was established that; there was poor access to OT services for learners with PI. The qualitative data also established that there was poor access to OT services which made it difficult for pupils with PI to achieve their valued functioning. On establishing the relationship between access to OT services and academic performance, it was established that there was a statistically significant positive correlation between access to OT services and academic performance of learners with PI (n= 292; r= 0.604; P < 0.001) with high level access to OT services and associated to improved academic performance and vice versa. It was also established that when access to OT services is increased by one-unit, academic performance would improve by 24.943 marks. It was therefore concluded that, poor access to OT services for learners with PI in public primary special schools for pupils with PI in Nyanza Region contributes to their poor academic performance. Hence, access to OT services is an important aspect as far as academic performance of learners with PI is concerned.

### *Recommendations*

In line with the study findings that there is poor access to OT services for learners with PI, and that there is statistically significant positive relationship between access to OT services and academic performance of pupils with PI, there is need for government and stakeholders to employ more residential OTs in schools for learners with PI depending on the needs of pupils in the school. Also, OTs should improve OT services to pupils with PI by supporting teachers in class and through collaboration with teachers as well as giving short induction courses to teachers. This is also vital for attainment of learners' valued functioning and quality of life which would help promote their academic performance.

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## Compliance with ethical standards

### *Acknowledgment*

Acknowledging the work of other authors was done both in text and in references. The findings were reported exactly as the data indicated.

### *Statement of ethical approval*

Asking for permission from relevant authorities to conduct the research. Intellectual honesty was ensured by not cooking ideas or plagiarism. Pseudonyms were used for counties, schools and participants. Objectivity was ensured when collecting and analyzing the data.

The respondents were allowed to participate willingly and had the freedom to withdraw from participation at will.

### *Statement of informed consent*

Consent of the participants and parents was sought as well as assent of learners aged below 18 years

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